

Developing Speech and Language Skills

A resource book for teachers, teaching assistants
and speech and language therapists

by
Gwen
Lancaster



**PHONEME
FACTORY**

Developing Speech and Language Skills

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and speech and language therapists**

**Gwen
Lancaster**

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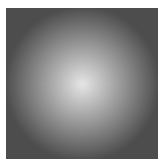
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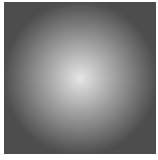
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Foreword

Children with speech sound disorders are one of the largest groups of children referred for speech and language therapy. Their problems are often associated later in life with literacy difficulties and with social problems. Yet intervention for children with speech and language impairments is often scarce and under pressure. This book is part of a package of resources designed to help teachers and therapists to work more efficiently, and creatively with these children. Teachers will find ideas to supplement the work provided by therapists. Therapists will find ideas and materials in here that will save them time and help them to support teachers and learning assistants.

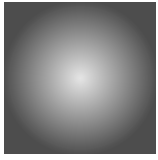
The book can be used as a stand-alone resource. However, it has been written as part of a package of inter-linked resources, including computer software. The Phoneme Factory software was developed as part of a research project at the Speech & Language Therapy Research Unit in Bristol, with Yvonne Wren in the lead, and we were delighted when Gwen agreed to author this book as part of the package. Her expertise with phonological disorders is well known, not least because of the success of her previous books of resources for working with phonological disorders. In this, her third book, Gwen provides a wealth of practical ideas for helping children develop their speech sound system. Her passion for her subject is apparent in the range of creative ideas she has for games and activities to interest and motivate children, both in one-to-one and group activities. Gwen has produced a book that brings together the theory and the practical activities; the straightforward explanations will help speech and language therapists communicate with teachers and vice versa, with clearly laid out rationales for the activities.

Professionals are always on the look-out for attractive and relevant resources to support them in their work. Full of ideas, practical suggestions set alongside the theoretical explanations, this book will support the novice and stimulate the expert. Used in conjunction with advice from a speech and language therapist and the Phoneme Factory software, the resources in this book can provide many hours of support activities for children with speech sound difficulties. Children and parents expect more these days and children's level of engagement with an activity can be increased where the materials are attractive and well-presented. With activities and worksheets available to print out from the CD, materials can easily be produced for a range of table-top activities. I am sure that this book will be welcomed by teachers and therapists as a valuable resource.

Sue Roulstone

Professor of Speech & Language Therapy, University of the West of England
Director, Speech & Language Therapy Research Unit, North Bristol NHS Trust

March 2007



Acknowledgements

Very many thanks are due to those who have supported this endeavour. Yvonne Wren has given a lot of her own time in helping to keep the book on the right track, and in editing and discussing the material throughout.

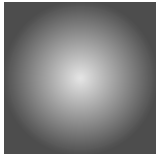
My colleagues in North Bristol NHS Trust have all been a great help. Special thanks to Gerry Buckley for her careful reading of the later drafts and encouragements, and for her enthusiasm in our co-work with children with speech impairments. Thanks to Esther Willetts and Margaret Webber for their comments on parts of the book. Others who have commented very helpfully from their different perspectives are Angela Hurd, Anne Lea and Kate Humphreys.

In a computer crisis the Morgans are invaluable. Thanks to John and Edward and also to George.

Carolyn Stewart has provided lovely cartoons and some of the materials that will no doubt be appreciated by adults and children alike. Some members of the Cat and Bear families that appear on the CD that accompanies this book were previously published by Winslow Press in Flynn, L. and Lancaster, G. (1986) *Children's Phonology Sourcebook*. Parts of Chapter 2 are also taken from that book.

Images on the CD bearing a © symbol are from *Phoneme Factory: Sound Sorter* CD-ROM available from SEMERC (www.semerc.com) and *Phoneme Factory: Phonology Screener* CD-ROM available from nferNelson (www.nfer-nelson.co.uk; www.granada-learning.com).

Thanks to those at David Fulton Publishers – past and present – who have seen this project through. I acknowledge Neil Lancaster and Judy Malone for many things, not least their moral support. And finally, this book would not have been written without Lesley Flynn (née Pope), whose influence is still out there, as many readers will notice. We miss you.



About Phoneme Factory

This book is part of the Phoneme Factory Project undertaken by Granada Learning in partnership with the Speech and Language Therapy Research Unit (SLTRU) in Bristol.

The project has resulted in a series of products that have been developed for use with children who have difficulties with developing speech. Many children in the early years of school continue to use immature patterns of speech or show an unusual pattern in their speech development. These children have no observable cause for their speech difficulty and are usually described as having a phonological impairment.

The Phoneme Factory series consists of *Phoneme Factory: Phonology Screener* (a computerised screening test), *Phoneme Factory: Sound Sorter* (an activity software program) and this book, *Phoneme Factory: Developing Speech and Language Skills*.

All three products are intended to support teachers and speech and language therapists (SLTs) in their work with children who have phonological impairments through providing interactive activities, ideas for table-top tasks and a means to identify appropriate programmes for individuals.

Also available

Phoneme Factory: Sound Sorter (Published by SEMERC)



Phoneme Factory: Sound Sorter consists of seven activities designed to develop children's listening and awareness of sounds in speech. A range of preset activities, which match commonly found difficulties in children's speech, could be used to develop phonological awareness. For example, a child may say 'tar' for 'car'. In many cases the child is able to copy the speech sounds when they hear them produced by an adult, but they are unable to use them in words and sentences.

Further settings are available for teachers and SLTs to address the less common speech patterns. The pictures used in the listening activities can be printed from the program and these are indexed according to the initial and final sounds and can be resized to suit requirements. The *Sound Sorter* tool can be used as a follow-up to the *Phonology Screener*.

Licence type	ISBN	Price
Single User	1406012726	£59
3 User Pack	1406012734	£99
5 User Pack	1406012742	£139
10 User Pack	1406012750	£199
20 User Pack	1406012769	£279
Site Pack	1406012777	£349

Phoneme Factory: Phonology Screener: Identifying phonological difficulties in the speech of 4–7 year olds (Published by nferNelson)

Authors: Yvonne Wren and Professor Sue Roulstone
 Suitable for: Teachers, SENCOs and teaching assistants
 Age range: 4 years 0 months to 7 years 11 months



The *Phoneme Factory: Phonology Screener* tests and diagnoses children suspected of having phonological impairment. It contains on-screen picture naming tasks that enable the user to assess a child's speech and record responses using a multiple choice response format.

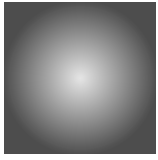
The *Phonology Screener* can be used with any child whose speech is causing concern in order to identify those who need referral to speech and language therapy. Suggestions for suitable interventions for children awaiting speech and language therapy are provided.

Benefits:

- Quick, easy to use screening assessment of children's speech
- Identifies children who need referral to speech and language therapy
- Touch-of-a-button report provides a summary that may be used in discussion with parents and SLTs

Licence type	ISBN	Price
Complete set (containing CD-ROM and User Guide)	0 7087 1629 6	£85 + VAT
User Guide	0 7087 1630 X	£49 + VAT

To order any of these products, please log on to www.onestopeducation.com



Introduction: Is this the resource I am looking for?

Teachers, teaching assistants and learning support assistants

This book and the accompanying CD aim to provide teachers, teaching assistants and learning support assistants with some background knowledge and resources to use with children who are difficult to understand because they have **unclear speech**. Many of these children will be receiving speech and language therapy services and may present with a range of difficulties. **Speech impairment** is the term used here and in the rest of the book to encompass children with a range of problems that can result in speech that is hard to understand.

The activities in this book are particularly designed for use with children with **phonological impairments**. Such children do not necessarily have difficulties with articulating sounds, but need help to develop the organisation of speech sounds in words. Many activities are therefore largely based on helping the child to develop listening and discrimination skills. Children need to learn about the subtle distinctions between similar sounding words, which they do not distinguish in their own speech productions; so words like 'fair' and 'pear', or 'snail' and 'nail', are spoken by the adult, and the child finds the picture or object named. See Chapter 6 for a full discussion.

Listening skills and phonological awareness

The materials may also help to enhance the listening skills of many other children in the class. On the CD, there are over a thousand pictures that include rhyming sets of words, and sets of words that could involve additions and deletions of consonants, that can be used as part of the phonological awareness curriculum.

Speech and language therapists (SLTs) and SLT assistants (SLTAs)

Speech and language therapists and assistants will find ideas, activities and resources that will be useful in their education-based work with children with speech impairments.

Collaborative working and information sharing

The book enables a collaborative approach as terminologies, information and intervention methods used by SLTs can be shared with school staff in a way that is accessible to those without such an in-depth training. Activities are explained clearly, and many of the resources needed can be printed from the CD. Some of the materials can be used with groups or in a whole-class situation, as part of the daily curriculum.

The Phoneme Factory series

This book is a stand-alone resource, but can be also be used to complement the other materials published in the Phoneme Factory series – the *Phonology Screener* (nferNelson) and *Sound Sorter* (SEMEREC) software programs (see www.onestopeducation.co.uk).

Navigating the book

The book is divided into two parts, with an accompanying CD.

Part 1 (Chapters 1–5): this provides background information for teaching staff about working with children with speech impairments.

Part 2 (Chapters 6–15): Chapter 6 provides specific information and activities to use to help children with phonological impairments. Chapters 7–14 cover typical error patterns, including listening activities. Chapter 15 ‘Generalisation and carryover’ describes how to help the child who can modify their speech patterns, but does not habitually do so.

The CD includes handouts and resources for use by teaching staff and parents and contains over a thousand pictures that can be used in the listening and discrimination activities described in Part 2. Generalisation and carryover activities for each of the error patterns can be also be printed from the CD.

Figures 1 and 2 summarise how to use this book.

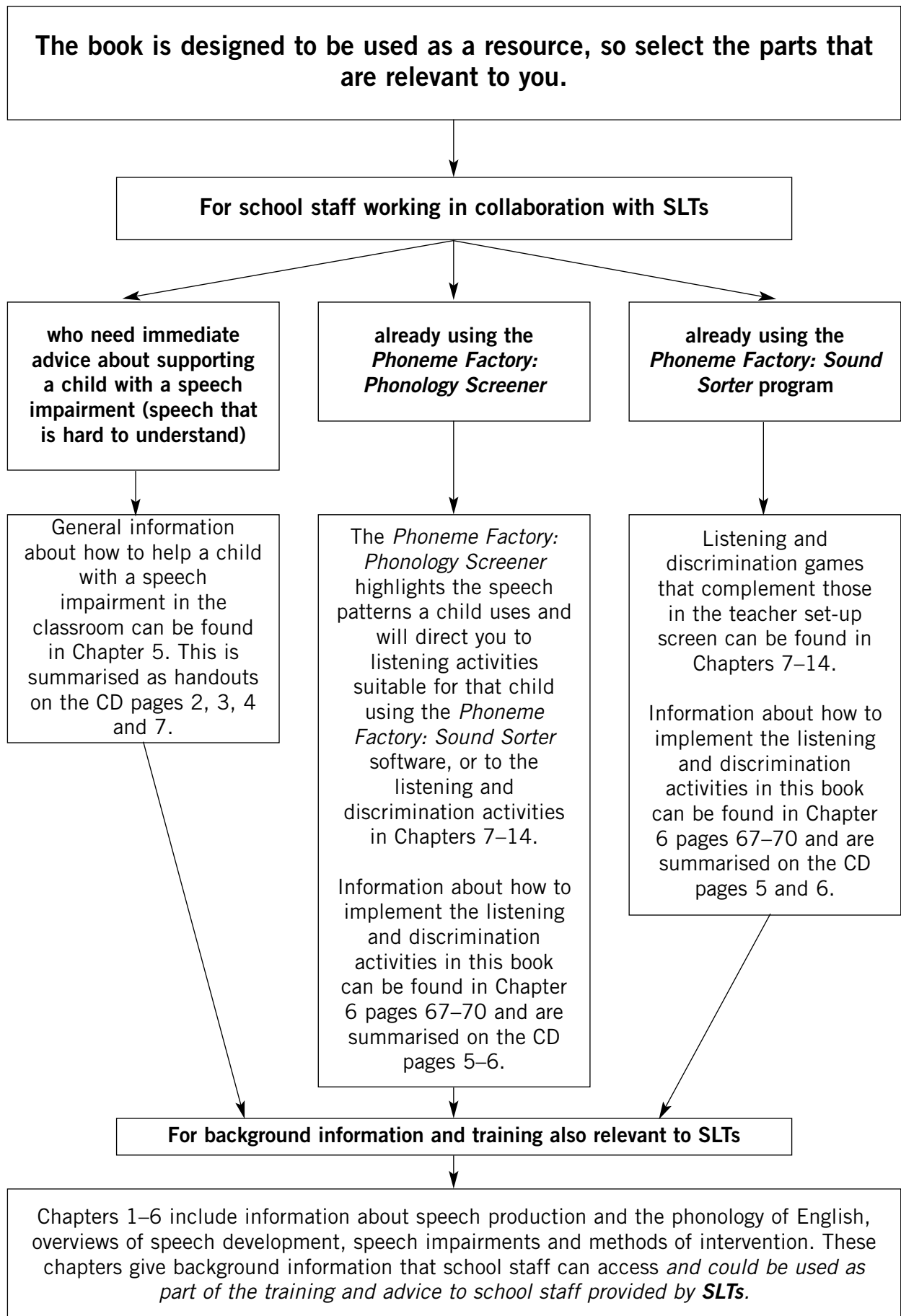


Figure 1 How to use this book for background information and training

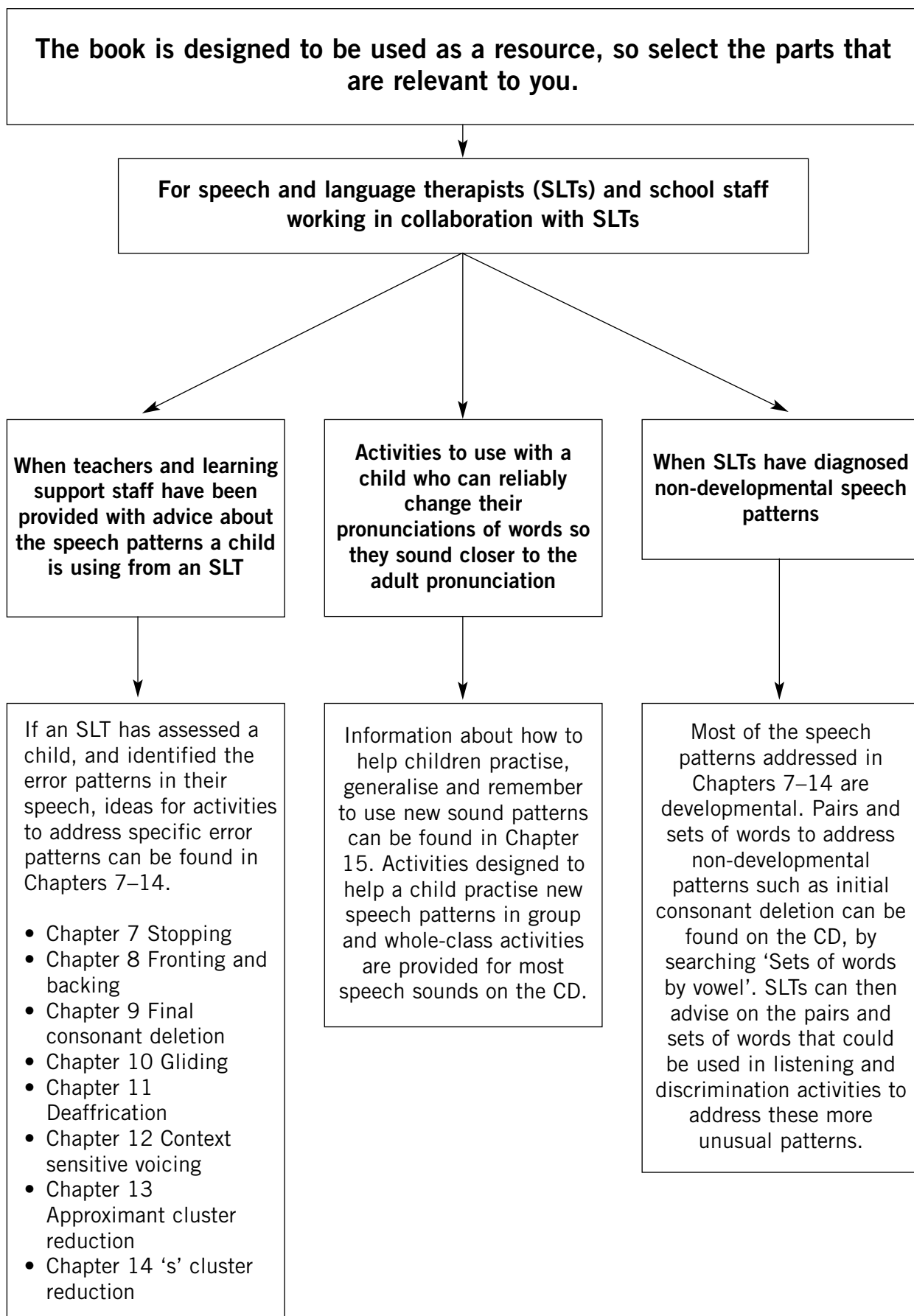


Figure 2 How to use this book to provide activities for children with phonological impairments

Questions frequently asked by teaching staff

When do I refer a child with unclear speech?

If parents and others who know a child well have difficulty with interpreting what the child is saying, referral is recommended. Further guidance about when to refer is provided in Chapter 4. Any child who is aged 5½ or older who has persistent speech difficulties should be referred.

How do I refer a child to speech and language therapy?

The SENCo will usually have referral forms. If not, contact the school nurse, or the paediatric speech and language therapy department in the area in which the school is based. The permission of the parent or carer is needed before a child is referred to speech and language therapy.

What causes speech impairments?

This is still not fully understood.

- In *some* children there is a strong family history of speech and language and reading difficulties, so for these children there is likely to be a genetic component.
- *Some* children may have suffered from intermittent hearing loss in infancy and early childhood, which might influence speech development.
- Children with a limited range of sounds in their babbling patterns are *sometimes* slow to develop speech.
- Children with delayed speech development may also have delayed language development. In these cases the child's overall development of speech and language is slow, so their speech patterns might be aligned with their level of language development. These children may need a language programme to help them progress.
- Environmental factors such as lack of stimulation can have an effect in delaying speech and language development, but the child will not usually have a severe speech impairment unless they have been extremely deprived or there are other influencing factors such as those above.

How can I help children when English is an additional language (EAL)?

Children are sometimes slower to develop language if reared with one or more languages in their environment, but usually they catch up. If they enter school with limited English most of them will pick up the language and be proficient within a year or so. If a child is hard to understand in English, they will need an assessment in

both/all languages to see if there is an underlying speech impairment. An interpreter who speaks the home language will be needed to help carry out an assessment, with an SLT.

The child's speech patterns are confusing me. Are they just lazy?

They can say the sounds on their own, when we practise letter–sound correspondence, but can't say the sounds in words

This child might have a phonological impairment. They can say the speech sounds, but are not yet using the sounds accurately in words. Their problem is not to do with articulating the sounds, but organising them in words. Most of the activities in this book and those on the *Phoneme Factory: Sound Sorter* program are based on working with words, not individual speech sounds because many children with speech problems have difficulty with the phonological organisation of sounds in words.

They can say sounds in some words but not others

Speech development is gradual and sounds might be produced at the beginning of a word, and not the end, or vice versa. In early development children often miss off sounds at the ends of words, but say them at the beginning of words. They might say 'beep' and 'bead' as 'bee', but can say 'pea' and 'do'. Later in development they might say 's' at the beginnings and ends of words like 'seven' and 'class', but miss them off in 's' clusters, like 'school' and 'stop'. In typical development such patterns are common. An overview of speech development is provided in Chapter 4.

So no, the child is not lazy, but does need help to develop their speech patterns.

What can I do about a child in my class who gets teased about their speech problem?

Implementing general school policies about teasing and bullying will help in this situation. In addition it can be helpful to openly discuss problems with communication with the whole class. Activities such as trying to say difficult or unfamiliar words, or recite tongue twisters, can increase awareness of problems with saying words accurately. This and other strategies are further explored in Chapter 5, page 61.

Does the speech problem affect reading and spelling abilities?

Children with speech impairments can develop reading and spelling problems for a number of reasons. Sometimes they are delayed in acquiring phonological awareness and some children will have specific problems with developing literacy. Information is provided in Chapter 1, page 19, Chapter 4, pages 51, 52; and Chapter 5, page 61.

It is difficult in class when I can't understand a child. Any tips?

There are ways to structure communications in whole-class situations which can help teaching staff predict what a child is likely to be trying to say. A number of ideas are provided in Chapter 5 to address this problem, and to deal with situations where the teacher really can't grasp what the child is saying.

Should I correct the child and if so how?

It depends. If the child can attempt to say a word more clearly, and you can then understand them better, then it can be helpful to encourage and correct them. If they can't revise their speech patterns yet, you might need to use the strategies described in Chapter 5.

Part 1

**Background information
about speech impaired
children and how to help
them in the classroom**

1

Working with children with speech impairments in schools

An introduction to the nature of speech impairments and how teaching staff and speech and language therapists (SLTs) can work together effectively

Introduction

Speaking and listening skills are fundamental to all types of social interaction, intrinsic to many leisure activities, necessary for most types of work and essential to all aspects of education. Given how important they are, these skills are still often taken for granted. We do not usually think about how we communicate. It is as instinctive as walking. This is because most of us acquired language as a natural part of development during childhood, and most of the children we teach have acquired these skills easily too.

It is estimated that about one in ten children have difficulties in acquiring speech and language skills, however, so in most schools there will be children who need help with the development of language skills. Of these children about one in six have difficulty with speaking intelligibly. Some are just like most other children in the class – keen to talk and with no other obvious problems, but it is hard to understand what they are saying. These children may benefit from the ideas and activities provided in this book and the associated Phoneme Factory software.

Speech and language and the National Curriculum

The ‘speaking and listening’ curriculum

Providing children with opportunities to develop their spoken language abilities is part of the National Curriculum in England and Wales. Spoken language is rightly viewed as a different domain from written language. Frameworks for questions, comments, discussion, reflection and the expression of emotion, opinions and needs are very different in spoken and written language. Children benefit from becoming aware of the various ways language is used orally, so that they can learn strategies for telling stories, presenting information clearly and interacting with different audiences.

The literacy curriculum

Learning to read and write an alphabetic script such as English depends on intact underlying speech and language skills. Children with speech impairments may be slower than their peer group in grasping the fundamentals that are part of the early literacy curriculum. The ability to think about the syllables and sounds in spoken words, as required in the literacy strategy at age four to five, may not be developed until much later in children with speech impairments, and they are therefore at risk of having literacy difficulties.

The broad curriculum

Children are expected to begin the Foundation stage of education with the ability to follow verbal instructions, and speak clearly. This is important because *all* aspects of the curriculum depend on children having the ability to understand and use language. Children who have difficulty making themselves understood are disadvantaged across the whole curriculum, not just in the speaking, listening and literacy components. The ability to speak intelligibly is also necessary as children develop relationships with peers through verbal interactions and co-operative play.

The social curriculum and wider context

There is evidence that children with speech, language and communication impairments are more likely to have psychological, behavioural and emotional problems. They tend to have lower self-esteem, and are perceived less favourably by their peers. This is the case even when difficulties are relatively mild. Several recent studies have shown that even when speech and language difficulties have apparently been resolved, a poorer performance in speech, language and literacy skills is sometimes still evident in adolescence and into adulthood.

What is a speech impairment?

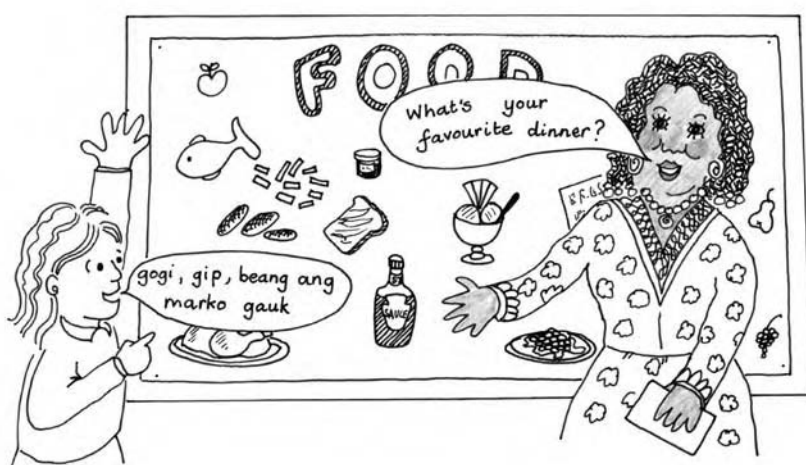
The child with a speech impairment is usually conspicuous because of the way he or she talks. Here are some examples. Just read the written words spoken by the child in the speech bubbles normally and you will probably get the message.



Ravi



Josh



Emily



Harry

Despite the lack of clear speech, it is possible to interpret what these children are saying and respond, because the adult has clues from the context. These include the expectation of what the child is likely to say, and the here-and-now situation. The adult has **contextual clues**.

When contextual clues are not available, it is much more difficult to understand these children as you can see in these illustrations.



'Kai kicked Jane' or
'Ty kicked Shane',
etc.

Ravi



'I saw a snake
and it hissed'

Josh



'House for my doll'

Emily



'With five candles!'

Harry



All four children

The nature of the difficulty

In all the above cases the children are substituting sounds and/or missing some sounds completely. These are usually not random substitutions or omissions, however. With careful analysis of the speech of these children, patterns can be found.

The first two children, Ravi and Josh, use developmental error patterns that are often found in younger children but not usually in those of school age. Children who persist in using such patterns have delayed phonological development. Developmental error patterns are described in Chapter 4.

The second two, Emily and Harry, use some patterns that are found in typically developing children, but they also use non-developmental error patterns, those not found in typically developing children. Children such as these are likely to need the advice of an SLT for speech assessment, diagnosis and planning intervention.

The phonological system

The acquisition of intelligible speech is not just about learning to say sounds. Children need to learn how sounds are organised in the language. The resources in this book are designed for use with children who have difficulty developing the complete system of sound contrasts that are needed to be intelligible speakers. The phonological system of English is described in detail in Chapter 2.

Articulation and phonological development

Some children with speech impairments do have difficulty with the actual articulation of speech sounds. These children will need additional help in learning how to produce the problem sounds. The resources in this book will help the child with listening and discrimination of problem sounds, but the guidance of an SLT will usually be required to help them produce the problem sounds.

Developmental dyspraxia of speech

A small minority of children have difficulty with planning and co-ordinating the movements of the tongue, lips and other speech organs. Again these children need additional resources to those provided in this book to help them develop intelligible speech.

Additional language and learning difficulties

Children like Ravi, Josh, Emily and Harry may or may not have other language and learning difficulties. The intelligibility difficulty may be the first thing that is noticed by teaching staff, but children with speech impairments often have other language problems, including delayed development of verbal understanding and expressive language. Monitoring these other skills is particularly important in this group. The Foundation stage profile can help to identify children with additional communication problems and learning needs until the end of the Reception year. Sometimes additional language problems in children who have speech impairments only emerge when children are in Key Stage 2 or 3, so it is recommended that monitoring of language skills is continued, and referral to a specialist language teacher or SLT is made if concerns about their progress are noted at a later stage.

The risk for literacy difficulties

Children with speech and language difficulties are, *as a group*, generally at risk of having literacy problems. Some children with early speech and language impairments develop phonological awareness, but they do this more slowly than their peers. They are delayed in development. These children might underachieve because they were not ready to learn when the necessary teaching was available. They are not fundamentally at risk of reading difficulties, but the teaching they need has bypassed them. These children are likely to need specific intervention packages as part of the Literacy Strategy guidelines produced by the Department for Education and Skills (DfES 2002).

Other children with speech impairments who are likely to be at risk can potentially be identified earlier. These include children who have non-developmental error patterns such as Emily and Harry.

For more information about typical development of speech and definitions of speech impairments, see Chapter 4.

Teaching staff and speech and language therapists working together

Children with speech and language impairments can be helped to develop most effectively when teaching staff and SLTs work collaboratively. The DfES (2001) *Code of Practice for Special Educational Needs* and the Royal College of Speech and Language Therapists' (RCSLT 2006) guidelines for service delivery to education both recommend collaborative practice. References to current legislation, curriculum advice and RCSLT guidelines are provided in the bibliography.

Special educational needs (SEN)

Children with speech impairments have a special educational need because they have limited access to parts of the curriculum. They may need specific interventions to address their speech impairment and are likely to be at the School Action or School Action Plus level of special educational need. Those with severe impairments may have a statement of SEN.

Individual education plan (IEP)

The individual education plan can provide a focus for joint goal setting and planning intervention. Activities that might help the child achieve IEP targets for speech development can be identified in the Phoneme Factory series. Suggestions for IEP targets that can be addressed using these resources are provided on the CD.

Helping the child within the classroom

Children with speech impairments may need specific interventions that can be carried out individually or in small groups. Activities of this type can be found in Chapters 7–14. Some of their needs can be addressed within the whole-class situation as part of the daily curriculum, however. Chapter 5 provides resources and materials that are designed for use within the classroom as part of the daily curriculum. These are summarised as handouts on the CD. When a child is able to revise their speech patterns and become more intelligible, they may benefit from the use of the generalisation and carryover ideas provided in Chapter 15.

Terminology

In the next chapter, the phonological system of English is described. This includes information about terms frequently used by SLTs. Some of this terminology is then used in later chapters.

At the end of the book is a glossary of terms.

2

How we produce speech sounds and the organisation of sounds in language

Practical guidance about how speech is produced and the phonology of a language – the organisation and classification of speech sounds

Introduction

In order to help children who are difficult to understand, some information about how we articulate sounds, and the classification and organisation of sounds in English, is needed. Speaking clearly is something so natural and automatic for most of us that we do not think about it. It is out of our conscious awareness, like the actions of our bodies when we ride a bike, or the movements of the arms and fingers in a competent touch typist.

The purpose of this chapter is to make us more aware of our own speech. This will help us understand that the problems commonly found in children with speech impairments are not usually just to do with a problem in pronouncing a particular speech sound. Children gradually learn to articulate the whole range of speech sounds but they also have to learn how these sounds are organised in the language. The organisation of speech sounds is the phonological system of a language. Children with phonological impairments have difficulties with this aspect of learning to speak clearly.

As you read the following sections, it will be helpful to do the exercises – these are always in boxes – and produce the speech sounds as they are described, so that you think about your own speech in a new way. There may be surprises in store.

Articulation: the mechanics and movements of the mouth and other parts of the body used when we speak

How do we produce speech?

Speech sounds are created through a complex system of movements in the vocal tract, which stretches from the lungs up through the larynx (voice box), mouth and nose. Figure 2.1 shows a cross-section of the head and neck with the organs of speech labelled. The starting point for speech is the airstream produced by breathing out from the lungs. We take in more air when talking than when at rest, and the louder we talk the more air we use.

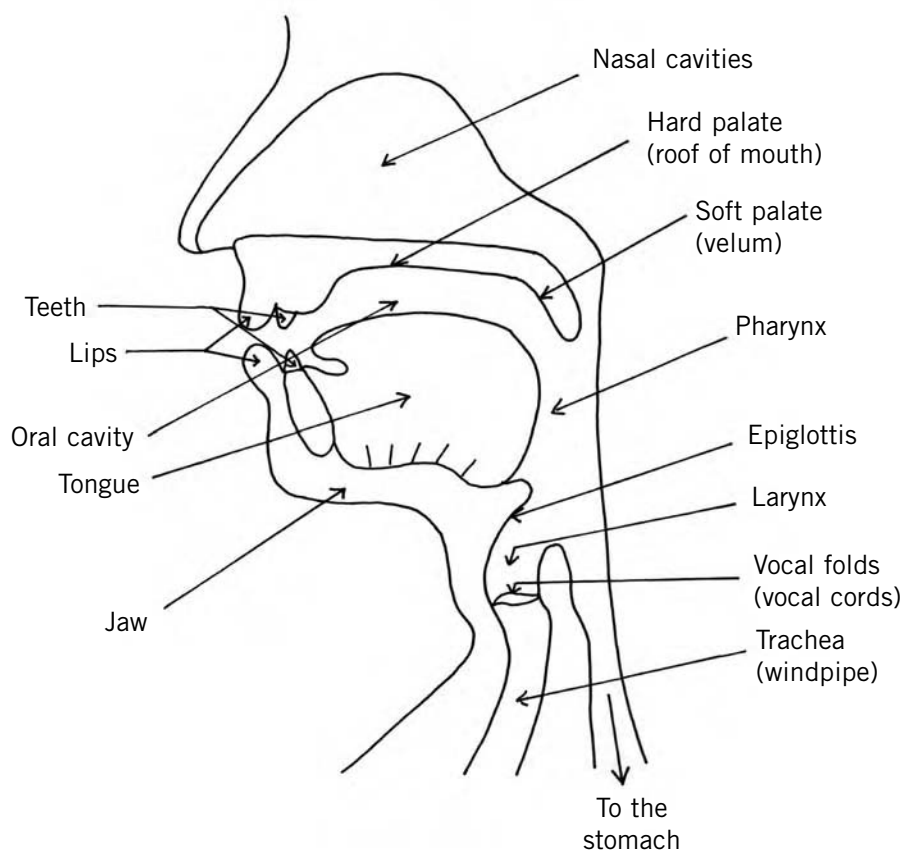


Figure 2.1 Cross-section of head and neck showing the organs of speech

Voice

Air passes from the lungs through the trachea (windpipe) in which the larynx is situated. The larynx contains the vocal folds (vocal cords). These are open when we are breathing and can shut when we cough. During production of many speech sounds they vibrate, which produces voice.

The vibration can be felt by touching your 'Adam's apple' – which is part of the larynx – as you say 'aaah'. Say a long 'sss' and then a long 'zzz', and notice that the vibrations only occur when you say the 'zzz'.

Some speech sounds are produced with vibration of the vocal folds or 'voice' such as the consonants 'b', 'd', 'z', 'j' and 'm' and some are voiceless such as 'p', 't', 's', 'f' and 'ch'. The vowels are all voiced.

Articulation

The larynx, pharyngeal cavity, hard palate (roof of mouth), soft palate or velum, jaw, lips, teeth and especially the tongue are all involved in creating speech sounds, and are known as the organs of speech.

Think about the movements of the organs of speech as you slowly say: 'The caterpillar is crawling over my foot.'

Vowels and consonants

Vowels are produced by altering the size and shape of the oral cavity (mouth) through movements of the tongue and lips, as the vocal folds vibrate. Consonants are produced when airflow is blocked or constricted in the mouth.

Larynx (voice box)

The vocal folds produce the vibrations that make the main noise in speech. The larynx is also the source for one other sound that is common in English. Think of the cockney way of saying 'bottle' or 'water'. The middle sound is a 'glottal stop'. Many English speakers use this sound instead of a 't' in the middle and at the end of words.

Say 'not a lot' in a normal way, using fast speech. Now say it carefully and listen to the difference in the 't' sounds. You will probably notice that the glottal stop is a sound you tend to use if speaking fast.

Children commonly use the glottal stop, and children with slow speech development may use it in place of many different consonants, not just the 't'.

Lips and tongue

We are more aware of some articulators than others. The lips and tongue are involved in the production of many sounds.

Think about your lips moving as you say these words: bee, mop, wash.

Different parts of the tongue are used to make different sounds. The tongue tip for 's', 't', 'l' and 'n', for example, the middle (or blade) of the tongue for 'y', and the back for 'k', 'g' and 'ng'.

Teeth and palate

Other articulators are less obvious to us as we talk. These include the teeth and palate (roof of the mouth). We don't move our teeth in speech production but we move the jaw to put the teeth into position. The teeth are involved when we say 'fff' and 'vvv'. They are also used to make the 'th' sound.

The palate is very important for making speech sounds. We have already noticed that the tongue touches the roof of the mouth at different points for different consonants.

Concentrate on the points at which the tongue touches the palate this time as you say 't', 's', 'r', 'n', then 'y', then 'k', 'g', 'ng'. You will notice that the points of contact are further back on the palate for each of the three sound types.

The palate is in two parts. The hard palate is made of bone, and doesn't move. The soft palate is made of muscle and moves during speech.

Feel the palate with your tongue or finger. Right behind the top front teeth is a ridge known as the alveolar ridge.

Many speech sounds are made through the tongue tip making contact with this ridge.

By feeling with a finger or looking in a mirror you can notice the change from the hard to soft palate towards the back of the mouth. You can see the soft palate move if you look in the mirror and say 'ah'. The soft palate closes the nasal cavity off from the mouth. This is necessary for eating and drinking and for speech. The sounds 'm', 'n', and 'ng' however, require air to pass through the nose, so the soft palate is not raised when these sounds are spoken. Close your mouth and say 'mmm'. You can hear the vibration in the nasal cavity and feel the air passing out of the nose.

It is important to remember that *many* children with speech impairments do not have anything wrong with the vocal tract. They need to learn the organisation of sounds in the language, not to learn how to physically produce sounds.

The organisation of speech sounds to create a phonological system

The phonology of a language is the system of sounds in the language, and how the sounds combine.

Each language varies in the number and types of sounds it contains, and in the way they are combined. Japanese, for example, has no 'r' sound, and French and German have no 'th' sound, so some French and German speakers of English pronounce the beginning of words like 'think', and 'this' with an 's' or 'z' sound. Likewise, English speakers have trouble producing some of the unfamiliar sounds of Japanese and German.

We can identify all the consonants of English from the ten words listed below. Say the words aloud and listen to the sounds you produce, rather than being distracted by the written form. Identify the sounds phonically (so 'p' is not 'pee' but 'p', and 's' is not 'es' but 'sss'). (You can get help with this exercise on the next page.)

buttercup	measuring	you	dish	lazy
thief	this	watch	hedge	given

There are rules about where some sounds can occur in words. Some sounds can only occur in certain word positions. For example, the sound 'ng' as in 'spring' can only occur within or at the end of words in English. In other languages 'ng' *does* begin words. The sound 'h' occurs only at the beginning of words or syllables (e.g. **h**ave, and be**h**ave) and 'zh' (as in 'treasure') only occurs within words, apart from a few borrowed from French where we say the sound at the beginning of a word (e.g. genre) or the end (e.g. rouge).

There are also rules about how consonants can combine. The letters that are used to write words do not always correspond to the sounds we produce when we say words.

In English no more than three consonant sounds can combine at the beginning of a word, and then the first sound can only be an 's' (e.g. **s**pring, **s**cream). Up to four consonants can occur at the end of a word, however.

Say 'twel**ffths**' and 'tek**sts**' to yourself and count the number of different sounds you actually say at the end of each word.

The written form is misleading (twel**.f.th.s**; tek**.s.t.s**).

In most accents of English there are 24 consonants and about 22 vowels.

The consonants of English

The 24 consonants of English are classified in Table 2.1. The 'glottal stop' is not included in the ten-word list.

b uttercup	m easuring	y ou	d ish	l azy
t hief	t his	w atch	h edge	g iven

The letters (or groups of letters) in bold type correspond to different sounds. The spelling is misleading, since, for example, the 's' in 'measuring' and the 's' in 'this' are different sounds. The sounds 'ch' and 'j' have a number of different written forms, but a single pronunciation (e.g. 'gaol', 'judge'). Double consonants (as in 'butter' or 'miss') are not pronounced differently to the single consonants.

Table 2.1 The consonants of English

	Nasals	Plosives (stops)	Fricatives	Affricates	Approximants
Bilabial	m	p, b			w
Labiodental			f, v		
Dental			th, <u>th</u>		
Alveolar	n	t, d	s, z		r, l
Palatoalveolar			sh, zh	ch, j	
Palatal					y
Velar	ng	k, g			
Glottal		ʔ	h		

Note: th as in 'the' is voiced, and th as in 'thin' is voiceless.

Classification of speech sounds

The sounds of languages can be classified on a number of dimensions.

You can discover the classification method by saying the groups of sounds and working out what they have in common. Grouping occurs on both the horizontal and the vertical dimensions of Table 2.1. Say the sounds across the first row and decide what the sounds have in common. Do the same for the columns. Definitions are provided below and it is helpful to make the sounds as you think about these descriptions.

Manner of articulation

Differences across each row are in the dimension of '**manner**' of **articulation**, or how the sounds are formed. The airflow is directed or altered to produce different classes of sound.

Nasals: Air is released through the nasal cavity. The soft palate is lowered to allow the air to escape through the nose. For all other sounds the soft palate is raised, to prevent nasal escape of air.

Stops: Here there is a blocking of the airflow followed by an abrupt release, which results in an explosive sound.

Fricatives: The articulators come very close together at some point in the oral cavity so that air is forced at speed through a small space resulting in audible friction.

Affricates: These are produced when complete blocking of the airflow, as for the plosives (stops), is followed by release through a narrow space like the fricatives.

Approximants: The articulators approach contact but are not so close that friction is produced. These sounds are usually produced with vibration of the vocal folds (voicing).

Place of articulation

Differences down each column are along the dimension of ‘**place**’ of **articulation** or the position in the mouth where the articulators (such as the lips, or tongue tip and palate) make contact, or move close together.

Bilabial: These sounds involve the lips as the articulators.

Labiodental: The bottom lip is in contact with the upper teeth.

Dental: The tongue tip is in contact with the upper teeth.

Alveolar: The tongue tip is in contact with – or close to – the alveolar ridge, on the roof of the mouth, which is behind the upper teeth (see Figure 2.1 above).

Palatoalveolar: The blade – or middle – of the tongue is in contact with – or close to – the region just behind the alveolar ridge.

Palatal: The blade of the tongue is in contact with – or close to – the hard palate (roof of mouth).

Velar: The back of the tongue contacts or is close to the soft palate.

Glottal: The vocal cords are the articulators. For example, a glottal stop is produced when the vocal cords close to block the airflow from the lungs, and then abruptly come apart to release the flow of air.

Voicing

A third dimension (**voicing**) relates to whether or not the vocal cords vibrate in the production of a sound. When they do vibrate, the sound is voiced, and when they do not, the sound is voiceless. When two sounds are in the same cell in Table 2.1, they differ only in the dimension of voicing, with voiceless sounds listed first.

Combining consonants

Most of the sound classes combine with each other so that many words of English have two or more consonants occurring together (e.g. **stamp**, **trunk**, **flask**). These are referred to as ‘clusters’ in spoken language. In English there are about a hundred different sequences of consonants, and these tend to be acquired later in development than most single consonants.

The phoneme

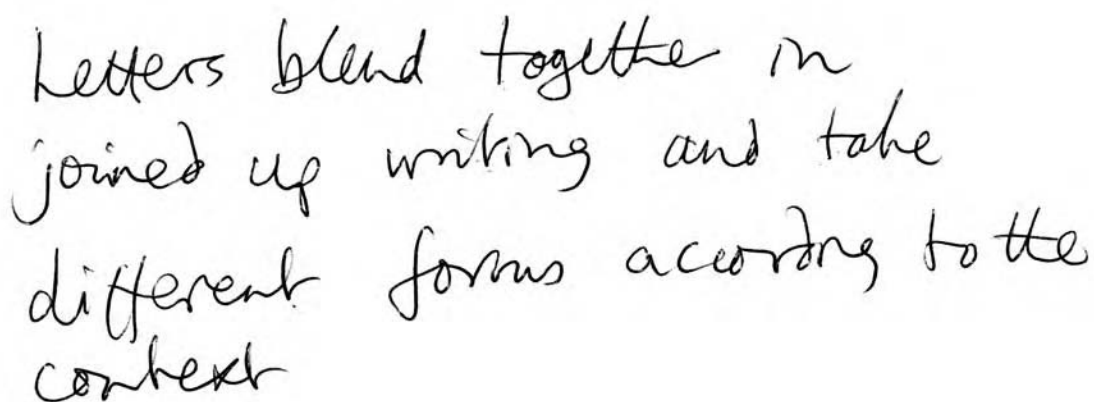
As noted above, the phonology of a language is the system of sounds in the language, and how the sounds combine. The ‘phonemes’ of the language are the smallest units that interchange or combine with each other to signal a change in the meaning of a word. For example, in English the vowels ‘ah’ and ‘ee’ and consonants ‘k’ and ‘t’ can replace each other to create different words. Changing the vowel results in these different word pairs: **car** vs **key**, **tar** vs **tea**, **ark** vs **eek** and **art** vs **eat**. The consonant changes result in different meaning in these pairs: **car** vs **tar**, **key** vs **tea**, **art** vs **ark** and **eek** vs **eat**.

If we didn’t have one of the contrastive sounds, ‘ah’ and ‘ee’ or ‘k’ and ‘t’ in our phonological system, some of the pairs of words would sound the same and we could be misunderstood. Without the ‘k’, the words **key** and **tea** would both sound like ‘tea’; ‘**car**’ and ‘**tar**’ would both sound like ‘tar’, and so on. Word pairs such as these are referred to as **minimal pairs**.

To extend this idea, if we refer back to the examples above, we can also add the sounds ‘k’ and ‘t’ to the beginnings or ends of some of the words to create different word pairs that have different meanings: **car** vs **cart**, **tar** vs **tart**, **tea** vs **teat**, **eat** vs **teat** and **tree** vs **treat**. Word pairs such as these are referred to as ‘**near**’ **minimal pairs**.

The phoneme and actual speech

Phonemes are an abstract ‘idealised’ unit. One way to think about phonemes is analogous to the way letters are written in rapid handwriting. We all recognise an ideal ‘printed’ ‘t’. However, in the example of handwritten script in Figure 2.2, there are no ‘t’s that look like that.



Letters blend together in
joined up writing and take
different forms according to the
context

Figure 2.2 Example of handwritten script

You can recognise 11 written letter 't's in the sample in Figure 2.2. There are no 'idealised' versions, and the formation of the letter varies considerably. You can see patterns, however, and note that the way the letter is formed at the beginnings of the words 'together', and 'take' is similar, as it is at the ends of 'different' and 'context'. The 'th' combinations are also similar in 'the' and 'together'. You can see both considerable variation, and predictable patterns that depend on the context.

To get back to speech and phonemes, the phoneme 't' is recognised by speakers of English as being part of the phonological system, but is an abstract concept. The pronunciation of 't' in words varies according to contextual effects, such as the surrounding sounds and position in the words, and our accent.

Listen to yourself carefully as you say the following in a normal way: **tar**, **star**, **management**, **costume**, **cutthroat**. You might notice differences in how you actually produced the 't' sound.

When we say 'tar' there is a tiny puff of air after the 't' sound, which you don't hear in the word 'star'. In 'management', the 't' might be a glottal stop, but if not it is barely audible. In 'costume' you might hear yourself saying a sound that is closer to 'ch', and in 'cutthroat', your tongue is touching the teeth, rather than the alveolar ridge. These ways of saying 't' are known as the **allophones** of 't'. There are many others, and each consonant and vowel has a range of allophones.

What are the implications for helping children with speech impairments?

This is important when thinking about how to help children with speech impairments. Any speech sound in a word is produced in relation to the other sounds in the word and other words surrounding it. The activities in Chapters 7–14 are designed to help children distinguish pairs of words that do or do not include the speech sounds they have difficulty with. They are all *listening activities*, so we don't expect the child to say the words themselves. Learning to distinguish and hear patterns in speech develops long before children actually start talking and is discussed further in Chapter 3.

Speech production as discussed here is only half the story. This chapter has given some information about the phonology of English, and drawn attention to some of the aspects of speech production that are outside our usual awareness. The other side of the story is about listening and understanding the speech of others which is also automatic for most of us. The next chapter explores this area.

3

How we perceive speech

An exploration of how we perceive speech and the development of speech perception in typically developing children and those with speech impairments

How we actually speak

It is natural to those of us who can read an alphabetic script to think of spoken language in the same way that we view written language. In written language there are words with spaces in between. Sentences are bounded by a capital letter at the beginning and a full stop at the end. Phrases are marked by punctuation, and sounds are also clearly demarcated by different shaped letters. We think of spoken language in a similar way. It seems to us that sounds in words are discrete units produced in a specific order. But this is not so.

In speech there are no clear boundaries between sentences, words or sounds. Here are some examples in a real telephone conversation adapted from Local and Walker (2002). The square brackets indicate overlapping talk in conversation, which happens often. Full stops indicate pauses, and colons within words indicate the lengthening of the sounds within words.

Ava: hh 'T's only f.f.fty minutes anyway...

Ava: [A:nd uh,

Bee: [.hh W'l I'll see. hhYih[know

Ava: [Maybe if yih come down I'll take the car then.

Bee: t! We:ll, uhd-yihknow I-I don' wanna make any..thing definite because I..yihknow I jis.. I jis..t thinkin:g tihday all day riding on th'trai:ns hhuh-uh hh [h!

Ava: [Well there's nothing else t'do.I I wz thingin [g of taking the car anyway.]
.hh

Bee: [that I would go into the ss-uh]-I would go into the city but I don't know

Real talk

This is real talk and it bears little resemblance to what might be written dialogue in a novel, for example. There are examples of sentences that are incomplete and sometimes ungrammatical. There are hesitations, repetitions and interruptions in anticipation of what might be said. Even so, the speakers are communicating their messages and interacting without difficulty.

The merging of sounds in words and utterances

The sample above doesn't even tell the whole story about how we really speak, because the utterances are written in conventional writing – orthographic script – for the most part, so we don't get the sense of how, in fact, the gaps between words are often an illusion. In addition these speakers will actually have missed out or merged sounds and syllables. Bee's last comment, 'I would go into the city, but I don't know', might have sounded more like 'ughgointuhuhcitybudeyedunno'.

If we ask a question such as, 'Shall I get some more?', it actually sounds more like 'shlygesmore?' Similarly, 'wojuwan?' is interpreted easily when spoken as 'What do you want?' as is 'monlytrinersplainichew' – 'I'm only trying to explain it to you'. If spoken the message is clear. But we need the orthographic script if we are to translate and understand the spoken version by reading it.

It might seem odd that we can understand each other when the message seems so contorted, but this is obviously not a problem when we speak to each other. Merging of sounds in speech is normal. What is interesting is that we are largely unaware of what we are doing when we speak unless it is pointed out. How we actually speak is an automatic process.

Say these phrases in normal speech and reflect on how you pronounce 'and':

tea and biscuits

tea and toast

tea and cake.

If you said the phrases normally you would hear the 'and' as different in all three. Something like 'tea m biscuits', 'tea n toast' and 'tea ng cake'. The 'and' is both shortened and anticipates the sound that follows it. This phenomenon is frequent in speech. Grammatical words, like 'and', 'the', 'this' and 'I'm' are commonly reduced or influenced by upcoming sounds in words. The fact of this anticipation is one way we can tell that speech is not a string of sounds. A sound that occurs later in an utterance influences a sound that comes earlier. It's not a matter of starting at the beginning of a word or utterance and saying the sounds in sequence.

Here are more examples. Some of these anticipations occur in vocabulary or lexical items as well as those that convey grammatical information.

Say these phrases aloud:

‘ripe pear’ and ‘right pair’

‘neck cord’ and ‘net cord’

‘hutch should’ and ‘hut should’.

In normal speech each of the phrases sound almost the same. In each case the way the ‘t’ in ‘right’, ‘net’ and ‘hut’ is influenced by the *following* sound, so it becomes similar to it.

This type of anticipation occurs within words too, as we saw in Chapter 2, page 29, in relation to the differences in how ‘t’ was articulated in words like ‘costume’ and ‘cutthroat’. This is not an isolated phenomenon, but is pervasive, and helps us to understand each other.

Understanding the speech of others

Our understanding of speech is extremely rapid, and we identify words in context 200 milliseconds after they begin (Harley 2001: 220). We are helped to do this by the fact that information about the next sounds in words is already being conveyed in preceding sounds. For example, in words beginning with ‘p’, like ‘peel’, ‘pull’, ‘pour’, ‘pair’, the way the ‘p’ is produced is influenced by the following vowel, so each ‘p’ is subtly different. In words like ‘bean’, ‘beat’, ‘bead’, the vowel sound ‘ea’ is influenced by the following consonant, so we can already anticipate what that consonant is before hearing the end of the word.

Listen to yourself as you say each of the words ‘bean’, ‘beat’ and ‘bead’. You can hear that the vowel (the ‘ea’ part of the word) sounds a bit different in each word. To highlight this say the words, but without actually articulating the final consonant: say ‘bea’ three times but with each different word in your mind as you say it.

When we say ‘bean’ the vowel has a nasal quality – that means there is anticipation of the nasal sound (‘n’) at the end of the word. When a voiceless consonant is produced – as in ‘beat’ – the vowel is shorter than when a voiced consonant is produced – as in ‘bead’.

How our ability to read misleads us

Because of this merging of sounds in words, no *specific* characteristics of any individual speech sound have been identified in the flow of speech. We might think we hear a sequence of individual sounds when we hear a word, but we do not. We hear sounds merged together. Dorothy Bishop describes it as less like ‘beads on a string’ and more like ‘jelly babies that are threaded on a string and then heated in an oven, so that adjacent items merge’ (Bishop 1997: 9). The ‘beads on a string’ concept arises because that is how we read and write; but it is not how we perceive or produce speech.

What are the implications for the child with a speech impairment?

When helping children to develop speech, we need to focus on whole words as much as possible. *The child needs to hear all the information in a word: all the information that is merged together.* The activities in Chapters 7–14 are based on helping children to discriminate words, not individual sounds or ‘beads on a string’.

The tip of the iceberg

We use multiple strategies when understanding speech, including use of higher level context such as anticipating what a person is likely to say before they have even finished their ... In this short discussion we have only thought about an issue that is particularly relevant for the purposes of this book. Here is one interesting example of how context influences our judgement of what we hear and shows how automatically we process language. In an experiment with adults, the first sound in a word was obscured by a cough (marked as *). The participants listened to sentences as follows:

‘It was found that the *eel was on the orange.’

‘It was found that the *eel was on the axle.’

‘It was found that the *eel was on the shoe.’

‘It was found that the *eel was on the table.’

The participants interpreted the *eel word as ‘peel’, ‘wheel’, ‘heel’ and ‘meal’ respectively (Warren and Warren 1970). Context, in this case the last word in the sentence, provided the clue. In experiments such as these the participants will also claim that they *heard* the obscured sound! Further reading on such topics can be found in the bibliography.

The development of speech perception in children**The first year (<0–12 months)**

The human ear is fully formed and functioning by about 28 weeks gestation, so the foetus can hear sounds in the environment well before birth. It takes over a year of exposure to language before children attempt to say words but infants acquire a great deal of information about their native language in the first year of life.

Between four and six months infants can match a mouth shape to a vowel sound. If they see the mouth shape for ‘oo’ but hear the sound ‘ee’ they are not as interested as when they see ‘oo’ and hear ‘oo’ at the same time. Before six months they show no preference for listening to their native language over another similarly structured language. One comparison, for example, has been made with infants whose native

language is either Dutch or English. Infants up to six months old will be equally interested in listening to lists of words spoken in Dutch or English. However, at about nine months infants listen significantly longer to lists of words in their native language. These and a great many other experiments show that infants gradually learn to distinguish sounds and to isolate words from the stream of speech sounds they hear when people are talking. Understanding what those words mean develops a bit later.

The ability to recognise words starts at about seven months, and the ability to store the sound pattern for frequently heard words is developing from about this age. At about 10–12 months the child can demonstrate understanding of words in context such as their name, ‘no’ and ‘bye’. At the same time they become more like mature listeners, in that they no longer discriminate sounds that are not heard in their native language. Their speech perception skills have been finely tuned so that they focus on relevant bits of information about their own native language or languages, and ignore information that is less important. For more information on the development of speech perception see Jusczyk and Luce (2002).

The second year: learning to understand and discriminate words

The next stage of acquisition is the learning to recognise words. Earlier in life babies were learning about the sounds of the language, and all sorts of other things about how the language is put together, such as the rhythm, stress patterns and the likelihood of hearing various combinations of sounds. Now they need to put together a sound pattern of a word *and* a meaning.

Although babies can discriminate sounds that are phonemes in the language, toddlers appear to use a different strategy when they first learn words. They appear to attend to whole words and syllables, but do not necessarily pay attention to subtle differences in words that are minimal pairs, for example, unless these words are *already* very familiar to them. For example, Fennell and Werker (2003) found that children aged 14 months did not distinguish new words (in this case the nonsense words ‘dih’ and ‘bih’) even after they had heard them over 100 times, but did distinguish the words ‘ball’ and ‘doll’ which were minimal pairs in their Canadian accent, and were words that they had heard frequently since infancy. This strategy of attending to whole words is also recognised in how children *produce* words at the early stages of development.

The third year and older

It is relatively easy to create a developmental sequence for the acquisition of speech sounds and patterns, because we have the spoken words and utterances of young children that can be written down and analysed. Finding out about how toddlers and young children perceive speech and how they develop the ability to distinguish between words is much more difficult. This is only now becoming researched in a systematic and reliable way, because of the difficulties of designing tasks that are at the

right level. Just a few of the problems are that toddlers and young children are distractible, have short attention spans and will co-operate for limited amounts of time with repetitive tasks.

The subtleties of speech perception

In addition to these problems, finding out about the development of speech perception requires subtle experimentation. It is not an ‘all or nothing’ process. Children might be able to distinguish minimal pairs of familiar words, like ‘boat’ and ‘goat’ or ‘feet’ and ‘seat’, but experimental work shows that their discrimination may not be the same as that of adults.

One line of research has looked at how children attend to the differences in words like ‘sheet’ and ‘seat’, and ‘shoe’ and ‘Sue’. If you say these words and listen to yourself you will realise that the fricative noise in ‘**sh**oe’ and ‘**S**ue’ is different. In ‘Sue’ the fricative noise is at a higher pitch than in ‘shoe’. Adults take notice of this difference, but young children don’t rely on this difference to distinguish these words. This ability develops gradually.

Typical development of speech perception

As mentioned it is much more difficult to measure children’s speech perception skills than it is to measure their speech production skills. Generally speaking, the fricatives and approximants are discriminated less reliably in early development than are stops and nasals. Word pairs with the sounds shown in Table 3.1 might be more challenging and develop later, but this is only a rough guide.

Table 3.1 Sounds that are discriminated later in development

Sound pairs	Possible minimal pairs of words
s, z	said, zed
th voiceless, th voiced	mouth, mouth (verb)
f, v	fan, van
r, y	rot, yacht
l, y	lot, yacht
s, sh	seat, sheet
f, th	fin, thin
r, w	ring, wing

Speech perception in children with speech impairments

There are studies indicating that some children with speech and language impairments are delayed or have specific difficulty discriminating some sounds in words, particularly sounds that they do not yet produce. For specific research studies in this area see 'References, bibliography and further reading'.

What are the implications for the child with a speech impairment?

Speech perception is difficult to measure in children. Although children might discriminate words this does not necessarily mean that their perception of these words is the same as the adult's or older child's perception. For this reason, listening and discrimination tasks are considered to be very important activities to include when working with children with speech impairments. How to carry out such activities is described in detail in Chapter 6, and activities for listening and discrimination provided in all the chapters addressing specific error patterns. These activities are specifically designed to help children listen to and discriminate minimal pairs and sets of words. Other skills are involved in listening of course, and many children with speech impairments need help with the broader components of the listening curriculum, such as following instructions accurately and maintaining concentration.

In the next chapter, the development of speech production is discussed, and the different types of speech impairment are defined.

4

Speech development and speech impairments

The development of speech production, definitions and information about speech impairments in children

The development of speech – learning to say words accurately

Most children follow a similar pattern of development as they acquire speech. Children start to talk at around 12–15 months and it takes at least another three or four years to learn to pronounce accurately the 24 consonants and over 100 combinations of consonant sounds that can occur in English.

Speech patterns commonly found in two-year-olds

Most children have at least 50 words in their spoken vocabularies by the time they are two years old. After this point they begin to use combinations of words as well as single words. Vocabulary gradually increases and a number of characteristic speech patterns have been identified in two-year-olds as they attempt to say words and link two or more words in a phrase.

They often miss off the last consonant in a word.

- ‘nice’ sounds like ‘nie’, ‘mouth’ sounds like ‘mou’ and ‘bird’ sounds like ‘bir’.

They also often miss off one of the sounds in consonant clusters.

- ‘blue’ sounds like ‘boo’, ‘small’ sounds like ‘mall’, ‘drink’ sounds like ‘din’.

In words with two syllables the consonant and vowel are repeated.

- bottle sounds like ‘bobo’ and water sounds like ‘wawa’.

At this stage of speech development most sounds are voiced.

- ‘tea’ sounds like ‘dee’ and ‘paper’ sounds like ‘babber’.

Consonants that require more precise articulation, such as fricatives, are ‘stopped’ so they sound like plosives.

- ‘zoo’ sounds like ‘doo’, ‘sea’ sounds like ‘tea’ or ‘dee’, and ‘four’ sounds like ‘paw’ or ‘bour’.

Because of the limited range of speech sounds in the speech of two-year-olds, and the missing sounds, words are not easy to distinguish. This doesn't matter too much, however, because at this point in speech and language development children usually have a small and predictable vocabulary. They say the important words needed to communicate, utterances are short and the same words and word combinations are repeated often. In Table 4.1, taken from the speech sample of a child aged two years, the child is not using grammatical elements such as verb endings, plurals and words like 'the' and 'a' because they are at an early stage of language, as well as speech development.

Table 4.1 Two-year-old speech patterns

What the child means	What the child says
Daddy('s) tea	dada dee
(put my) shoe on	doo on
go (in the) car	dough dar
eat this	ea di
(it's) fall(ing) down	ball dow
(give) me (the) ball	me ball
play now	bay now

Speech patterns of three-year-olds

By age 3 children usually pronounce the ends of words, and become able to use a wider range of speech sounds. The sounds 'th', 'sh', 'zh', 'ch', 'j' and 'r' might still be missing, and consonant clusters are still sometimes reduced. There will still be occasions when three-year-olds are hard to understand, but about three quarters of what they say is intelligible even to unfamiliar listeners.

If a child at this age said 'Pease can I have fis and tips', she would be understood given the right context. If she said something like 'Can I have fis, tips...pease' (meaning 'please') she might get some unwanted peas on her plate.



Interpreting the utterance 'Dat is a wing' might also cause problems. 'That is a *wing*' might be what the child is saying, but the words 'swing', 'ring' or even 'string' are all possible interpretations of 'wing' when taking into account the speech patterns that are still common at this age.

Speech patterns of four- to five-year-olds

By the time children start school between the ages of 4 and 5 they will have acquired most speech sounds, and are rarely unintelligible. Children with delayed speech development at age 4 or 5 continue to use the patterns that two- and three-year-olds use. They can be more difficult to understand because their vocabularies are likely to be more extensive than those of the younger children and they use more complex sentences. They will also refer to events that are not in the 'here and now' so the listener does not have access to contextual clues that are usually available when two- and three-year-olds speak. Compare Ravi and Josh in the cartoons in Chapter 1, pages 14–18, when there are contextual clues, and when these are missing.

Development of speech from age two to seven years: typical error patterns

Some of the typical error patterns found in children between the ages of 2 and 7 are defined in Tables 4.2–4.5. The error patterns are divided into groups according to the type of error. For example, a pattern where the child misses consonants in words is described in Table 4.2, and when the changes are in 'place of articulation' typical patterns are described in Table 4.4. Most of these and other developmental error patterns are addressed in the Phoneme Factory series. Chapters in this book where resources can be found for each of the error patterns are given in column one in each

table. The second column provides the definition and the third column includes example words followed by how a child might say that word using the error pattern described. The child version of the example word is in quotation marks such as ‘bobo’ for the word bottle.

The age by which each error pattern usually disappears is in column three. These age norms are largely taken from a study of 684 British English-speaking children undertaken by Barbara Dodd and her colleagues (Dodd *et al.* 2003). (Note: in each table ages are in years and months: 3 years is written as 3;0 and 3 years 6 months is 3;6.)

These error patterns are only considered a problem for a child if they persist beyond the age at which they have usually disappeared in typically developing children. For guidelines about when intervention is needed see pages 45–50.

Table 4.2 Error patterns found in normally developing children that involve missing (deleting) sounds from words or syllables

Pattern	Definition	Examples	Age when the pattern is not usually found
Final consonant deletion (FCD) (Chapter 9)	Consonants at the end of words and syllables are deleted	bike ‘bye’ mouse ‘mou’ biscuit ‘biki’	Unusual after the age of 3;3
Approximant cluster reduction (Chapter 13)	The approximant is usually deleted	frog ‘fog’ blue ‘boo’ twin ‘tin’	The two consonants are usually present in clusters by 3;11 but one or both of the sounds might not yet be accurate (frog ‘fwog’ or threw ‘few’)
‘s’ cluster reduction (Chapter 14)	The ‘s’ is usually deleted in ‘sp’, ‘st’, ‘sk’, ‘sm’ and ‘sn’ clusters Either ‘s’ or approximant is deleted in ‘sw’ and ‘sl’ clusters	spoon ‘boon’ or ‘poon’ snake ‘nake’ ‘desk’ ‘deck’ swing ‘wing’ or ‘sing’ spring ‘pring’ or ‘bring’	Not common in children aged 3;11 or older. Clusters with 3 consonants (such as ‘spl’, ‘str’) are last to develop and reduction can persist until 5;0
Reduplication	Complete: one syllable is repeated to constitute the other syllable in a two- (or more) syllable word. Partial: only consonant or vowel is repeated	bottle ‘bobo’ water ‘wawa’ butterfly ‘bububu’ pancake ‘pancak’ water ‘wawer’	Common in very early development (2;0 years and under) but uncommon beyond 2;3

Table 4.2 Continued

Pattern	Definition	Examples	Age when the pattern is not usually found
Weak syllable deletion (WSD)	An unstressed syllable in a word with two or more syllables is missed out.	b anana 'nana' t omato 'mato' u mbrella 'brella' e lephant 'ephant'	This pattern is unusual after the age of 3;11 years, but remains common in adult speech for some words (e.g. 'blackbry' rather than 'blackberry', and 'strawbry') and in fast speech (e.g. 'Don't intrupt me, I'm <i>talking</i> ' – instead of 'interrupt')

Table 4.3 Common error patterns found in typically developing children where a sound in a word is influenced by another sound in that word

Pattern	Definition	Examples	Age when the pattern is not usually found
Assimilation	A consonant is influenced by another consonant in the word	dog 'gog' shoes 'shoezh' yellow 'lellow'	Not usually found in children aged 3;0 and above
Context sensitive voicing (CSV) (Chapter 12)	A plosive or fricative takes on the voicing of a neighbouring sound. Consonants before a vowel take on the voicing of the following vowel, and consonants at the end of syllables or words lose the 'voicing'.	pig 'bik' card 'gart'	Not usually found in children aged 3;0 and above. In adult speech final sounds are not fully voiced. Compare your pronunciation of 'sneeze' with and without emphasis on last sound

Table 4.4 Common error patterns found in typically developing children affecting place of articulation

Pattern	Definition	Examples	Age when the pattern is not usually found
Fronting of velars (Chapter 8)	Velar consonants are replaced by alveolar consonants	car 'tar' lock 'lot' girl 'dirl' sing 'sin'	Not present after age 3;11, though final 'ng' in verb ending may be fronted ('singin') and is common in some accents of English
Fronting of palatoalveolars (Chapter 8 'sh'; Chapter 11 'ch', 'j')	Palatoalveolar consonants are replaced by alveolar consonants.	shoe 'sue' chair 'tsair' jelly 'dzelly' bridge 'bridz'	Can persist until 5;5 years
Labialisation	A non-labial consonant is realised as a labiodental. In typical development this occurs only with 'th' sounds	thumb 'fum' this 'vis'	Children typically acquire 'th' sounds last. They are present by 7;0 in most children but there are accents of English where these sounds are not present in adult speech

Table 4.5 Common error patterns found in typically developing children affecting manner of articulation

Pattern	Definition	Examples	Age when the pattern is not usually found
Stopping of fricatives (Chapter 7)	Fricatives or affricates are replaced by stops	fork 'pork' sock 'tock' this 'dis' juice 'doot'	This pattern is not found beyond the age of 3;5 (but can persist for 'th')
Gliding of approximants (Chapter 10)	'l' and 'r' are replaced by 'y' or 'w'	red 'wed' leaf 'yeaf' or 'weaf'	Gliding of 'l' disappears by 3;5 years, but gliding of 'r' can persist until 6;0
Deaffrication (Chapter 11)	Affricates are produced as palatoalveolar fricatives	chair 'shair' witch 'wish jump 'zhump' bridge 'brizh'	These sounds can also be 'fronted' (see Table 4.4 of palatoalveolars). 'ch' is usually present by age 4;0 and 'j' by age 5;0

Combinations of speech patterns in typical development

Children at the early stages of speech development say words that incorporate a number of the error patterns described in Tables 4.2–4.5. This means that words can be difficult to understand without context. Luckily, typically developing children don't have wide vocabularies at these early stages. Even when they say words that are difficult to interpret, listeners, usually parents and other close caregivers, can understand the child because they can guess what the child might be saying. If we refer back to the two-year-old talker discussed on page 38 we can identify a number of the typical patterns present even in a two-word phrase in Table 4.6.

Table 4.6 Combinations of patterns in two-word phrases, in a typically developing two-year-old speaker

What the child means	What the child says	'Error' pattern
Daddy('s) tea	dada dea	Context sensitive voicing (CSV)
(put my) shoe on	doo on	Stopping <i>and</i> CSV
go (in the) car	dow dar	Fronting <i>and</i> CSV
eat (the) chip	ea di	Final consonant deletion (FCD) in both words <i>and</i> stopping <i>and</i> CSV
eat this	ea di	FCD in both words and stopping
(It's) fall (ing) down	ball dow	Stopping <i>and</i> FCD
(give) me (the) ball	me ball	none
play now	bay now	Cluster reduction <i>and</i> CSV
see (that) tree	dea dee	Stopping <i>and</i> cluster reduction <i>and</i> CSV

Typically developing children gradually develop adult speech patterns. The sounds and combinations of sounds they use increase gradually, so that the error patterns are no longer evident in the speech of most six-year-olds.

Table 4.7 gives an overview of the combinations of error patterns that can be found in typically developing children. Shading in the cell means that the pattern can be found in typically developing children in the age group, and when cells are blank, this indicates the age at which the pattern is no longer found in more than 90 per cent of children in the age group. It shows how children progress through the ages and stages of development from the age of two to six years old. It can be seen that context sensitive voicing and final consonant deletion disappear early, so they are usually not found in the speech of children aged 3 and above. Gliding of 'r', however, can be found in typically developing children until the age of five and a half. The error patterns gradually disappear, so most speech sounds and clusters will be used by the age of about four and a half.

Table 4.7 Combinations of patterns found from the ages of two to six years (*Source: adapted from Dodd et al. 2003*)

Age	Stopping	Fronting ‘k’, ‘g’, ‘ng’	Weak syllable deletion	Cluster reduction	Fronting ‘sh’, ‘ch’, ‘j’ Deaffrication	Gliding ‘r’	Final consonant deletion	Context sensitive voicing
2;0–3;0								
3;0–3;5								
3;6–3;11								
4;0–4;5				Three consonant clusters ‘spr’, ‘str’, etc.				
4; 6–4;11				Three consonant clusters ‘spr’, ‘str’, etc.				
5;0–5;5								
5;6–5;11								

Ages by which speech sounds are usually present

Another way to think about speech development is to note when speech sounds are usually present at different ages. Table 4.8 provides information about when 90 per cent of children in each age group from three to seven years had acquired each speech sound or cluster. This is adapted from Dodd *et al.* (2003)

Table 4.8 Ages at which speech sounds are present in 90 per cent of age group
(Source: adapted from Dodd *et al.* 2003)

Age	Sounds present
3;0–3;5	p, b, t, d, k, g m, n, ng f, v, s, z, h w, l, y
3;6–3;11	ch pl, pr, sp, st (and others)
4;0–4;5	zh (treasure) j (jug)
4;6–4;11	spl, str etc. (clusters with three consonants)
5;0–5;5	sh
5;6–5;11	
6;0–6;5	r
6;6–6;11	
7;0	th (thin) th (there)

Speech impairments are the generic term used in this book to cover a number of different types of speech difficulty that are defined and described in the next section. Five different types of speech impairment are defined.

Phonological impairments

Phonological delay: developmental error patterns used consistently

Some children continue to use the error patterns described above and found in typical development, beyond the age of most of their peer group. These children are described as having a phonological delay. As there is already a normal degree of variation in the speed at which children acquire the adult speech patterns, a phonological delay means the child is a year to two years behind their peer group. Some children appear to ‘get stuck’ and persist in using immature speech patterns for even longer than this.

Some children may have an uneven pattern of development, so the usual sequence of acquisition is not found. For example, they continue to use the context sensitive voicing pattern, but can produce clusters of two or more consonants at the beginnings of most words. They might therefore say ‘play’ as ‘blay’ and ‘trick’ as ‘dwick’, for example.

How common is this?

Phonological delay was the most frequently found profile in a group of 320 children with speech impairments referred for speech and language therapy during the course of a year in Middlesborough, UK (Broomfield and Dodd 2004a). Almost two-thirds of the referred children showed a *delay* in phonological development.

Example of patterns for a child with a two-year delay

Tom is aged five and a half. His phonological development is delayed, and he is using the speech patterns of a child aged about three and a half. Other aspects of his language development such as vocabulary and sentence structure are typical for a five-and-a-half-year-old (see Table 4.9).

Table 4.9 Examples of utterances from a child with a phonological delay.

What Tom means	What Tom says	Speech patterns
I (have) not yet drawed (drawn) round dese plates	I not yet doored wound dese pates	cluster reduction ‘dr’, ‘pl’ stopping of ‘th’ gliding of ‘r’
This is a snake to eat for lunch	dis is a nate to eat for lunts	cluster reduction ‘sn’ fronting of ‘ch’ stopping of ‘th’
Did you just drop that?	did you dzus dop dat?	cluster reduction ‘dr’ fronting of ‘j’ stopping of ‘th’
(I’m) getting in trouble , pushing in this drawer	dettin in tubble pusin in dis door	cluster reduction ‘tr’ fronting of ‘g’, ‘ng’ and ‘sh’ stopping of ‘th’
Can you stand it up?	tan you dand it up?	cluster reduction ‘st’ fronting of ‘c/k’
I need this one cos I don’t like that one	I need dis one tos I don’t lite dat one	stopping of ‘th’ fronting of ‘c/k’

Intelligibility

Tom's speech is usually intelligible, but if particular combinations of error patterns combine when he is trying to get his message across, he will need to have access to a range of strategies to make himself understood.

How to help children with a phonological delay

- Ways to support children with a phonological delay in school are provided in Chapter 5 with information sheets provided on the CD.
- They may also benefit from some of the listening activities in Chapters 7–14.

Phonological disorder: unusual patterns used consistently

Children described as having a phonological disorder of this type can be distinguished from those with delayed development by the presence of non-developmental error patterns. These are patterns that are not found in typical speech development. Non-developmental patterns include 'backing' where 'k', 'g' and 'ng' are used in place of 't', 'd' and 'n'. A word like 'teddy' sounds like 'keggy'. Another pattern is where children miss sounds at the beginning of words or syllables so 'key', 'tea' and 'sea' all sound like 'ee', and 'copy', 'coffee' and 'toffee' all sound like 'o'ee'. These patterns are shown in the cartoons of Emily and Harry in Chapter 1, pages 15–17. In addition to the non-developmental patterns, they also use patterns found in typically developing children, such as those described in Tables 4.2–4.5.

Many children with phonological disorders of this type have been found to have problems with speech perception such as distinguishing rhyming pairs of words, and storing information about the phonological system of their native language. It comes as no surprise that they often have problems with the development of phonological awareness and development of literacy.

How common is this?

About one in five children *with speech impairments* have phonological disorders of this type (Broomfield and Dodd 2004a).

Example of a child with a phonological disorder who uses non-developmental patterns

Ben, aged four and a half, is an example of a child with this type of phonological disorder. Some of the patterns in his speech are those found in typically developing children but others are not. In the examples shown in Table 4.10 two non-developmental patterns are noted. One is where Ben uses an alveolar sound in place of a bilabial: 'n' replaces 'm'; 't' replaces 'p'; and 'd' replaces labiodental 'v'. He also has an unusual pattern of cluster reduction, where he produces a bilabial consonant 'b' in any cluster where the following sound is a 'w' or 'r'.

Table 4.10 Examples of utterances from a child with a phonological disorder who uses non-developmental patterns

What Ben means	What Ben says
need a hammer	needuh anuh
tummy	dunny
up	ut
sleep	deet
over	oder
of	od
try	bye
cry	bye
crocodile	boduhdiuh
swing	bin
three	bee

Ben also uses many patterns that are found in the speech of children aged 3 and under, including fronting and stopping. Most of his consonants are voiced in initial position in the words. This is what he sounds like when he is counting. ‘One, doo, bee, dour, dide, dit, deden, eight, nine, den’. And just to show that his sentences and vocabulary are progressing well:

‘Ba’mán dall edyone oo no’doughin do bee a bend ‘Menate’!
(‘Batman calls everybody who (is) not going to be a friend ‘Menace’!)

Intelligibility

Using a combination of non-developmental and early developmental error patterns makes this group of children particularly difficult to understand. Without the translation, Ben’s interesting information would be hard to decipher, particularly when we consider that the written version has gaps between the words. The spoken version is heard as something like ‘ba’mandalledyoneono’doughindobeeabend Menate!, and might unfortunately be met with a blank look from the listener.

Even so, when contextual clues are available, we can understand him. Compare the cartoons of Harry and Emily in Chapter 1 who are using non-developmental patterns with and without contextual clues.

How to help children with a phonological disorder who use non-developmental patterns consistently

- Ways to support children like Ben in school are provided in Chapter 5 with information sheets provided on the CD.
- He may also benefit from some of the listening activities in this book.
- Teaching staff should be aware that he might have difficulties with acquiring literacy and provide early intervention.
- Collaboration with a speech and language therapist (SLT) is highly recommended.

Phonological disorder: inconsistent speech patterns

This group of children do not have a consistent and predictable phonological system. The way they say a word can be unlike the children discussed above. A sound like 's' might be produced as 's', 't', 'd', 'h', or omitted, and variations on how the words are said might also occur, perhaps depending on what the child is saying. Words that the child uses often or words that are learnt in a rote way, such as numbers, might be more accurate.

How common is this?

Children with inconsistent phonological disorders are less common than the other groups with only one in nine children *with speech impairments* showing such a profile (Broomfield and Dodd 2004a). This group has been shown to benefit from a different approach to therapy than that described in this book. They need to practise a few words at a time to learn to produce each one in a predictable way.

Example of a child with a phonological disorder who is using inconsistent patterns

Table 4.11 Examples of utterances from a child with a phonological disorder whose speech patterns are inconsistent

What Kris means	What Kris says
fish	fi, fi?, fif
black	pwa?, ba? bwa, bwa?, buhla?
open	o?e, obe, ope
spider	biber, bi?er, bider
hello	edo, ello
zebra	deba, veba, febwa
shopping	foti, fopi
elephant	e?e, e?efa
purple	dur?uh, duhpuh, purpuh

You might notice that in many of the examples shown in Table 4.11 the words include more than one syllable. This is because children with this type of phonological impairment seem to have problems with planning and executing the co-ordinated speech movements needed to produce words. In words with more than one syllable there is more planning involved, so the child is more likely to hit on different forms of the word on different occasions.

Intelligibility

Children with inconsistent speech are often very difficult to understand, because listeners have trouble tuning into the speech patterns. Even children like Ben can be understood when contextual clues are available. Kris is often not understood by even those who know him best.

How to help children with a phonological disorder who use inconsistent speech patterns

- Ways to support children like Kris in school are provided in Chapter 5 and with information sheets provided on the CD.
- Collaboration with an SLT is necessary as these children may need a different approach to intervention to help them resolve their speech difficulties than that described in Part 2 of this book (Crosbie *et al.* 2005).
- Teaching staff should be aware that Kris might have difficulties with acquiring literacy and provide early intervention.

Other types of speech impairment

There are other groups of children with speech impairments whose difficulties may have a different basis than those described above.

Articulation disorder

Children with speech impairments do not always have problems with phonological development. One in 12 has a specific problem with the articulation of one or more sounds (Broomfield and Dodd 2004a). These are often the fricatives and approximants. For example, the production of an 's' sound with the tongue tip on or between the teeth results in a lisp. Similarly, a slushy sounding 's' – a lateral 's' – is produced when air escapes over the sides of the tongue instead of centrally. Children with articulation difficulties may have a specific difficulty with learning to say the 'l' or 'r' sound. They have trouble imitating the sound when you say it and need to be taught how to produce the speech sound that is in error.

Other children with more severe articulatory problems may have experienced damage to the vocal organs, such as those born with a cleft palate. These children will often have both articulation disorders and phonological impairments. They will usually be in

the care of specialist teams of medical professionals, and the advice of specialist SLTs will be needed to carry out programmes of therapy. The materials in this book are suitable for use with some of these children.

Children with phonological impairments may have articulation problems in addition to difficulties with organising their phonological system. They will need additional help with learning to produce some speech sounds, and the advice of an SLT will be needed to address this aspect of their speech impairment.

Developmental verbal dyspraxia (DVD)

This is a speech impairment characterised by specific difficulties in planning organising and sequencing the movements required for speech. There is a body of research that suggests that children who are severely impaired have pervasive difficulties with phonological development and many have difficulties with developing phonological awareness and literacy. Diagnosis is difficult because children with other speech and language impairments share some of the characteristics that children with suspected DVD exhibit. In recent research, two of the potentially defining characteristics include difficulty with accurate production of vowels and abnormalities in intonation – the tune of speech. These children may speak in a monotone, or they may have a staccato pattern of speech, because the way they place the stress in syllables and words is unusual (Shriberg *et al.* 2003b). The disorder is uncommon, and teaching staff will rarely meet children with this type of speech impairment.

Literacy and the development of phonological awareness

Teachers know that phonological awareness, which is the ability to think about and manipulate syllables and sounds in spoken words, is a necessary component of learning to read and write. In particular, **phoneme awareness** is a strong predictor of the level a child has reached in reading and spelling.

Development of phonological awareness

From as early as two years old some children engage in sound play such as making up nonsense words and rhyming words. This type of sound play does not indicate phonological awareness, but rather a sensitivity to sounds in words. The ability to recognise syllables in words is the first stage of phonological awareness and is found in children aged 4 to 5, followed by the ability to produce rhyming words. This is when the child can say words or make up words that rhyme, such as producing ‘mat’ ‘bat’, ‘cat’ ‘dat’ in response to a question such as ‘What rhymes with ‘sat’?’. Recognising alliteration follows. The child can now recognise words that have the same sound at the beginning. Phoneme awareness – the ability to manipulate sounds in words – develops by about seven years and is likely to arise from the teaching of literacy skills.

Phonological awareness in the child with a phonological impairment

In order to develop phonological awareness, children need to have reached a level of maturity in their speech perception and production skills so that when they think about speech they are accessing consistent and reliable information about the sounds in words. Children with speech impairments are at a disadvantage. Some of them will be slow to develop phonological awareness, such as recognising the odd one out in rhyming words (saw, door, four, sun) and detecting alliteration (Gillon 2004) and this is likely to have an impact on their acquisition of literacy.

This book is not about teaching children to read and write, but two of the key foundations of literacy are phonological sensitivity and awareness. Providing opportunities to develop these skills in young children has been found to enhance development of reading and spelling. The materials in this book are ideally suited for use in activities that enhance knowledge of rhyme and phoneme awareness.

5

Helping the speech impaired child in the classroom

Practical information for teaching staff and parents/carers for any child with a speech impairment

Introduction

This chapter provides information and strategies that can be used to help children with speech impairments in the classroom. The focus is on helping the child make themselves understood and on making adjustments in the environment. These strategies can be implemented in the classroom with any speech impaired child as the purpose is to allow the child to participate as well as they are able. Activities that will help a child who has a phonological impairment to increase their awareness of speech sounds in words is provided in Chapters 7–14.

The information includes:

- ideas about how to help the listener understand the child, so that misunderstandings can be reduced
- what to do when the teacher cannot understand the child
- how to help the child to make themselves understood
- adapting the classroom environment and managing the rest of the class
- managing communications in whole-class activities
- listening to the child read and helping them with spelling
- augmentative communication systems for the child with a severe speech impairment.

Handouts and resources

On the CD, forms and handouts are available that can be tailored to the needs of individual children. These are found under 'Practical information sheets for school staff and parents/carers of a child with a speech impairment'.

How can I understand the child more easily?

The focus in this chapter is not on helping the child to change their speech patterns, but to help teaching staff and parents/carers to understand the child in everyday

situations. The strategies assist with enabling the child to participate in class discussions, to answer questions and to make known their needs as most of their peer group can do easily when they are at school. Also included are ways to help parents and carers understand the child when they refer to activities and people encountered at school.

Children with speech impairments can be hard to understand, even by those who know them well. When contextual clues are not available, teachers and parents/carers may have difficulty understanding the child.

Using an 'important vocabulary list'

Teaching staff: information for parents/carers

One way to help children get their message across successfully is to make a list of some of the school-based activities, people and specific vocabulary the child with a speech impairment might talk about when at home, but which would be hard to interpret. This can be updated via a **home-school diary**, described below, but basic information can be given as soon as the child enters a new class. Beside each item you might write how the child pronounces that word.

Suggestions for an 'important vocabulary list':

- names of school staff with whom the child is in contact including support staff
- a list of the children in the class
- name of child's small group/class
- characters – such as puppets – that are part of the daily classroom routine
- a list of materials in the classroom that are available at free play or break times
- a basic weekly timetable including whole-school events such as assemblies
- information about the reading scheme
- topics for the term
- words of songs and rhymes that are used frequently
- TV programmes that are watched regularly by the class.

Providing some of this information in picture form is helpful as it means the child could access the vocabulary list independently and perhaps initiate a conversation at home about a particular person or event. Photographs of people and activities, drawings or photocopies of book covers and worksheets could be included.

Questionnaires that could be completed by teaching staff and parent/carer are provided on the CD under 'Practical information sheets for school staff and parents/carers of a child with a speech impairment' (CD pp. 2–4).

Parent/carers: information for teaching staff

When a child starts nursery or school it can help if parents or carers make a list of some of the words the child might say and which would be hard to guess for someone who is not familiar with their home life. This ‘important vocabulary list’ is useful for school staff, but people who do not see the child very often may also find it helpful. These might be parents of the child’s friends, leaders of clubs and family friends and relatives who see the child infrequently. The information for school can be updated via a home–school diary (see below), but basic information can be given as soon as the child enters a new class. It is important to produce a new version as the child moves up the school as circumstances and interests are likely to change considerably.

An ‘important vocabulary list’ could include:

- names and ages of family members and friends including any nicknames
- identifying information about friends and family such as the schools they attend, their interests or jobs
- names of pets (including what the animal is) belonging to family and others
- favourite TV, film or book characters
- favourite toys, games and sports
- after-school activities, hobbies and clubs
- holiday destinations, transport and where they stayed; highlights of the stay such as the journey, the swimming pool, the theme park
- favourite foods, drinks, snacks and sweets
- ‘special treats’ such as names of parks, fast-food restaurants, sports events, shows, shops
- topics of particular interest such as animals, transport, etc.
- key vocabulary such as how the child says he needs the toilet, a drink or is feeling unwell.

Where possible it is often helpful to write how the child says some of these words, particularly if words are likely to be difficult to distinguish because of their error patterns. For example, the way a child says the names of two different people may sound the same, e.g. ‘Shaun’ and ‘Dawn’ may both sound like ‘Dawn’, or ‘Karen’ and ‘Darren’ may both sound like ‘Darren’.

Using a home–school diary

The home–school diary can be a useful addition to the ‘important vocabulary list’. Both teaching staff and parents make notes of up-to-date information, topics of likely conversation and information about events. When children have severe speech impairments even parents or carers may not always understand them without contextual clues. Things that happen in school may be very difficult for the child to explain in a way that their carers understand. A home–school or nursery diary can help. The teacher and parent/carer both contribute to the diary.

Parent/carer's contribution

The parent or carer writes about some of the things the child has been doing at home. This could include games and toys they have been playing with, films or TV programmes, as well as details about outings, visitors and unusual or traumatic events. The information included does not have to be written down. The diary could include drawings, photographs, postcards or souvenirs of visits to people or places. The idea is to provide some background information for the school staff to help them tune into what the child might say. With background information school staff can more readily initiate a conversation by asking the child about the event, with some clues about what the child might be saying. When children are reticent to talk or insecure about school attendance the diary is a reassuring connection between home and school. The diary is particularly valuable at weekends when the child may have special things to talk about when they go to school on Monday.

School or nursery contribution

A teacher or teaching assistant writes about what the child has done that day or week. Mention storybooks, particularly characters and key events. Note ongoing topics as well as special or unusual activities. Include lunch menus for each week if relevant.

Photographs and other pictorial information can be very useful as the child can direct a parent or carer to a picture. The child is more likely to be understood because the listener then has access to the context, which is so important in tuning in to children with speech difficulties.

Helping to give the child confidence that you understand them

Spending one-to-one time with clear contextual clues (familiarity)

It takes time to tune in to a child's speech patterns but as most children have predictable patterns in their speech it is usually possible to understand them when there are contextual clues and as the listener becomes familiar with the child. It is helpful to build in opportunities for regular conversation with the speech-impaired child because experience of their speech patterns and topics of conversation is built up by spending time with the child and listening carefully. Make use of the 'important vocabulary list' and home-school diary as these can help you to tune in to possible topics of conversation and specific words.

Using an 'interpreter'

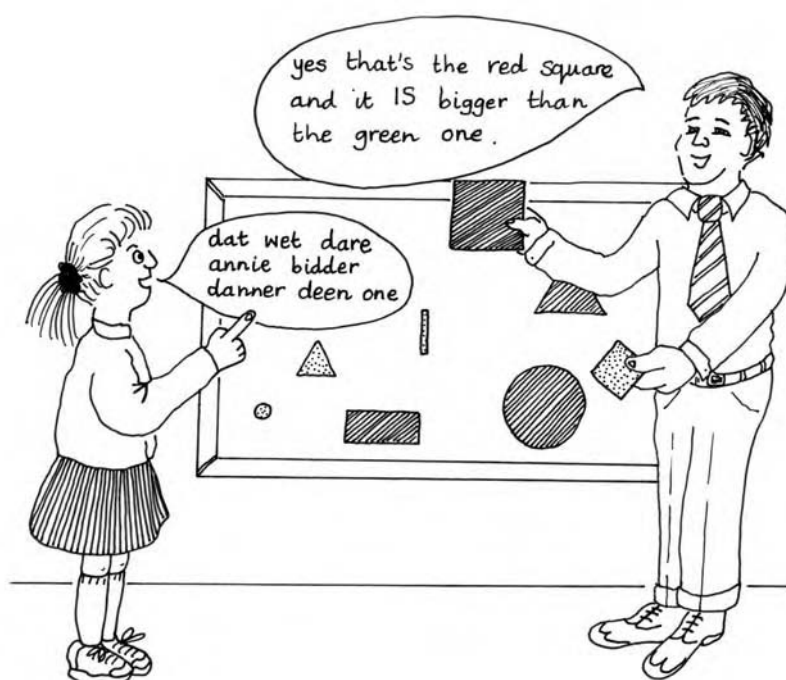
To speed up this process it is worth spending time with the parent/carer and the child in a relaxed context, where the child is happy to talk and the parent 'translates' for the teacher. As the child progresses through the school their last teacher or teaching assistant can act as the interpreter. Spending perhaps five minutes in a free-play situation over two or three occasions can be enough for both adult and child to have some confidence about successful communications.

Making the most of contextual clues

Context is the most useful facilitator for understanding. Asking the child to describe a picture, name colours, shapes and numbers; or relate a story that the adult already knows are situations with a wide array of contextual clues available. Words the child is likely to use are predictable, so guesswork is at a minimum.

Providing feedback

When you understand the child's utterances repeat back or confirm that you have understood with more than a 'yes' or 'no'. This lets the child know that you really have understood. More information about feedback is provided in Chapter 6, page 72.



Responding to misunderstanding

It is not always possible to work out what a child is saying and communication breakdowns will sometimes happen. These strategies can be useful on such occasions and there are more on the CD page 5, 6.

- The child may be able to show you what they are talking about, or provide some visual context or a mime so you can guess more easily.
- They might be able to paraphrase or give extra information. You could ask questions such as 'Where were you?' or 'Who was there?' or 'Did you see it on TV?' to give a broad idea of the event.

- Other children or teaching staff in the class may help out.
- Refer to the 'important vocabulary list' if the child is mentioning names or a home event.

Children vary in how they cope with adult incomprehension. Most children will appreciate the effort put in and carry on talking even when there have been breakdowns in communication. They can be very aware of 'pretence', so with some children it is better to give up honestly, saying something like, 'I'm sorry, I'm still not getting it'. You might let the child know that you will follow it up by writing a message in the home-school diary. A discussion about the communication breakdown with the parent and child can be helpful. Hopefully the child will be reassured that understanding what they say is important to the teaching staff and the parent may be able to sort out the misunderstanding.

Helping the child become more aware of how they could make themselves understood

Teaching children how to repair communication breakdown

This is a skill that develops alongside all other speech and language skills. If conversations are to proceed smoothly it is necessary for the speaker and listener to have strategies available to help them repair a breakdown in communication. Conversations are punctuated with requests by the listener such as: 'What?', 'Excuse me?', 'Say it again – I can't hear you?', 'What do you mean?'. Children begin to develop repair strategies in their role as speaker from the age of about two years. That is, if asked to do so, they will repeat or revise an utterance that may help the listener to understand them. Sometimes repairs can be non-verbal, such as providing a mime or pointing at the object they are referring to.

The child with a speech impairment is likely to experience misunderstandings frequently and those working with them may need to help them repair breakdowns in order to reduce frustration and, perhaps, reluctance to communicate. The child needs strategies that they can use in everyday situations with a variety of listeners. They might use some of these naturally, but if not, specific guidance can be given so new strategies can be added to their repertoire.

Strategies that might help the child to attempt to get their message across

Some of these strategies are those that we all use when misunderstood. For example, the teacher might ask the child to:

- 'Say it again.'
- 'Say it again slowly.'
- 'Say it in a different way.'

- 'Say more about it.'
- 'Show me what you are talking about.'

Alternatively the adult could ask a specific question that provides context, such as 'Where were you?' or 'Who was there?' or 'Did you see it on TV?' to give a broad idea of the event.

Another strategy is to ask the child to provide some other visual context such as:

- draw a clue
- find a prop, picture or photograph
- mime or sign part of the message
- indicate the sound a word begins with using writing, speech or symbol.

Finding another adult or child who can help out is another useful approach in some circumstances.

When particular strategies for the individual child have been found to work, these could be shared with all school staff. A form is provided on the CD, page 6, that can highlight the strategies that work for a particular child.

Provide a model of how to repair a communication breakdown

In the presence of the child with a speech impairment, set up a scene where you misunderstand what another adult or child says. After you have repaired the breakdown and the message has been successful comment to the child about what you did:

'I didn't understand what Jamie meant, but then he showed me, so I could understand him then.'

Or

'Mrs Brown wasn't looking at me so I asked her to turn round and then I could hear her properly.'

Or

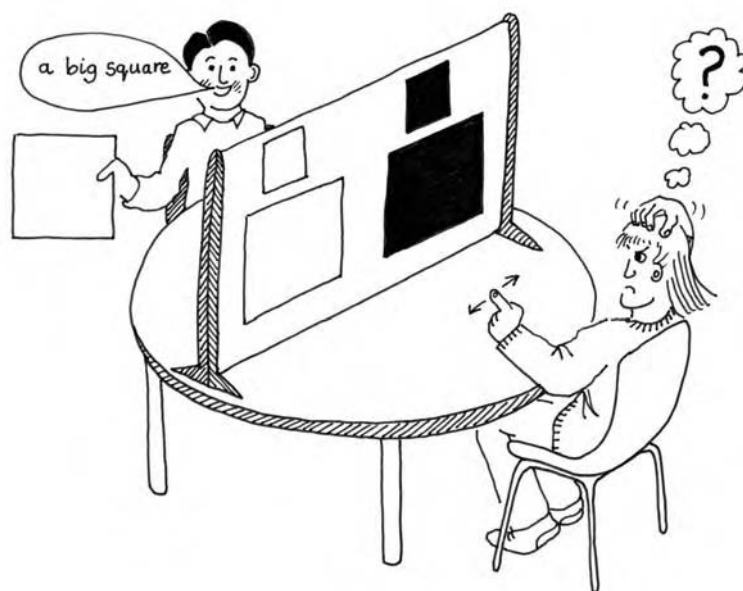
'Ahmed was talking so fast I couldn't get what he was saying, but I did understand him when he slowed down.'

Whole-class discussion

Discuss repairing communication breakdowns in a circle time session or as part of the speaking and listening curriculum. The children and adults can act out situations where they speak too quietly or fail to give enough information, in a barrier game for example.

Barrier games

These are games in which the listener has to rely on verbal information alone. The speaker has to give enough information so that the listener can follow an instruction accurately. In the illustration below, the listener has to find a picture that is the same as the one the speaker describes. The pictures are subtly different, so all the information is important. If the speaker describes 'a big white square' this enables the listener to get the right picture, but suggesting 'a big square' does not enable success.



Such activities can be used to develop the thinking in the whole class about how to help listeners and is part of the speaking and listening curriculum (DfES 2003).

Adapting the classroom environment

Home-school diary, 'important vocabulary list' and repair strategy form

Keep the home-school diary and 'important vocabulary list' at hand for staff working directly with the child. This way records can be kept and there is material available to help adults understand the child and for the child to use if needed. Update the repair strategy form ('Teaching children how to repair communication breakdown') regularly and keep it on view for any staff to refer to. This form is provided on the CD page 7.

Provide visual supports

A visually rich environment with objects, symbols and pictures readily available is helpful to many children with special educational needs. A child with a speech impairment can be encouraged to respond non-verbally by pointing to the visuals available or with speech and visual or non-verbal clues, such as gesture and signing, so

that you are helped to understand them more easily. A folder including photographs of curriculum activities and materials used in the class can help the child if they want to refer to a topic, or to access materials. Picture dictionaries, catalogues or books with photographs of objects such as toys, foods, actions, sports, etc. can be a useful resource when the child might be struggling to make themselves understood, as they may be able to find a picture that relates to what they are saying.

Managing the whole class

Listening and speaking rules

Listening and speaking rules are often a whole-school policy, but when a child with a speech impairment is in a class they may need to be developed further. When a child is difficult to understand, their 'turn' may take longer than usual and other children might get impatient. To counter this or similar problems, the class could develop new rules such as 'put your hands down until the teacher signals', as soon as a child has been chosen to answer a question. Passing a 'microphone' to the speaking child can help foster respect for the speaker.

Dealing with teasing

When children are listening to each other in whole-class situations, the potential for teasing or mocking the child if they mispronounce words or are difficult to understand, is more likely. As with children with other special needs, the class may need to have the problem explained to them and perhaps set up buddying or a circle of friends.

Helping the class to gain insight into speech problems

In the section above, 'Teaching children how to repair communication breakdown', whole-class activities were described where different class members experience being misunderstood and solutions were also discussed. This provides the class with experiences as listener and speaker and may help them understand the child's dilemma more easily.

Ask the class to copy you saying long words they may not have heard before, with easily confusable sounds, such as 'phenomenon', 'escalator' or words in a foreign language. Ask the children who are most likely to tease others to try the words on their own and talk about the difficulties. Try tongue twisters and talk about how hard it is to say the words without mistakes. You could then discuss this generally in relation to children who have difficulty talking.

Giving the child a chance to speak

The child with a speech impairment might often experience being overlooked or shouted down and may become quieter than they naturally would be. To give them opportunities to have their say, sometimes pair or group them with children who are

reticent to speak, or who have language delays, so they might be the one who gets the answer first!

Managing communications in groups or whole-class activities

When children are very difficult to understand it can be a challenge when they answer a question or make a contribution to a discussion because the adult may not immediately grasp what the child is saying. The difficulty is reduced if you invite ‘calling out’ responses where you might thank children for their responses generally and develop one individual child’s answer.

Seat the child near you so that you can see and hear them easily and they have access to the visual supports such as the home–school diary, general resources such as picture dictionaries and the visual aids used for the particular topic. If the child uses the visual supports it means you have a high-level contextual clue available.

Structuring communication exchanges

Structuring the exchanges can help to provide contextual clues for the adult, so the communication is successful. There are different levels of contextual clues available to teaching staff.

High level of contextual clue

These include situations where content is highly predictable, such as counting, and numbers in general, colours, days of the week, names and any very familiar vocabulary relating to the curriculum. Responses require mostly single words or short phrases.

The adult can provide clues by use of:

- cloze sentences
- providing a choice of possible answers – ‘Is it a *triangle* or a *circle*?’ – and
- inviting ‘yes’/‘no’ responses.

Middle level of contextual clue

This might include situations where more than a single word is required:

- Try encouraging the class to respond in unison to a few questions about a topic, and mentally note the answers the child gave correctly. Later on, or on the next day, ask the child that question as an individual during whole-class time.
- When asking questions model some possible answers. For example, if considering what might happen next in an experiment or a story, talk through some possible answers: ‘Maybe x will happen, or y or z’ and ask the child which one they think it is. This allows more flexible responses than a forced-choice question, but content is still partially predictable.

- If several children have given different answers to a question, ask the child the question and then ask them to point to someone else who answered as they did.
- Use more closed questions, where responses can be predicted more easily. For example, ‘What did we do in science yesterday?’ is open to many answers, but ‘What equipment did we use?’ invites a narrower range of responses that are easier to interpret.

Low level of contextual clue

Situations where it is harder to predict what the child might say occur when information is more personal or the child makes spontaneous comments. Responses to open questions are also less predictable.

If asking children about their personal experiences, pick a topic that you know the child has experienced recently and was described in their home–school diary.

What to do if you can't understand the child in a whole-class activity

In whole-class situations there is unlikely to be time to work through all the strategies that you have identified as helpful. Try one or two and if this doesn't help, say something like ‘Thanks Ravi, hold that idea and we'll talk about it later’. Then work through some of the other strategies in a one-to-one situation.

Listening to the speech disordered child read

Some children with speech impairments are delayed in their development of literacy. Those with phonological delays are less likely to be affected. However, when they read aloud it could be hard to be certain if they are reading accurately. It is a good idea to check reading skills non-verbally by asking the child to point to words on the page or find a particular word from a group of key words written on cards. When they point correctly ask them to say the word and you will see that they *can* read it but that they have trouble with the pronunciation.

Correcting speech when children read

This is a natural part of learning to read for many children, particularly when developing sounds like ‘th’ in words like ‘the’, ‘they’ or ‘them’, but correcting speech can be confusing for children at the early stages of reading. They need to have a clear idea about whether they are reading a word correctly or not, and drawing attention to pronunciation of the word leads to uncertainty about the task and their success. A general rule would be to avoid correcting speech patterns until the child has a reasonable level of reading and is confident about their skills. Then it can be useful to encourage them to revise their speech as they read.

Reading intelligibly

It can appear that children are more intelligible when they are reading, but this may be because the listener has a complete translation before his or her eyes! For some children having a written clue to the sounds in words really is helpful and they can use this to help them produce new sounds or add sounds that they usually miss out.

Reading aloud is slower than the rate of conversational speech, which is helpful for the work of exploring and using new speech patterns. When the child is expected to focus on improving speech clarity the reading task should be well within their capability with familiar vocabulary, picture cues and use of repetitive phrases or sentences. For example, a cloze sentence like 'I can see a . . . ' with a picture clue demands a low level of reading skill, but the written words can still act as clues for particular speech sounds.

Helping the child with spelling

Some children with speech impairments are delayed in development of literacy skills and will need extra support. Others may be keeping up with their peers, but their pronunciations of words they are trying to spell interferes with their success at segmenting written words.

Some children 'know' what the letter–sound correspondence is 'in their heads', but are distracted by their own pronunciation when they say a sound or word.

Encouraging the child to point to a symbol of the required letter as they segment the word can help. This means they are 'silently' segmenting and avoids the distraction of their own pronunciation patterns.

Augmentative and alternative communication systems (AAC)

Children with more severe speech impairments can benefit from the use of structured alternative communication systems. These include manual signing systems such as Makaton or Signalong (see 'References, bibliography and further reading' for web addresses), or the use of picture symbol systems or voice output communication aids (VOCA). The advice of an SLT is needed if AAC is considered necessary.

In Part 2 are specific activities designed to help children to develop listening and discrimination skills. These are to help the child to listen and discriminate sounds in words, but do not directly address speech production skills.

Part 2

Practical activities to use with children with speech impairments

6

How to help the child with a speech impairment using listening and discrimination activities

How to carry out listening and discrimination activities with children with speech impairments

Introduction

Children with speech impairments need help with learning to use a wider range of sounds in words. Those with phonological impairments can often produce a particular sound by imitation but then do not use that sound in the words that need it. The child needs to incorporate sounds into their phonological system, which entails reorganisation of the system. These children usually need to carry out listening and discrimination activities related to their error patterns, to assist in this process. Many activities are provided in Chapters 7–14 and an explanation of how to implement these is provided here. These activities can be used with children who have different types of speech impairment, but here the focus will be on those with phonological impairments, particularly children with a phonological delay or phonological disorder where their speech patterns are consistent (see Chapter 4, pages 47–50).

Helping children develop listening and discrimination skills

The tools: pairs and sets of words

In each of the following chapters in Part 2, specific pairs and sets of words are used in enjoyable activities that will enable children to become more aware of the need to change their error patterns. The words used are those that, when spoken by the child, sound the same. See examples in Table 6.1, for Jim, aged 6, who has a phonological delay.

Homophones

Two or more words that sound the same when spoken, but have different meanings are referred to as **homophones**. In English there are many of these, some with the same spelling, such as: ‘pen’ (to write with), and ‘pen’ (to enclose animals).

There are many more with different spelling patterns, but which sound the same when spoken:

'I've run out of **thyme/time**'.

'No reading **allowed/aloud** in the library'.

Of course, we do not usually confuse such words, because of the context in which they are used. When children have phonological impairments, they produce many homophones that are not found in adult speech. Jim, aged 6, persists in using the developmental error pattern 'fronting', where velar stops are produced as alveolar stops.

Table 6.1 Example of the fronting pattern and resulting homophones

The words Jim says	How the listener interprets both words – as 'homophones'
key, tea	tea
coffee, toffee	toffee
back, bat	bat
gate, date	date
mug, mud	mud

Why do we need to start with listening and discrimination?

The ability to hear is not the same as *making sense of what we hear*. This requires experience and exposure to different types of sounds. Young children learn to distinguish subtle differences in sounds in the environment with the right kind of exposure – the sound of leaves rustling compared to the sound of falling rain, for example. As described in Chapter 3, children also gradually develop the ability to recognise the similarities and differences between words in order to develop language. In children with a mild or moderate hearing loss the opportunities for developing auditory discrimination skills are less available, so speech and language tends to develop slowly. Children with phonological impairments may have hearing problems, or may have suffered from ear infections and hearing loss when infants or toddlers. Their ability to distinguish different sounds could also be slow to develop. However, even without a history of hearing problems, children with phonological impairments may have a delay in the development of speech perception and auditory discrimination skills that has a knock-on effect on how they say words. Children like Jim need to hear words that sound the same, when he says them, to learn more about how those sounds function in words to create differences in meanings. He needs to learn more about the very subtle distinctions between words like 'tea' and 'key'.

How to carry out the listening and discrimination activities

In Chapters 7–14, listening and discrimination activities are provided that will help children like Jim develop the ability to distinguish words that sound similar. Specific

error patterns are described with suggested activities to address each pattern. These are all based on pairs or word sets that the child appears not to distinguish in his or her own speech production.

Here is an example of a listening task suitable for Jim with advice as to how to carry it out. This advice is applicable to all activities in Chapters 7–14.

Example of a listening task

The child hears one of a pair of words said by the adult or another child and finds the object or picture that matches what they heard. This can be repeated for up to eight words. For example, the adult says to the child, ‘Put a brick on the picture of a...’, and then says one of the following words: cable, table; cape, tape; cap, tap; crane, train.

First the child needs to become familiar with the pictures and learn any obscure words so the adult provides descriptions and context. For example, ‘cable’ is what is attached to the vacuum cleaner with a plug on the end of it; a ‘cape’ is what Batman wears. The adult repeats the words often in this teaching context, showing the child the picture. Once the child recognises the words, the listening activity can begin, where the adult says the words alone or in a short sentence, but without adding further information.

Keep things simple at first

Carrying out tasks that place few extra demands on the child will mean that they remains focused on listening. At the early stages, as the child becomes accustomed to the tasks, the environment should be distraction-free and relatively quiet (if possible). The adult should:

- use a normal or a slightly raised voice
- say the words clearly and slowly to give the child as much information as they need
- encourage the child to look at you when you say the words – sit opposite the child
- say the words in isolation, or in a short phrase where the named picture or object is heard at the end of the sentence, e.g. ‘Now put a brick on the *cable*’.

Remember these are listening activities, so the child is not expected to say the words.

Gradually increase the difficulty of the task

After each word is spoken the same number of pictures are kept in view (so the child is always making a choice from the full set). They could:

- post the picture into a box

- drive a car on (and off) the picture the adult named.

Next they have to remember the word the adult said for a bit longer: turn the pictures face down, so the child has to search and find the one they heard.

Then include the words in sentences, for example: 'The *table* is next'; 'Find the *cable* as fast as you can'; 'Put the *cape* in the box'.

Adapt the environment to make the listening activity more challenging

Further demands can be placed on the child in a number of ways, by changing the environment or removing some of the cues that were necessary early on.

- Listening tasks can be made more demanding in a noisier environment, so background noise could be sought out rather than avoided.
- The adult can increase the speed of the activity so the child is hearing the words in rapid succession.
- The adult can use a quieter voice to make the child listen harder.
- Watching the adult's face is to be encouraged early on, but reduce this cue gradually, by sitting beside the child or obscuring your mouth from view with a piece of paper. If this bemuses the child, tell him/her you are saying secret words!

Avoid subtle clues

Do not give subtle clues to the child in listening and discrimination activities. Avoid looking at the picture or object as you name it. This allows the child to follow your gaze, so they may not need to discriminate the word you said. Some of the pictures/objects used in the following chapters will naturally be associated with varied intonation patterns. It would be natural to say words like 'stop' and 'top', 'luck' and 'yuck', or 'sad' and 'dad', for example, with different tones of voice. Keep the intonation, loudness and speed at which you say the words the same irrespective of the meaning of the word. Similarly, you might naturally provide a gesture or mime to cue the child to understand 'beat', 'bee' or 'beast,' but avoid such gestures and mimes too. The child needs to hear the differences between the words without extra clues.

This information is summarised in a handout on the CD pages 5 and 7.

But the child has perfect discrimination!

What does it mean if a child with a speech impairment is successful at discrimination tasks? Does this imply that auditory discrimination is fully developed/the same as for the adult or the child without a speech impairment?

As we found out in Chapter 3, it appears that children develop speech perception skills slowly. Just because the child can discriminate pairs and sets of words does not necessarily mean that their speech perception is the same as the adult's. Continuing to provide listening practice is therefore advised.

The psycholinguistic approach to auditory discrimination

In this book the emphasis is on discrimination of *words*, because the tasks are designed to be meaningful to the child. Discrimination of non-words – those that sound like possible English words but are not, such as 'wape', 'lape' and 'dape' – is used in psycholinguistic approaches to assessment, diagnosis and intervention. The *Phoneme Factory: Sound Sorter* program includes options for provision of a range of listening tasks in addition to those described here. Books and resources that encompass the whole range of psycholinguistic tasks for children with speech impairments are included in 'References, bibliography and further reading'.

One other discrimination activity that can be incorporated in an informal way into the activities below involves the adult saying a word correctly or incorrectly, and observing whether the child accepts 'mispronounced' words. For example, the adult could show the child a picture of a train and then say, 'Is it a chain?', 'Is it a tain?', 'Is it a train?', and the child responds with 'yes' or 'no' to each question.

Promoting an environment that encourages the child to think about how they say words

The activities so far, and those in the *Phoneme Factory: Sound Sorter* software, address listening and discrimination skills. Some children will change their speech patterns through work on listening alone. Others need extra help to change their speech patterns, by working on production of the target sounds in pairs and sets of words. This is a delicate process, and children vary in how willing and able they are to attempt to say words in a new way. When children have had plenty of opportunities to discriminate words successfully with the error patterns they are using, but continue to *say* words with these same error patterns, the advice of a speech and language therapist (SLT) is needed.

Helping the child think about the problem of miscommunication

Fundamentally, the child with a phonological impairment is viewed as having a problem to solve rather than speech sounds that need correction. The problem arises when the child says a word and the listener misinterprets it. For example, in a speech and language therapy session, Jim could be presented with a situation where he happily asks the SLT for 'tea' when playing a game of tea parties with the requisite props – teapot, teabags, cups, sugar, etc. Asking for 'tea' is highly appropriate in this situation. Then something new is introduced. The SLT suggests that there are other toys in the cupboard but it is locked and a key is required.

- Jim: (who really wants to unlock the toy cupboard) Where's the 'tea'?
- SLT: Here – you want some more? (Referring to the tea, but aware that Jim is asking for the 'key')
- Jim: NO, the TEA (miming unlocking the cupboard with a key)
- SLT: OH – the KEY!
- Jim: (exasperated) Yes, the TEA.
- SLT: I thought you said 'tea', but you meant KEY.

Jim in this case has used a non-verbal clue to help the listener. He has already realised he is being misunderstood. The SLT then gives him explicit feedback about the confusion: 'I thought you said "tea" but you meant KEY'. Jim is provided with information about a problem to solve. He is being helped to think about the problem. But he is not necessarily ready to try and revise how he says the word 'key' as yet.

Helping a child like Jim to change his way of saying sounds in words is a delicate matter. This part of the process of helping children with phonological impairments needs careful consideration by teaching staff and SLTs working together.

Giving feedback about a child's speech – what helps?

If you are carrying out listening activities with a child, they might name the target words. This is not the point of the tasks, as they are designed to be for listening alone. Sometimes, however, you will notice that a child has revised their pronunciation of a word spontaneously. On other occasions they might revert to their habitual way of saying the word.

All feedback given should relate to whether or not the child got across the meaning they intended.

When the child is not successful at getting their message across

Children who have been exposed to explicit, specific feedback about communication failures, are more likely to realise that they are the one with the problem, not the listener. If we return to the dialogue between Jim and SLT above, the SLT could have responded in a number of helpful ways. With a quizzical or confused expression the adult could say:

'I don't understand, I don't know if you want the tea or the KEY.'

or

'I'm not sure which one – can you help me? – it could be the tea or the KEY.'

or

'I really *thought* you said "tea", but I think you mean "KEY".'

Jim is encouraged to *think* about the problem.

When the child *is* successful at getting their message across

Our eventual aim is to help the child revise the way they say words so they are more intelligible. When they *have* managed this, always provide feedback about the successful communication such as, 'I understood you that time! You told me you want the KEY,' or 'Great, I know what you mean, you mean the KEY, not the tea, the KEY!' (while handing over the key). Just saying something like 'Well done' or 'You said that right' is not enough. The child is not learning a new trick, but is learning about how to make themselves understood.

Good feedback includes the repetition of the target word as the last word in the adult's comments, so the child hears the correct way of saying the word with emphasis, as in the examples above.

Introduction to the activities in Chapters 7–14

Refer to this information before using activities in Chapters 7–14.

Using the listening and discrimination activities

In the following chapters, ideas for activities to use with children with phonological impairments are provided. These are listening and discrimination tasks designed to help the child become more aware of speech sounds in words. Once children have gained listening experience they will sometimes begin to make spontaneous revisions in the way they actually say words. Other children with phonological impairments need extra direct work on speech production skills under the advice of a speech and language therapist (SLT).

Children with articulation problems, developmental dyspraxia of speech or those with inconsistent speech patterns (as described in Chapter 4, pages 49–51) need additional help to that provided in the practical chapters alone. Listening activities may still benefit some of these children, and the activities in these chapters might be included as a part of a treatment programme devised in collaboration with an SLT.

The practical chapters in this book, as well as the rest of the Phoneme Factory series, are of most use if the decision regarding selection of activities is made by an SLT working in collaboration with teaching staff. When teaching staff have limited access to an SLT, the *Phoneme Factory: Phonology Screener* can be used to identify error patterns in the child's speech. The chapter or chapters in this book that contain relevant materials will be highlighted in the results provided by the Screener. Activities in the *Phoneme Factory: Sound Sorter* programme can also be used to target the identified error patterns.

A quick reference guide to identifying the chapter you need is in the box below.

Finding the chapter you need

The sounds the child might be having difficulty with are in brackets.

Chapter 7: Stopping (sounds 'f', 'v', 's', 'z', 'sh', 'zh', 'th', 'ch', 'j') at the beginnings and ends of words

Chapter 8: Fronting (sounds 'k', 'g', 'ng') and backing ('t', 'd', 'n') and where 'sh' sounds more like 's'

Chapter 9: Final consonant deletion (any/all consonants that are missed off the end of a word)

Chapter 10: Gliding ('r', 'l')

Chapter 11: Deaffrication and other error patterns affecting affricates ('ch', 'j')

Chapter 12: Context sensitive voicing (voiceless sounds 'p', 't', 'k') at the beginnings of words

Chapter 13: Approximant cluster reduction (sound combinations 'pl', 'pr', 'tr', 'dr', 'gl', 'fr', etc.)

Chapter 14: 's' cluster reduction (sound combinations 'st', 'sk', 'sl', 'sp', etc.)

In Part 1 are descriptions and further information about these error patterns.

Organisation of each activity and explanation of terms

The description of each activity in Chapters 7–14 is the same. The example below is in Chapter 7 'Stopping'.

Shape/tape

Target sound: 'sh' word initial

Contrast: 't'

Words: shape, tape

Resources: a shape-sorter toy; some sticky tape and a box (to represent a birthday present that is partially wrapped up but needs more tape). Use a tape dispenser or prepare bits of tape and stick them on the edge of the table, to save time.

Activity

The adult says 'shape!' and the child puts a brick in the shape sorter. The adult says 'tape!' and the child sticks a bit of tape on the present. Do not add more words to the instruction as you want the child to be listening for the first sounds in the words. Mix up the instructions so you sometimes give the same instruction twice in a row. Play fast and furiously!

Each activity is given a **name**, in this case 'Shape/tape'. The **target sound** is the sound that the child has difficulty with. This is followed by 'word initial' or 'word final', depending on whether the target sound appears at the beginning or end of the words.

The **contrast** is the sound that the child tends to use to replace the target sound. The **words** are the pair or pairs of words that are used in the activity and include the target and contrast sounds.

Resources are then listed. These are often objects and materials that are readily available in schools. The picture materials are on the CD.

The **activity** is then described with some hints about how to make it work well as a listening game. Sometimes, as in this case, the activity is specific to the words 'shape/tape'. Many activities are adaptable and can be used with a number of different pairs of words.

Working on error patterns, not individual sounds

Children with phonological impairments tend to use patterns of errors, so that, for example, all word initial fricatives are produced as 'stops'. Different target sounds can be selected that all address the same underlying difficulty. If working on stopping, activities that include target sounds 'f', 's' and 'sh', for example, might all be selected and included in the child's listening programme.

Using generalisation and carryover activities

After working on listening skills, a child may begin to use the target sounds in words on some occasions or in structured activities carried out by an SLT, but they might not yet use the target sounds in words habitually. Generalisation and carryover activities should only be used if the child can already say the target sounds in words. How to implement generalisation and carryover activities is described in Chapter 15, and activities to use for each error pattern are provided on the CD.

The activities are designed to be easy to implement in the classroom, often as part of the daily routine or curriculum. The child is more likely to remember to modify their speech patterns if given many reminders throughout the day.

7

Stopping

Problems with ‘f’, ‘v’, ‘th’, ‘s’, ‘z’, ‘sh’ (fricatives) and ‘ch’, ‘j’ (affricates) in words

If a child has difficulties with these sounds only when they are in ‘clusters’ of consonants such as ‘sp’, ‘sk’, ‘sm’ and/or ‘fl’, ‘fr’ ‘thr’, refer to Chapters 13 and 14.

Definition

Fricatives are sounds made by the air being forced through a narrow gap and are commonly replaced by stops (plosives) where air is built up and suddenly released explosively. As we saw in Chapter 4, children commonly use the pattern of context sensitive voicing (CSV) in combination with stopping. If they do this the pronunciations of the target words might sound more like those listed in column three in Table 7.1.

Table 7.1 Examples of the error pattern ‘stopping of fricatives’

Target word	Child’s pronunciation	Child’s pronunciation if combined with CSV
fair, leaf	pair, leap	bear, leap
van, cave	ban, cabe	ban, cape
thumb, Ruth	tum, root	dumb, root
these	dede	dete
sun, piece	ton, Pete	done, Pete
zip, maze	dip, made	dip, mate
shoe, mash	two, mat	do, mat

Similarly, the affricates (‘ch’ and ‘j’) sound like the voiceless or voiced stop (see Table 7.2).

Table 7.2 Examples of the error pattern ‘stopping of affricates’

Target word	Child’s pronunciation	Child’s pronunciation if combined with CSV
chin, match	tin, mat	din, mat
jam, badge	dam, bad	dam, bat

Development of fricatives and affricates

The fricatives and affricates are a large group of sounds in English, and they develop between the ages of two-and-a-half and seven years. The sounds ‘f’ and ‘s’ are usually the first to develop, and are present in the speech of children aged two-and-a-half to three years. The ‘sh’ sound emerges more slowly and will often sound more like ‘s’ until children are four or five years old. It is not unusual for the voiceless ‘th’ (as in ‘thin’) to sound like ‘f’, and voiced ‘th’ (as in ‘there’) to be pronounced as ‘v’ or ‘d’ even until a child is aged seven. In some dialects of English there is no ‘th’ sound so ‘thin’ sounds like ‘fin’ or ‘tin’ and ‘there’ sounds like ‘vair’ or ‘dair’ even in adult speakers.

The affricates (‘ch’ and ‘j’) might be produced in simplified forms until the age of five. As these sounds develop children might produce them as fricatives (deaffrication) where ‘chair’ sounds like ‘shair’ and ‘jam’ like ‘zham’ (the ‘zh’ is the sound in ‘measure’), or they might ‘front’ the affricates, so ‘chair’ sounds like ‘tsair’ and ‘jam’ sounds like ‘dzam’. See Chapter 11 ‘Deaffrication and other error patterns that affect the sounds “ch” and “j”’ for activities to work on this pattern.

Specific activities to increase awareness of fricatives in words

Important: Before trying these activities read the general information about using the listening and discrimination methods described in Chapter 6, page 69–71.

Target sound ‘f’ word initial

Feed the puppet

Target sound: ‘f’ word initial

Contrast: ‘p’

Words: fan, pan

Resources: a toy saucepan; a paper fan (that the child has made and decorated); food such as beans or sausages made from playdough and/or other play food; toy plate;

'Wendy house' cooker or a 'hob' with electric rings made from paper; puppet with a mouth that can open

Activity

Explain that the puppet is hungry and wants some food to be heated up in the pan. If it is too hot the fan is needed to cool the food down. The adult works the puppet that gives a food item to the child and asks for a pan. The child pretends to heat up the food and then puts it on a plate. The puppet starts to eat – but if the food is still cold, asks for the pan (and child reheats the food), and if too hot, asks for the fan, which the child waves over the food. Sometimes the food is just right and gets eaten. More food can then be heated/cooled so the child has plenty of opportunities to hear the words 'fan' and 'pan'. The adult should avoid making facial expressions associated with 'too hot' or 'too cold' as this gives extra clues. Just sound annoyed and say 'I need the pan' or 'I need the fan'.

Sorting game

Target sound: 'f' word initial

Contrast: 'p'

Words: fort, port

Resources: a picture of a fort and seaside port from the CD (or models); pictures or objects associated with each (e.g. fort – knights, horses, flagpoles, drawbridge, etc.; port – yachts, ships, cranes, fishing nets, seagulls, etc.)

Activity

The child has the fort and port pictures in front of them. The adult selects one of the smaller objects secretly and tells the child where it goes. 'This one goes with the port' or 'This is for the fort'. The child indicates the picture or model they have heard and the adult gives the child the item to add. Sometimes repeat the same word in successive turns, so the child has to keep listening. Repeat the word if the child indicates the wrong picture.

Name game: witch story

Target sound: 'f' word initial

Contrast: 'p'

Words: Fair bear, Pear bear

Resources: string; **Fair Bear** and **Pear Bear** (part of the Bear family) can be found on the CD (p. 64). Laminate the chosen characters or stick them on cardboard and cut them out so they can be attached to a piece of string.

Activity

The characters are tied on to two pieces of string that are hung over a coat hook, for example, so that pulling on one end of the string results in the characters being lifted up reasonably high. The adult tells a story about a witch. She casts a spell on the characters so that they fly up into a tree. The adult shows the child how to slowly pull the string so the character flies a little way at a time. The adult then says the name of the character who should move, and the child pulls that string, with the adult giving a non-verbal 'stop' sign to prevent the character moving far. Once the character is at the top the adult explains that they can rescue the character (using the character's name) with the child's help. Again the adult names the characters in turn, and the child gradually lets go of the string so the character comes a little way down to the ground in each turn.

This activity could involve other characters: **Fig Pig** and **Pig Pig** (CD, p. 70), **Fat Cat** and **Pat Cat** (CD, pp. 67–8), **Fee Bee** and **Pea Bee** (CD, p. 63).

Hiding game: fox in the box

Target sound: 'f' word initial

Contrast: 'b'

Words: fox, box

Resources: a large and small box with lids (the small box should fit inside the larger one); a toy fox or picture of a fox from the CD; a scorecard

Activity

The adult shuts his or her eyes and the child hides either the fox or the small box inside the larger one. The adult shakes the large box and guesses if it contains the fox or box. (Remind the child to hide the other item!) The child opens to the box to show the adult if they are right, and then marks their scorecard accordingly. Have about ten turns at this.

Hiding game: phone or bone

Target sound: 'f' word initial

Contrast: 'b'

Words: phone, bone

Resources: a mobile phone (or toy mobile phone); plastic bone (from a pet shop?) that is a similar size and shape to the phone; a cloth bag; a scorecard

Activity

The activity is essentially the same as the 'fox in the box' game above, but this time hide one of the items in a cloth bag. The idea is to guess which item is in the bag by feeling it.

The difficult journey

Target sound: 'f' word initial

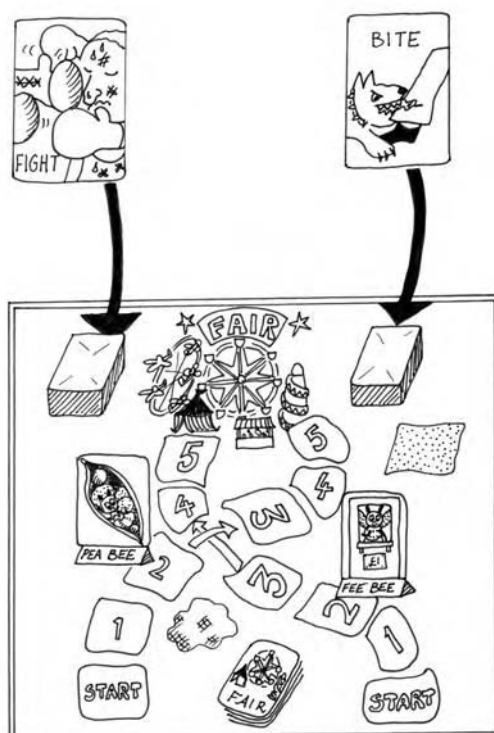
Contrast: 'b'

Resources: Pictures of fight, bite; fig, big or fair, bare; fog, bog and a pair of family members (e.g. **Fig Pig** and **Big Pig** (CD, p. 70) or **Fair Bear** and **Bare Bear** (CD, p. 64); a piece of tracing paper that illustrates 'fog' and some playdough (the bog); a game board with two pathways marked in paving stones (about five) leading to a picture of the fair

Activity

Tell a story about (for example) Fig Pig and Big Pig who want to visit the fair. They are each placed at the beginning of one of the paths leading to the fair. The story is made up as you go along. The animals want to see who gets to the fair first. The animals take turns. At each 'turn' two paired pictures at a time (such as 'fight' and 'bite') are shown to the child and then placed under two boxes. The boxes are then 'swizzled' round by the child while the adult is 'not looking'. The adult picks one box and guesses what is inside. The child finds the picture and decides if the adult guessed right. If correct the animal moves to the next square. If not the animal moves back a square. When the 'fog' and 'bog' pictures are turned up the animal is put in the bog or gets lost in the fog (under the tracing paper), and misses a turn.

Note: The child is doing more than just discriminating two words, as they have to decide if the adult word matched the picture. To simplify the task the adult needs to guess right every time so the child is only discriminating the two words.



Name game

Target sound: 'f' word initial

Contrast: 'b'

Words: select one pair from the following list in 'Resources'

Resources: **Fig Pig**, **Big Big** (CD, p. 70), **Fair Bear**, **Bare Bear** (CD, p. 64), **Fog Dog**, **Bog Dog** (CD, p. 69), **Funny Bunny**, **Bunny Bunny** (CD, p. 66), **Fat Cat**, **Bat Cat** (CD, p. 68), **Fee Bee**, **Bee Bee** (CD, p. 63)

Activity

Use one of these pairs in the 'Name game: witch story' described above.

Target sound 'f' word final

Sad tree story

Target sound: 'f' word final

Contrast: 'p'

Words: leaf, leap

Resources: two large trees drawn on paper; cut-out leaves that the child has made or coloured; a toy squirrel or photograph of a squirrel

Activity

The child has the leaves in front of them and access to the trees and the squirrel. The adult tells a story about two sad trees with no leaves: 'It was a very windy night and in the morning when it got light the trees were very sad because all their leaves were gone. Luckily the helpful leaf giant could come to the rescue.' The child is the leaf giant, who looks after the leaves and will give one to the tree if they ask. Sometimes the trees make a mistake and say 'leap' instead of leaf. That means a naughty squirrel leaps from one tree to the other, and the trees don't like this.

The adult (speaking for the trees) then says 'leaf' or 'leap'. When the child hears 'leaf' they can stick a leaf on a tree. If they hear 'leap' they make the squirrel leap and the 'tree' complains.

Tail game

Target sound: 'f' word final

Contrast: 'p'

Words: Puff, pup; calf, carp

Resources: several pictures of animals – Puff (dragon), pup, calf, carp (fish) (from the CD) – with their tails cut off; the separate tails for each animal; drawing or photograph of a cave (for the dragons), a pond (for the carp), a field (for the calves) and a dog basket (for the pups)

Activity

The child has the pictures of the animals, and the adult secretly selects a tail from a bag and says the animal's name. The child then finds that animal. If correct, the child sticks on the tail and puts the animal in the right location. If the child gets the wrong animal, repeat the animal's name. Only show the child the tail picture after they have selected the animal correctly, so they cannot rely on a visual cue.

Target sound 's' word initial

Sorting game

Target sound: 's' word initial

Contrast: 't'

Words: sea, tea

Resources: a picture of the sea and a picture of a cup of tea; smaller pictures of things that go in the sea (e.g. fish, boats, seaweed, crabs) and things that go in tea (e.g. milk, sugar, spoon and teabag) from the CD. This activity can involve real objects, with a bowl of water as the 'sea'.

Activity

The pictures (or objects) sea and tea, are placed on a wall or on a table a little way from where the child is sitting.

The adult secretly picks one of the smaller pictures or objects and says where it goes – sea or tea. The child goes up to the picture/object they heard (sea or tea) and the adult then shows them the small item to see if they were right. The child then attaches it to the picture (or adds it to the object) and returns to their seat for the next turn. Sometimes the adult might make a 'deliberate mistake' to introduce humour.

Sewing cards

Target sound: 's' word initial

Contrast: 't'

Words: sew, toe, Sue, two

Resources: Make two simple sewing cards – one with a drawing of a girl's face, 'Sue', and the other a number two, '2'. (Complete a couple of stitches on each card.) Draw a picture of a boy with large feet and some toes missing. If this is a group activity you will need extra sewing cards with pictures of 'tent' and 'scent' or 'sailor' and 'tailor', for example. Pictures can be found in the bank of images on the CD.

Activity

Explain that you have a few things you need help with – completing sewing cards, and finishing the picture of the boy, and you will say which thing needs to be done next. When you say 'toe' the child can draw a 'toe' on the boy. When you say 'sew' the child picks up a needle and you name one of the sewing cards. Use a timer so that each turn is kept brief and the child hears the target words several times. This works as a group activity with each child taking turns, as each child can stay busy while the others have their turn, but you will need the extra sewing cards.

Action game

Target sound: 's' word initial

Contrast: 't'

Words: see, tea; sick, tick

Resources: Select items from the following list (you need one each of these items per person): a 'telescope' cardboard tube (see), cup (tea), paper and pencil (tick)

If using the additional words below: a bit of string (tie), needle and thread (tailor), plastic lemon (sour), brick (tower). Several actions don't need props.

Activity

The adult needs to familiarise the children with the pairs of words. Pictures could be used to help this. Do the actions together at first. Once the child has practised the actions a few times, the adult simply says one of the words and the child does the action. The actions are as follows: **See** (looks through telescope), **tea** (drinks from cup), **sick** (looks ill), **tick** (draws a tick). Each action can be carried out a number of times.

In this activity it is important to just say the word 'see' or 'tea' so extra clues about the word are not provided (see Chapter 6, page 70).

You could include or substitute other words, e.g. sigh, tie; sailor, tailor; sour, tower.

These actions would be: **sigh** (sigh as if fed up), **tie** (attempt to tie a bow in the string), **sailor** (pretend to be on a boat – swaying), **tailor** (pretend to sew), **sour** (pretend to eat a lemon – make a sour face), **tower** (put bricks on tower).

Things that go together

Target sound: 's' word initial

Contrast: 't'

Words: sea, tea; sailor, tailor; scent, tent; surf, turf

Resources: pictures from the CD of the words listed above; a bag; drawings or photographs/pictures of the associated items that go with each of these words. These are in brackets: sea, (fish), tea (spoon); sailor (sailor's hat), tailor (needle and thread); scent (nose), tent (sleeping bag); surf (surfboard), turf (lawnmower)

Activity

Talk about the pictures and the associated (bracketed) items, to familiarise the child with the connections. This may take a while. Make sure the child has the connections in mind before you proceed. Once the child is familiar with the associations, put the target and contrast pictures in a bag and the associated (bracketed) pictures (fish, sleeping bag, etc.) in front of the child. The adult asks the child to find the picture that goes with 'sailor' or 'tailor' for example. The child then finds the 'sailor' or 'tailor' from the bag and puts it with the connected picture.

Name game: bossy puppet

Target sound: 's' word initial

Contrast: 'd'

Words: Sol, doll

Resources: a boy and girl figure referred to as Sol and doll; a puppet; two or three activities such as colouring, puzzles and a construction toy. These are spread out on the floor or spaced widely on the table.

Activity

The adult works the bossy puppet who tells one of the characters what to do. 'Sol! do the puzzle', swiftly followed by another instruction, 'Doll! do some colouring' or 'Sol! do the building'. The child takes the character to the activity and does a little bit before the puppet gives a new instruction.

Name game

Target sound: 's' word initial

Contrast: 'd'

Words: Soapy, Dopey

Resources: A picture of Dopey from *Snow White* and another character you draw who is covered in soapsuds (Soapy).

Activity

Use these characters in the 'Name game: witch story' or 'Name game: bossy puppet' activities described above.

Sea Bee and **D Bee** (Bee family) on the CD could also be used in these activities.

Target sound 's' word final

Puzzles

Target sound: 's' word final

Contrast: 't'

Words: plaice, plate

Resources: enlarged pictures of a plaice and plate that are cut into pieces (pictures can be found on the CD); a bag in which the puzzle pieces are kept

Activity

The child finds a piece of the puzzle the adult names: 'Find a bit of plate' or 'Find a bit of plaice'. Say the same word a couple of times in a row sometimes to keep the child listening. To speed this up and/or simplify the task, have the puzzle pieces for the plaice and plate in separate bags. The activity is repeated until the puzzles are complete.

Other pairs of words could be used in this activity.

Marked set of pictures

Target sound: 's' word final

Contrast: 't'

Words: ace, eight

Resources: pictures of 'ace' and 'eight' available on the CD (you need ten copies of each picture). Stick the pictures on card so the child cannot see through them and put a sticker or a pen mark on the back of one set of pictures.

Activity

Turn the cards face down on the table and ask the child to find the one you say. After a few tries they should realise without being told that there is a clue to which picture is which. Be amazed by their magic powers! This game can be carried out with any pair of pictures.

Target sound 'z' word initial

Name game

Target sound: 'z' word initial

Contrast: 'd'

Words: zebra, Debra

Resources: a picture or toy zebra; another female figure you name Debra

Activity

Use the 'Name game: witch story' or 'Name game: bossy puppet' activities described above.

Target sound 'z' word final

Rose road

Target sound: 'z' word final

Contrast: 'd'

Words: rose, road

Resources: about eight plastic (or real!) roses and a vase, or paper roses you have drawn; pieces of a road construction toy (or make a cardboard road, and cut it into several pieces); a toy house and mother figure or a picture of mum in a house; two toy phones; a puppet who is the 'delivery man'

Activity

Explain that you want help with making a beautiful flower arrangement for your mum as it's Mother's Day. Unfortunately the road to her house is not yet finished and you need help with that too. Say you are running late and have to hurry. The child looks after the roses and road pieces in their 'shop'. Sit a little way from the child and pretend to ring them up. Ask for road or rose. The child then makes the puppet deliver the item to you and goes back to the shop. Repeat this (try and keep the activity fast moving) until the child has delivered all the roses to the happy 'mum'.

Name game

Target sound: 'z' word final

Contrast: 'd'

Words: Buzz, Bud

Resources: a picture or model of Buzz Lightyear; another animal or character you name 'Bud'

Activity

Use the 'Name game: witch story' or 'Name game: bossy puppet' activities described above.

Target sound 'sh' initial

Sorting activity

Target sound: 'sh' word initial

Contrast: 't'

Words: shiny, tiny

Resources: a range of shiny objects, some small and some larger (e.g. money, jewels, tin foil, cutlery, stickers, tinsel, etc.); a number of tiny objects (plastic insects, money, bits of playdough, rice – some can be shiny); two hoops laid on the floor, with one labelled 'shiny' and one 'tiny' – or one representative item in each

Activity

The child has the items arrayed in front of them and the adult says 'put something shiny in the hoop' or 'put something tiny in the hoop'. Sometimes repeat the same instruction in successive turns, so the child has to keep listening. If you overlap the hoops some things will fall into the subset tiny *and* shiny.

Shape/tape

Target sound: 'sh' word initial

Contrast: 't'

Words: shape, tape

Resources: a shape-sorter toy; some sticky tape and a box (to represent a birthday present that is partially wrapped up but needs more tape). Use a tape dispenser or prepare bits of tape and stick them on the edge of the table, to save time.

Activity

The adult says 'shape!' and the child puts a brick in the shape sorter. The adult says 'tape!' and the child sticks a bit of tape on the present. Do not add more words to the instruction as you want the child to be listening for the first sounds in the words. Mix up the instructions so you sometimes say a word twice in a row. Play fast and furiously!

Things that go together

Target sound: 'sh' word initial

Contrast: 't'

Words: shack, tack; shin, tin; ship, tip; shape, tape; shower, tower

Resources: pictures from the CD of the words listed above; a bag; drawings or photographs/pictures of the associated items that go with each of these words. These are in brackets: shack (old chair), tack (hammer), shin, (shin pad), tin (tin opener), ship (anchor), tip (rubbish), shape (shape-sorter toy), tape (videotape), shower (shower hose), tower (telescope)

Activity

Talk about the pictures and the associated (bracketed) items, to familiarise the child with the connections. This may take a while. Make sure the child has the connections in mind before you proceed. Once the child is familiar with the associations, put the target and contrast pictures in the bag and the associated (bracketed) pictures (old chair, hammer, etc.) in front of the child. The adult asks the child to find the picture that goes with 'shack' or 'tack', for example. The child then finds the picture (from the bag) and puts it with the connected picture.

Marked set of pictures

Target sound: 'sh' word initial

Contrast: 'd'

Words: shark, dark; shirt, dirt

Resources: pictures of 'shark' and 'dark' from the CD (you need ten copies of each picture). Stick the pictures on card so the child cannot see through them and put a sticker or a pen mark on the back of one set of pictures.

Activity

Turn the cards face down on the table and ask the child to find the one you say. After a few tries they should realise without being told that there is a clue to which picture is which. Be amazed by their magic powers! This game can be carried out with any pair of pictures.

Name game

Target sound: 'sh' word initial

Contrast: 'd'

Words: Sharon and Darren or Shawn and Dawn or **She Bee** and **D Bee**

Resources: characters with the names as above – **She Bee** and **D Bee** on the CD (p. 63)

Activity

Use the 'Name game: witch story' or 'Name game: bossy puppet' activities described above.

Target sound 'sh' final

Action game

Target sound: 'sh' final

Contrast: 't'

Words: mash, mat; bash, bat; flash, flat

Resources: a potato masher and playdough (to mash), a mat, a drum, a bat and softball, a torch (or flashing bicycle light) and some crumpled pieces of paper. You could start by using only one or two pairs of words.

Activity

After careful familiarisation with the words, ask the child to follow your instructions. If you say **mash** (they mash the playdough), **mat** (sit on the mat), **bash** (bang the drum or bash a spoon against the table), **bat** (bat a ball), **flash** (flash the light), **flat** (try to flatten a piece of paper). It is important to just say the words in an identical phrase such as 'now bash!' and then 'now bat!', for example, as the child needs to listen carefully for the final consonant. You need to present the activity as 'fast and furious', otherwise the child will become too engrossed in some of the more interesting activities!

Target sound 'ch' word initial

Marked set of pictures**Target sound:** 'ch' word initial**Contrast:** 't'**Words:** chin, tin (or chip, tip)**Resources:** pictures of 'chin' and 'tin' from the CD (you need ten copies of each picture). Stick the pictures on card so the child cannot see through them and put a sticker or a pen mark on the back of one set of pictures.**Activity**

See the activity 'Marked set of pictures' above under 'sh' word initial.

Action game**Target sound:** 'ch' word initial**Contrast:** 't'**Words:** chew, two; chin, tin**Resources:** Select items from the following list (you need one each of these items per person): a tin containing a brick (as a shaker) and, if using the extra words below, a spinning top (top), paper and pencil (tick), play-food chips (or chips made from playdough) a tip-up truck or trailer (tip). Several actions do not need props.**Activity**

The adult needs to familiarise the children with the pairs of words. Pictures could be used to help this. Do the actions together at first. Once the child has practised the actions a few times, the adult simply says one of the words and the child does the action. The actions are as follows: **Chew** (pretends to chew gum), **two** (writes a two in the air), **chin** (points to their chin), **tin** (shakes the tin). Each action can be carried out a number of times. In this activity it is important to just say the word 'chew!' or 'two!' so extra clues about the word are not provided (see Chapter 6, page 70).

You could include or substitute other words, e.g. chop, top; chick, tick; chip, tip. The actions would be: **chop** (pretend to chop wood), **top** (spin a top), **chick** (pretend to be one), **tick** (draw a tick on paper), **chip** (pretend to eat one), **tip** (tip up the trailer).

Target sound 'ch' word final

Catch cat

Target sound: 'ch' word final

Contrast: 't'

Words: catch, cat

Resources: a beanbag; a picture of a cat and a picture of a ladder (at the top of the ladder is a mouse)

Activity

If you say 'cat', the child sends the cat up the next rung of the ladder. If you say 'catch' the child tries to catch the beanbag you throw. After each turn, move away from the cat picture or retrieve the beanbag. Keep the intonation similar as you say both the words. The game is over when the cat gets the mouse.

Things that go together

Target sound: 'ch' word final

Contrast: 't'

Words: match, mat; pitch, pit; porch, port; coach, coat; catch, cat; hutch, hut

Resources: pictures from the CD of the words listed above; a bag; drawings or photographs/pictures of the associated items that go with each of these words. These are in brackets: match (spent match), mat (computer mouse mat), pitch (goal), pit (coal); porch (front door), port (boat); coach (wheel), coat (button); catch (ball), cat (kitten); hutch (rabbit), hut (beach)

Activity

See previous 'Things that go together' activity under 'sh' word initial for information about how to carry out this activity.

Target sound initial 'j'

Name game: Who likes what?

Target sound: 'j' word initial

Contrast: 'd'

Words: John, Don

Resources: play-food items (place these on the table); puppets or characters named John and Don

Activity

The food items are placed in the middle of the table, and the named characters either side of the child. The adult has a 'list' of the foods each character likes. The child holds up an item and the adult consults the list and says the name of the character who likes it. The child indicates the character they heard, and then makes him 'eat' the food.

The same activity could be carried out using **Jog Dog** and **Dog Dog** (Dog family) available on the CD (p.69).

Further activities

The above activities are only a few of those that you can use to help the child who is working on the 'stopping' error pattern. Many of the activities can be used with different pairs of words. Other word pairs and pictures can be found under 'Stopping' in 'Pairs and sets' on the CD (pp. 43–6).

Specific activities to help children *use* fricatives and affricates in words

The activities above are all designed to help the child listen and distinguish words with fricative and affricate sounds. Activities on the CD pages 21–30 are designed to help children who can produce fricatives and affricates in words, but do not do so habitually when they speak. These activities can be used after discussion with a speech and language therapist to make sure the child is ready for the change of emphasis from listening work to saying words with the target sounds.

Important: Before trying these activities read the general information about using the generalisation and carryover methods described in Chapter 15.

8

Fronting and backing

Problems with velars ‘k’, ‘g’ and ‘ng’ (fronting) or alveolars ‘t’, ‘d’, and ‘n’ (backing) and problems with ‘sh’ (produced as ‘s’)

Definition

Fronting of velars

The sounds made with the back of the tongue on (or close to) the soft palate are replaced by sounds made with the tongue tip on the alveolar ridge (see Chapter 3 ‘How we perceive speech’). When children are fronting they produce ‘k’, ‘g’ and ‘ng’ as ‘t’, ‘d’ and ‘n’, respectively (Table 8.1). As we saw in Chapter 4, children commonly use the pattern of context sensitive voicing (CSV) in combination with fronting. If they do this the pronunciations of the target words might sound more like those listed in column three in Table 8.1.

Table 8.1 Examples of the error pattern ‘fronting of velars’

Target word	Child’s pronunciation	Child’s pronunciation if using CSV
car	tar	dar
neck	net	net
go	dough	dough
bag	bad	bat
wing	win	win
banger	banner	banner

Backing of alveolars

The opposite of the fronting pattern can also happen. Here children produce the alveolar sounds ‘t’, ‘d’ and ‘n’, as the velar sounds ‘k’, ‘g’ and ‘ng’ (Table 8.2).

Table 8.2 Examples of the error pattern ‘backing of alveolars’

Target word	Child’s pronunciation	Child’s pronunciation if using CSV
tar	car	gar
net	neck	neck
dough	go	go
bad	bag	back
win	wing	wing
banner	banger	banger

Although unusual in normally developing children, this is one of the more common non-developmental patterns found in children with speech disorders. The backing pattern is also often found in children who were born with a cleft palate.

Fronting of palatoalveolar fricative ‘sh’

One other group of sounds is subject to fronting in typically developing children. These are sounds made with the tongue *towards the back* of the alveolar ridge, but children tend to produce the sounds with the tongue tip *on* the alveolar ridge. Fronting of ‘sh’ is included here (Table 8.3).

The palatoalveolar affricates ‘ch’ and ‘j’ can also be fronted in a similar way. The patterns affecting affricates are all included in Chapter 11 ‘Deaffrication and other error patterns that affect the sounds.’

Table 8.3 examples of the error pattern ‘fronting of ‘sh’

Target word	Child’s pronunciation
shoe	sue
she	see
push	puss

Development of velars

In normal development children can usually produce velar sounds consistently in words by four years of age. In conversational speech the fronting patterns can persist beyond this age; for example: ‘I can – “tan” – do it’; ‘Could – “tould” – you show me?’; ‘I’m gonna – “donna” – play’.

Development of palatoalveolars

The 'sh' sound is 'stopped' earlier in development (see Chapter 7), but not usually beyond age three. Then, when the child can produce it with friction it tends to be fronted as in the examples in Table 8.3. A mature 'sh' may not be present until children are aged five.

Activities to increase awareness of velar sounds 'k' and 'g' in words

Important: Before trying these activities read the general information about listening and discrimination methods in Chapter 6.

Target sound 'c/k' word initial

Name game: witch story

Target sound: 'c/k' word initial

Contrast: 't'

Words: Kim, Tim; or Kai, Ty

Resources: string; puppets or characters named Kim and Tim, or Kai and Ty

Activity

The characters are tied on to two pieces of string that are hung over a coat hook, so that pulling on one end of the string results in the characters being lifted up reasonably high. The adult tells a story about a witch. She casts a spell on the characters so that they fly up into a tree. The adult shows the child how to slowly pull the string so the character flies a little way at a time. The adult then says the name of the character who should move, and the child pulls that string, with the adult giving a non-verbal 'stop' sign to prevent the character moving far. Once the character is at the top the adult explains that they can rescue the character (using the character's name) with the child's help. Again the adult names the characters in turn, and the child gradually lets go of the string so the character comes a little way down in each turn.

Pictures of **Key Bee** and **Tea Bee** (on the CD page 63 – cut out and laminate/stick on cardboard) could also be used in this activity.

Swizzle boxes

Target sound: 'c/k' word initial

Contrast: 't'

Words: key, tea

Resources: two boxes; a key and cup (of tea); a scorecard

Activity

The two objects are placed underneath upturned boxes. The child is told to remember where the objects are. The box that has the target word object underneath has a sticker or mark on it.

The adult swizzles the boxes around and then asks the child to find one of the objects. They get a tick on the scorecard if the first box they turn over is the one the adult said. Repeat this a few times. After a few goes at this the child is likely to have noticed the 'clue' on the box – if not, draw attention to it. Pictures can be used instead of objects.

Any pair of words can be used in this activity.

Puzzles

Target sound: 'c/k' word initial

Contrast: 't'

Words: coffee, toffee

Resources: enlarged pictures of coffee and toffee that are cut into pieces (pictures can be found on the CD); a bag in which the puzzle pieces are kept

Activity

The child finds a piece of the puzzle the adult names: 'Find a bit of "coffee" or 'Find a bit of "toffee"'. Say the same word a couple of times in a row sometimes to keep the child listening. To speed this up and simplify the task, have the puzzle pieces in separate bags. The activity is repeated until the puzzles are complete.

Other pairs of words could be used in this activity.

Action game

Target sound: 'c/k' word initial

Contrast: 't'

Words: cap, tap; key, tea; kick, tick

Resources: a baseball cap or a paper cap you have made with the child; a stick to 'tap' the table; a key and a picture of a door with a lock; a cup (of tea); a play person and ball (who can be made to 'kick') and pen and paper to draw a 'tick'. You need one each of these items per person. You may want to be selective and choose only one or two pairs of words to start with.

Activity

The adult needs to familiarise the child with the pairs of words. Pictures could be used to help this. Do the actions together at first. Once the child has practised the actions a few times, the adult simply says one of the words and the child does the action. The actions are as follows: **cap** (the child puts on the cap, and takes it off again), **tap** (taps the table with a stick), **key** (pretends to lock the door), **tea** (pretends to drink from the cup), **kick** (makes the play person kick the ball) and **tick** (draws a tick on the paper). Each action can be carried out a number of times. In this activity it is important to just say the word 'key!' and then 'tea!' and so on, so that extra clues about the word are not provided.

Fixing game

Target sound: 'c/k' word initial

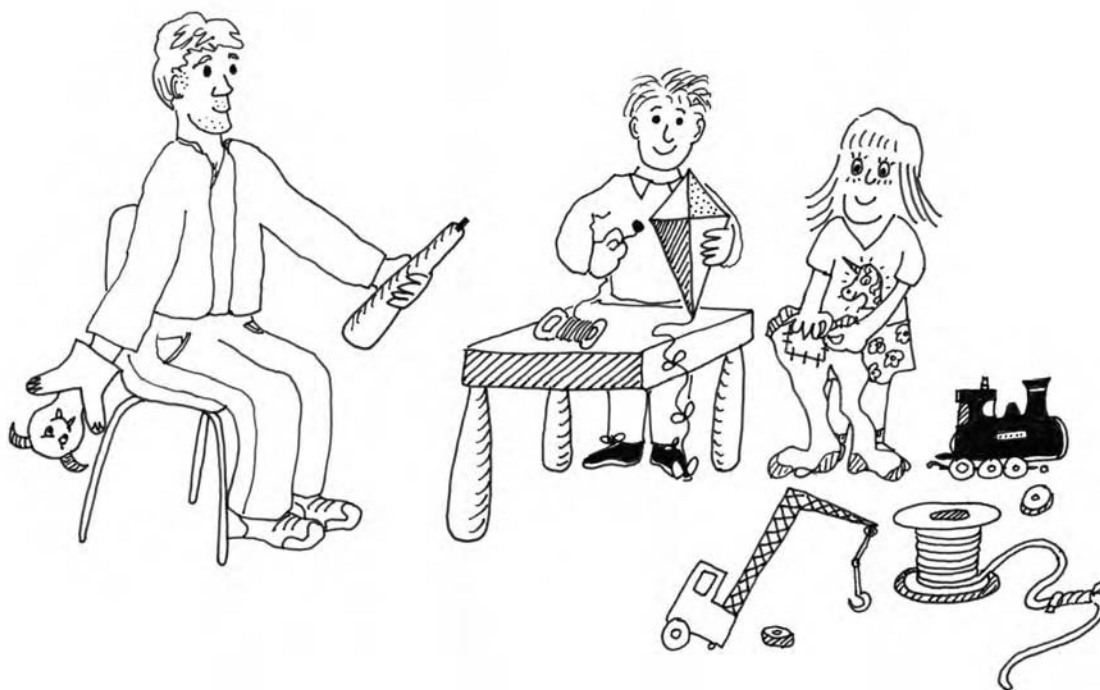
Contrast: 't'

Words: cable, table; kites, tights; crane, train

Resources: Objects as above, or pictures of the items. If using objects each one needs to be 'broken' and easily fixable. For example, a 'cable' can be cut and then fixed with insulation tape. The toy table has a leg that comes off but can be slotted back in a hole – or make a table from a construction kit. The kites have strings that can be fixed on with Blu-tack. The tights have a hole, which has been 'mended' with a removable patch. The crane and train have a tyre or wheel that is removable. To play this with pictures draw each one in pencil and rub out a part of the picture. The child has to draw that bit back in. Pictures are available on the CD.

Activity

The 'broken' items are in front of the child with the materials for 'fixing' nearby. Demonstrate what the child has to do to fix the items. Explain that the child is a busy repair man and has to get his work done fast. Name one of the items, which the child fixes, then name the rest in turn. Make sure the fixing does not take too long! You can repeat the words even when the items are fixed. The child will demonstrate that they have discriminated that word, by commenting that it is fixed already. A naughty puppet might come by and break everything again, so the child gets more listening practice.



Things that go together

Target sound: 'c/k' word initial

Contrast: 't'

Words: cart, tart; key, tea; cable, table; cape, tape; cap, tap; kites, tights; crane, train

Resources: pictures from the CD of the words listed above; a bag; drawings or photographs/pictures of the associated items that go with each of these words – these are (in brackets): **cart** (horse), **tart** (jam or cream); **key** (padlock), **tea** (teabag); **cable** (plug), **table** (chair); **cape** (Batman), **tape** (video player); **cap** (head), **tap** (sink); **kites** (string), **tights** (Superman!); **crane** (hook), **train** (track).

Activity

Talk about the pictures and the associated 'bracketed' items, to familiarise the child with the connections. This may take a while. Make sure the child has the connections in mind before you proceed. Once the child is familiar with the associations, put the target and contrast pictures in the bag and the associated (bracketed) pictures (e.g. horse, jam) in front of the child. The adult asks the child to find the picture that goes with 'cart' or 'tart', for example. The child then finds the picture (from the bag) and puts it with the connected picture.

Throwing game

Target sound: 'c/k' word initial

Constrast: 't'

Words: cart, tart; key, tea; cable, table; cape, tape; cap, tap; kites, tights; crane, train

Resources: beanbags; a selection of objects from words listed above

Activity

Line the objects up at the back of a table. Some objects may need to be attached with Blu-tack, so they stand up enough to be hit with a beanbag.

Tell the child which object to aim for. This works well as a team game, with two children at a time aiming for the same object. If they hit the item they win it.

Target sound 'c/k' word final

Hiding game: Mac, mat

Target sound: 'c/k' word final

Contrast: 't'

Words: Mac, mat; Mick, mitt; rack, rat; mask, mark

Resources: a Mac (raincoat) and mat; objects with word final 'c/k' or 't' (Mick, mitt; rack, rat; mask, mast). Pictures can be used, but then it becomes a real guessing game, as there are no clues provided by the shape of the hidden object.

Activity

The activity involves hiding objects under the Mac or mat. The adult tells the child which object to hide. The adult shuts their eyes and the child hides the object. The adult guesses where it is and the child should look under that item. It is important to make sure the child looks under the named item and not where they hid the object or picture!

Eating game

Target sound: 'c/k' word final

Contrast: 't'

Words: pork, port; coke, coat; cake, Kate; egg, Ed

Resources: a selection of the above pairs of pictures; a puppet with a mouth that can open – or a 'monster' on the hand with eyes drawn on the side of the index finger and the thumb acting as a 'mouth' that can open and shut

Activity

The pictures are placed in front of the child. The adult explains that the puppet is very hungry but they are not certain what he likes to eat. The adult suggests one of the pictures. The child finds it and feeds the puppet. If it is a nice food item the puppet gobbles it up. If not it spits it out. In order to make this useful for discrimination the adult needs to say each pair of words in successive requests, for example: 'Give him cake' followed by 'Give him Kate' and 'Give him a coke' followed by 'Give him a coat'.

Target sound 'g' word initial

Name game: Who likes what?

Target sound: 'g' word initial

Contrast: 'd'

Words: Gail, Dale

Resources: play-food items or any objects the child selects (place these on the table); puppets or characters named Gail and Dale

Activity

The named characters should be either side of the child. The adult has a 'list' of the things each character likes. The child could hold up an item and the adult consults the list and says the name of the character who likes it. The child adds the item to that character's pile of things.

Marked set of pictures

Target sound: 'g' word initial

Contrast: 'd'

Words: gate, date

Resources: pictures of 'date' and 'gate' from the CD (you need ten copies of each picture). Stick the pictures on card so the child cannot see through them and put a sticker or a pen mark on the back of one set of pictures.

Activity

Turn the cards face down on the table and ask the child to find the one you say. After a few tries they should realise without being told that there is a clue to which picture is which. Be amazed by their magic powers! This game can be carried out with any pair of pictures.

Target sound 'g' word final

Name game: bossy puppet**Target sound:** 'g' word final**Contrast:** 'd'**Words:** bug, Bud (name)**Resources:** a plastic bug and a character you call Bud; a puppet; two or three activities such as colouring, puzzles and a construction toy. These are spread out on the floor or spaced widely on the table.**Activity**

The adult works the bossy puppet who tells one of the characters what to do. 'Bud! do the puzzle' swiftly followed by another instruction, 'Bug! do some colouring' or 'Bud! do the building'. The child takes the character to the activity and does a little bit before the puppet gives a new instruction.

Target sound 'ng' word final

Fang, fan**Target sound:** 'ng' word final**Contrast:** 'n'**Words:** fan, fang**Resources:** the beginnings of some vampire-like creatures drawn a large sheet of paper (without fangs); cut-out fangs for the creatures; glue; a fan you have made that needs decorating with stickers; the words 'fan' and 'fang' written on bits of paper and put in a bag**Activity**

Give the child the drawing of vampires and the fan and explain that you need help with finishing the vampire's fangs and decorating the fan. The adult looks after the stickers and fangs. You select a slip of paper with either 'fang' or 'fan' written on it and say the word. The child indicates the item in front of them that you said, and you hand them a sticker for the fan or a fang for the vampire.

Activities to increase awareness of alveolar sounds 't' and 'd' in words

The activities listed under fronting can be used to work on the backing pattern. The target sound and contrast are reversed, so 't' and 'd' are the target sounds, and 'k' and 'g' are the contrasting sound in the word pairs selected.

Activities to increase awareness of palatoalveolar sound 'sh' in words

Target sound 'sh' word initial

Name game: witch story

Target sound: 'sh' word initial

Contrast: 's'

Words: She (Bee) and Sea (Bee)

Resources: string; **She Bee** and **Sea Bee** (Bee family) can be found on the CD. Laminate the characters or stick them on cardboard and cut them out so they can be attached to a piece of string.

Activity

The characters are tied on to two pieces of string that are hung over a coat hook, so that pulling on one end of the string results in the characters being lifted up reasonably high. The adult tells a story about a witch. She casts a spell on the characters so that they fly up into a tree. The adult shows the child how to slowly pull the string so the character flies a little way at a time. The adult then says the name of the character who should move, and the child pulls that string, with the adult giving a non-verbal 'stop' sign to prevent the character moving far. Once the character is at the top the adult should explain that they can rescue the character (using the character's name) with the child's help. Again the adult names the characters in turn, and the child gradually lets go of the string so the character comes a little way down in each turn.

Find the hidden object

Target sound: 'sh' word initial

Contrast: 's'

Words: sheet, seat; shoe, Sue

Resources: four bags and four objects (a sheet, seat, shoe and doll named Sue); a scorecard

Activity

Hide each item in a different bag. Name one of the objects and the child tries to 'guess' which bag it is in by feeling the bag. Then they can look in the bag and get a mark on their scorecard if they guessed right first time.

Further activities

The above activities are only a few of those that you can use to help the child who is working on the ‘fronting’ and ‘backing’ error patterns. Many of the activities can be used with different pairs of words. Other word pairs and pictures can be found under ‘Fronting and backing’ in ‘Pairs and sets’ on the CD, pages 46–7.

Specific activities to help children *use* velars, alveolars and/or ‘sh’

The activities above, concerned with fronting of velars, backing of alveolars and fronting of palatoalveolar ‘sh’, were designed to help the child listen and distinguish words with and without the target sounds. Activities on the CD pages 17–20 (k, g), 14–17 (t, d) and 26–7 (sh) are designed to help children who can produce these sounds in words, but do not do so habitually when they speak. These activities can be used after discussion with a speech and language therapist to make sure the child is ready for the change of emphasis from listening work to saying words with the target sounds.

Important: Before trying any of the specific activities read the general information about using the ‘generalisation and carryover’ methods described in Chapter 15.

9

Final consonant deletion

Problems with sounds at the ends of words, where the sounds are missed out

Definition

Children appear to miss off the last consonant in a syllable or word as shown in Table 9.1.

Table 9.1 Examples of the error pattern ‘final consonant deletion’

Target word	Child’s pronunciation
soap	so
bead	bee
fork	for
leaf	lea
sauce	saw
rose	row
bath	baa
peach	pea

Development of final consonants

This pattern is common in two-year-olds, but three-year-olds can usually pronounce the ends of syllables and words, even if not quite correctly. Often children can say some sounds at the ends of words even if they miss others off. The sounds most commonly missed are stops and fricatives ‘s’ and ‘z’ (Dodd *et al.* 2003).

Activities to increase awareness of sounds at the ends of words

Important: Before trying these activities read the general information about listening and discrimination methods in Chapter 6.

Target sounds

A number of different target sounds are included in these activities. These are listed under 'target sound' or 'target sounds' if there are more than one. The contrast in each case is marked by 0 (zero) as the child misses the sounds from the ends of some words.

Bead, bee

Target sound: 'd' word final

Contrast: 0

Cords: bee, bead

Resources: a few pictures of bees or toy bees and a hive (pictures available on the CD); some beads and thread; a puppet; the words 'bee' and 'bead' written on slips of paper and placed in a bag

Activity

The adult explains that the puppet wants help with returning her friends the bees to their beehive. She also wants help with making a necklace. The adult looks after the bees and beads. The hive and necklace are in front of the child. The puppet – worked by the adult – selects a slip of paper and says what she wants. The child points to the hive or the necklace according to what they heard. The adult then gives them a bee to put in the hive, or a bead to thread.

Piece, pea

Target sound: 's' word final

Contrast: 0

Words: pea, piece

Resources: green playdough to make peas; a plate; a jigsaw puzzle or Lego construction toy; a puppet; the words 'pea' and 'piece' written on slips of paper and placed in a bag

Activity

The adult explains that a puppet wants to make some pretend peas and wants to finish his puzzle or construction activity. The adult looks after the peas and pieces of puzzle or Lego and the child has the plate and beginning of the puzzle in front of them. The puppet selects a slip of paper and says what he wants. The child points to the item they heard and is then given a bit of puzzle to fix or a bit of playdough to make a pea.

Sad tree story

Target sound: 'f' word final

Contrast: 0

Words: leaf, Lee

Resources: a large tree drawn on paper; cut-out leaves; a picture of a boy (or play figure) named Lee

Activity

The child has the leaves in front of them and access to the tree and Lee. Tell a story about a sad tree with no leaves. Tell the child that they are the leaf giant, who looks after the leaves and will give them to the tree if it asks. Sometimes the tree makes a mistake and says 'Lee' instead of 'leaf'. That means the boy climbs the tree, and the tree doesn't like this. The adult (speaking for the tree) then says 'leaf' or 'Lee'. When the child hears 'leaf' they can stick a leaf on a tree. If they hear 'Lee' they make the boy climb the tree, which complains.

Find the hidden object under a cloth

Target sound: 'p' word final

Contrast: 0

Words: ape, A; pipe, pie; carp, car; cape, Kay; soup, Sue

Resources: objects to represent a selection of these word pairs: ape, A (plastic letter); pipe, pie; carp, car; cape, Kay (girl doll); soup, Sue (girl doll). Four or so cloths such as tea towels

Activity

A selection of objects are hidden under cloths. The adult names one of the objects and the child has to find it by feeling the shape. After each object is found the adult names another. Other items are hidden as you go along. The activity needs to be kept moving so that the child has many opportunities to discriminate the words. If the child makes a mistake, you need to be aware of whether they failed to discriminate the target, or just found the wrong object. If the latter, they can just cover it again. You can add more objects and cloths to the line-up as the child has had practice at recognising them. This activity can be used with other sets of words.

Find the hidden object in a box

Target sound: 't' word final (note that this sound is often produced as a glottal stop in adult speech)

Contrast: 0

Words: eight, A; Pete, pea; boat, bow; cart, car; fort, four

Resources: objects to represent a selection of these word pairs: eight, A (plastic letter); Pete (boy figure), pea; boat, bow; cart, car; fort (a picture), four. Several boxes with lids (a Russian doll could be used if the objects used are small enough)

Activity

The same activity as 'Find the hidden object under a cloth' but the child finds the objects by sound. Objects are put into separate boxes. The child attempts to find the object named by shaking the box and identifying it by sound. This is likely to be harder than identification by shape, so keep the options reduced by limiting the number of boxes to choose from.

This activity can be used with other sets of words.

Wrap up the objects

Target sound: 'd' word final

Contrast: 0

Words: beard, beer; bead, bee; toad, toe; card, car; cord, core

Resources: objects to represent a selection of these word pairs: beard, beer; bead, bee; toad, toe; card, car; cord, core. Wrapping paper, or scrap paper and sticky tape to wrap the objects

Activity

The adult names an object and the child finds that parcel they think contains it. To add to the challenge, rather than opening it the adult could make a note of what the child thought each parcel contained. (This is especially useful for working in a group.) Children might change their minds as the game progresses. At the end of this the adult names the objects one by one, and this time the parcels are opened.

This activity can be used with other sets of words.

Hide the spider

Target sound: 'k' word final

Contrast: 0

Words: cork, core; cake, Kay; fork, four; Jake, Jay/J

Resources: objects to represent a selection of these pairs of words: cork, core; cake, Kay; fork, four; Jake, Jay/J. A small plastic spider or other insect; a puppet

Activity

Tell a story about a puppet who is rather scared of insects but her mischievous friend likes to hide them in her house. The children shut their eyes and the adult hides the spider under one of the objects. The adult then gives the puppet to the child – or each child in turn – and suggests that the puppet is cleaning her house. The adult tells the puppet which item to clean. In so doing the 'puppet' lifts up each item and ends up with a nasty surprise. This activity can be used with other sets of words.

Throwing game

Target sound: 'f' word final

Contrast: 0

Words: beef, bee; shelf, shell; leaf, Lee; roof, Roo; scarf, scar

Resources: beanbags; objects to represent a selection of these pairs of words: beef, bee; shelf, shell; leaf, Lee; roof, Roo; scarf, scar

Activity

Line the objects up at the back of a table. Some objects may need to be attached with Blu-tack, so they stand up enough to be hit with a beanbag.

Tell the child which object to aim for. This works well as a team game, with two children at a time aiming for the same object. If they hit the item, they win it. This activity can be used with other sets of words.

Pictures off the table

Target sound: 's' word final

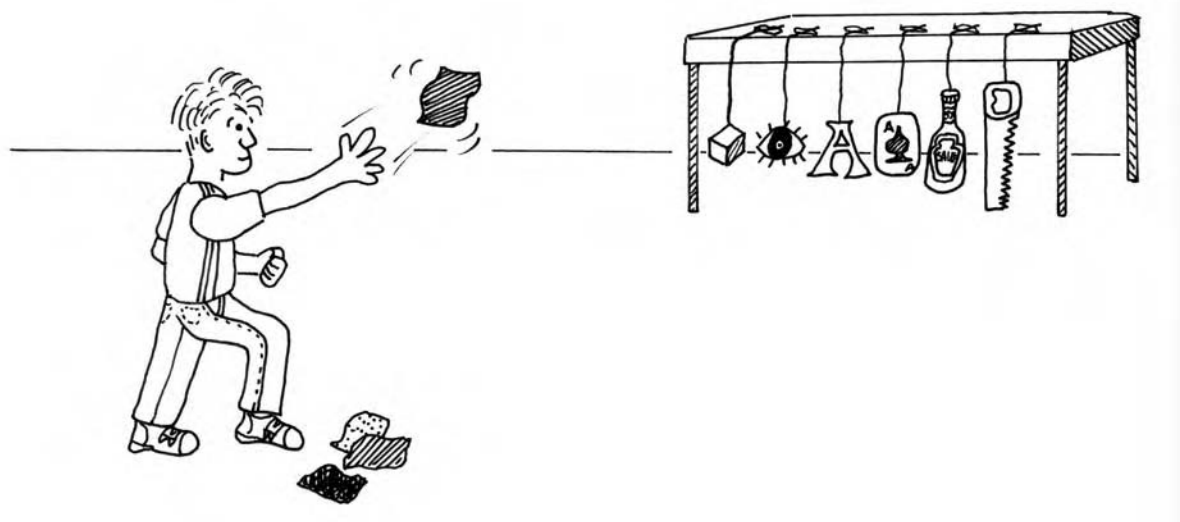
Contrast: 0

Words: ice, eye; ace, A; piece, pea; case, Kay; goose, goo; sauce, saw

Resources: beanbags; pictures to represent a selection of these pairs of words: ice, eye; ace, A; piece, pea; case, Kay; goose, goo; sauce, saw. Hang the pictures from the front of the table with string and Blu-tack or sticky tape.

Activity

Give the child a beanbag and tell them which picture to aim for. This works well as a team game, with two children at a time aiming for the same picture. If they hit the named picture, they win it. This activity can be used with other sets of words.



Action game

Target sounds: 'p', 't', 'k', 'd', 'f', 'ch', 'st'

Contrast: 0

Words: beep, beat, bead, beak, beef, beach, Beast, bee

Resources: a stick for each person. The other actions are mimes, and need demonstrating before the activity begins. Gradually add more pictures as the actions will be hard to remember if all demonstrated at once.

Activity

The adult needs to familiarise the children with the pairs of words. Pictures could be used to help this. Do the actions together at first. Once the child has practised the actions a few times, the adult simply says one of the words and the child does the action. The **bee** actions are as follows: (buzzes like a bee), **beep** (pretends to blow a horn), **bead** (pretends to thread a bead), **beat** (beats on the table with sticks as if it is a drum), **beak** (makes a beak shape with the thumb and fingers), **beast** (roars like a beast), **beach** (pretends to swim or dig), **beef** (pretends to eat). Each action can be carried out a number of times. In this activity it is important to just say the word 'bee!' and then 'bead!' and so on, so that extra clues about the word are not provided.

Name game: school day

Target sounds: 'd', 'k', 'm/ms', 'n'

Contrast: 0

Words: Jay, Jade, Jake, James, Jane

Resources: a selection of toy figures such as Playmobil figures who all look different, who are given the above names. A figure who is the teacher. Both adult and child will need to learn the names, so draw each person and write the names so you don't forget!

Activity

Explain that the toy figures are at school and the teacher (the adult) will tell them what to do. Start with registration – the 'teacher' adult calls a name and the child picks up the toy figure or makes it put up its hand. Then the teacher could suggest an activity for each toy figure; for example, 'Jay, read a book!', 'Jake, build a tower!', 'James, get your coat on!'. The child then puts the figure into position and mimes what is suggested.

Eating game

Target sounds: 'p', 't', 'k', 'f', 's', 'ch', 'st' and 'n'

Contrast: 0

Words: Sue, soup; tar, tart; bee, bean, beef; pea, peach; saw, sauce; Kay, cake; toe, toast; core, corn

Resources: a selection of the above pairs of pictures; a puppet with a mouth that can open – or a 'monster' on the hand with eyes drawn on the side of the index finger and the thumb acting as a 'mouth' that can open and shut

Activity

The pictures are placed in front of the child. The adult explains that the puppet is very hungry but they are not certain what he likes to eat. The adult suggests one of the pictures. The child finds it and feeds the puppet. If it is a nice food item the puppet gobbles it up. If not it spits it out. In order to make this useful for discrimination the adult needs to say each pair of words in successive requests, for example: 'Give him the corn' followed by 'Give him the core' and 'Give him the bee' followed by 'Give him the beef'.

Further activities

The above activities are only a few of those that you can use to help the child who is working on the error pattern 'final consonant deletion'. Many of the activities can be used with different pairs or sets of words. Other word pairs and pictures can be found under 'Final consonant deletion' in Pairs and sets' on the CD, pages 47–9.

Specific activities to help children *use* final consonants in words

The activities above are designed to help the child listen and distinguish words with and without final consonants. Activities on the CD pages 13 (p); 14–15 (t); 16–17 (d); 18–19 (k); 20 (ng); 21–2 (f); 22–3 (v); 25 (s); 27 (sh); 28–9 (ch); 30 (j) are designed to help children who can produce final consonants in words, but do not do so habitually when they speak. These activities can be used after discussion with a speech and language therapist to make sure the child is ready for the change of emphasis from listening work to saying words with the target sounds.

Important: Before trying any of the specific activities read the information about using the generalisation and carryover methods described in Chapter 15.

10

Gliding

Problems with the approximants ‘l’ and ‘r’

If the child only has difficulties with these sounds in clusters, such as ‘pr’ and ‘bl’ refer to Chapter 13 ‘Approximant cluster reduction’.

Definition

The sounds ‘l’ and ‘r’ are produced as the earlier developing sounds ‘y’ and ‘w’. The most likely difficulties you will encounter will be substitution of ‘y’ for ‘l’, and ‘w’ for ‘r’ as shown in column two in Tables 10.1 and 10.2, but the substitutions in column three are also found in typical development.

Table 10.1 Examples of the error pattern ‘gliding of “l”’

Target word	Child’s pronunciation if gliding to ‘y’	Child’s pronunciation if gliding to ‘w’
light	yight	white
leg	yeg	weg

Table 10.2 Examples of the error pattern ‘gliding of “r”’

Target word	Child’s pronunciation if gliding to ‘w’	Child’s pronunciation if gliding to ‘y’
road	woad	yoad
rain	wain	yain

Development of approximants

Difficulties with these sounds are very familiar in children’s speech, and some adults – politicians and TV presenters included – continue to mispronounce ‘r’.

The ‘l’ sound is usually acquired by age three and a half but is sometimes still produced as a ‘y’ in the word ‘yellow’, pronounced as ‘yeyow’, until beyond this age. The ‘r’ is a late developing sound and is usually accurately produced by age six.

Activities to increase awareness of 'l' and 'r' sounds in words

Important: Before trying these activities read the general information about listening and discrimination methods in Chapter 6.

Gliding of 'l'

Memory game

Target sound: 'l'

Contrast: 'y'

Words: lawn, yawn

Resources: pictures of 'lawn' and 'yawn' from the CD (make about five copies of each picture and back them with cardboard so the child cannot see through them); a scorecard

Activity

The child looks at the cards and then lays them face down on the table in lines, and tries to remember the pattern. The adult then says which picture to find – 'find lawn' or 'find yawn'. The child turns over one of the pictures. If correct, the adult gives them a point on the scorecard, and that picture is given to the adult. This is not really a memory game, so the child should be encouraged to lay the cards down systematically, such as alternating the pictures in the rows, so they are really only listening for the word the adult says.

Other word pairs illustrated on the CD could be included or used instead of those above, for example, lot, yacht; luck, yuck; lap, yap.

Action game

Target sound: 'l' word initial

Contrast: 'w'

Words: leap, weep; lead, weed

Resources: none necessary but some props could be provided

Activity

The adult needs to familiarise the children with the pairs of words. Do the actions together at first. Once the child has practised the actions a few times, the adult simply says one of the words and the child does the action. The actions are as follows: **leap** (the child jumps), **weep** (pretends to cry), **lead** (pretends to have a dog on a lead), **weed** (pretends to weed the garden). Each action can be carried out a number of times. In this activity it is important to just say the word 'lead!' and then 'weed!' and so on, so that extra clues about the word are not provided (see Chapter 6, page 70).

Gliding of 'r'

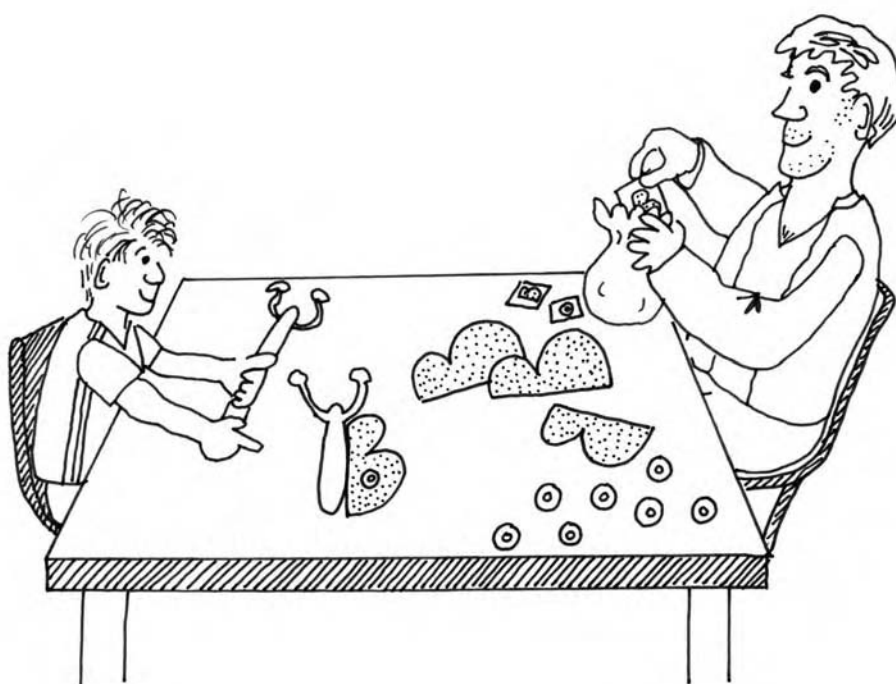
Making butterflies**Target sound:** 'r'**Contrast:** 'w'**Words:** ring, wing

Resources: several cut-out butterflies – detach the wings; coloured hole strengtheners used to reinforce punched holes in paper (these are the rings, to be used to decorate the butterfly wings); 'instructions' in the form of drawings of wings and rings on slips of paper placed in a bag.

Activity

The butterflies' bodies are placed on the table. The adult has the wings on one side of them and the rings on the other side, but out of reach of the child. Tell the child that you need their help to finish the butterflies by attaching the wings and adding rings as decoration. The adult takes an 'instruction' from the bag and says 'add a wing' or 'add a ring'. The child then points to the rings or wings according to what they heard. The adult shows the child the 'instruction' to confirm if they heard right. If so, the child adds the item to one of the butterflies.

This activity could be made more challenging by having different coloured wings and so the instructions could be more complex, such as 'Add a red wing to the butterfly' or 'Add a blue ring to the red butterfly'. Here the target words are embedded in sentences so the listening task is less straightforward.



Name game: Who likes what?

Target sound: 'r' word initial

Contrast: 'w'

Words: rig, wig

Resources: play-food items; **Rig Pig** and **Wig Pig** (Pig family) can be found on the CD, page 70

Activity

Place the food items in the middle of the table, and the named characters either side of the child. The adult has a 'list' of the things each character likes. The child holds up an item and the adult consults the list and says the name of the character who likes it. The child then makes the character 'eat' the item of food before holding up another item.

Action game

Target sound: 'r' word initial

Contrast: 'w'

Words: read, weed; rake, wake

Resources: none necessary but some props could be provided

Activity

The adult needs to familiarise the children with the pairs of words. Do the actions together at first. Once the child has practised the actions a few times, the adult simply says one of the words and the child does the action. The actions are as follows: **Read** (the child pretends to read a book), **weed** (pretends to pull up a weed from the garden), **rake** (pretends to rake the grass), **wake** (pretends to be waking up stretching and yawning). Each action can be carried out a number of times. In this activity it is important to just say the word 'read!' and then 'weed!' and so on, so that extra clues about the word are not provided (see Chapter 6, page 70).

Other pairs of words could be added with appropriate actions, for example: **rip** (pretend to rip paper), **whip** (pretend to crack a whip), **run** (run on the spot), **one** (hold up one finger), **ring** (pretend to answer the phone), **wing** (pretend to flap wings).

The difficult journey

Target sound: 'r' word initial

Contrast: 'w'

Words: reed, weed; rail, whale; ring, wing; rig, wig; right, white

Resources: a selection of these word pairs (pictures can be found on the CD): reed, weed; rail, whale; ring, wing; right (a tick), white (white card); pictures of **Rig Pig** and **Wig Pig** (CD, p. 70). Make a board with two pathways marked in five paving stones each leading to a picture of a desirable place (e.g. beach, fair, park). See p. 81 for an illustration (with different words).

Activity

Tell a story about Rig Pig and Wig Pig who want to visit the beach, for example. They are each placed at the beginning of one of the paths leading to the beach. The story is made up as you go along. The characters want to see who gets to the beach first. The characters take turns. At each 'turn', two of the paired pictures at a time (for example, 'whale' and 'rail') are shown to the child and then placed under two boxes. The boxes are then 'swizzled' round by the child while the adult is 'not looking'. The adult picks a box and guesses what is inside. The child finds the picture and decides if the adult guessed right. If correct, the character moves to the next square. If not he moves back a square. The next character then has a go.

Note: The child is doing more than just discriminating two words, as they have to decide if the adult word matched the picture. To simplify the task the adult needs to guess right every time so the child is only discriminating the two words. You can add a mark to the box with the target word to help you guess right every time.

Puzzles

Target sound: 'r' word initial

Contrast: 'y'

Words: Roo, you

Resources: An enlarged picture of Roo (suitable image can be found on the CD) and a similarly sized photograph or drawing of the child you are working with. Cut both into 'jigsaw' pieces. A bag in which the puzzle pieces are kept.

Activity

The child finds a piece of the puzzle the adult names: 'Find a bit of Roo' or 'Find a bit of you'. Say the same word a couple of times in a row occasionally to keep the child listening. To speed this up and/or simplify the task, have the puzzle pieces for Roo and 'you' in separate bags. The activity is repeated until the puzzles are complete.

Further activities

The above activities are only a few of those that you can use to help the child who is working on the 'gliding' error pattern. Many of the activities can be used with different pairs of words. Other word pairs and pictures can be found under 'Gliding' in 'Pairs and sets' on the CD, pages 51–2.

Specific activities to help children *use* the sounds 'l' and 'r' in words

The activities above were all designed to help the child listen and distinguish words with the sounds 'l' and 'r' in words. Activities on the CD, pages 30–2, are designed to help children who can produce 'l' and 'r' in words, but who do not do so habitually when they speak. These activities can be used after discussion with a speech and language therapist to make sure the child is ready for the change of emphasis from listening work to saying words with the target sounds.

Important: Before trying these activities read the general information about using the generalisation and carryover methods described in Chapter 15.

11

Deaffrication and other error patterns that affect the sounds ‘ch’ and ‘j’

Problems with affricates ‘ch’ and ‘j’ in words

Definition

The affricates are produced with the tongue tip making contact with the palatoalveolar region of the roof of the mouth. Complete blocking of the airflow, as for the stops, is followed by release of the air through a narrow space like the fricatives.

The sounds ‘ch’ and ‘j’ develop gradually in typically developing children and are pronounced differently at earlier and later ages. Children often ‘stop’ the affricates earlier in development.

As we saw in Chapter 4, children commonly use the pattern of context sensitive voicing (CSV) in combination with stopping. If they do this the pronunciations of the target words might sound more like those listed in column three in Table 11.1. Similarly the affricates (‘ch’ and ‘j’) sound like the voiceless or voiced stop.

Table 11.1 Examples of the error pattern ‘stopping of affricates’

Target word	Child’s pronunciation	Child’s pronunciation if combined with CSV
chin, match	tin, mat	din, mat
jam, badge	dam, bad	dam, bat

Other error patterns also affect affricates. These include deaffrication, where the sounds ‘ch’ and ‘j’ are produced as fricatives. Sometimes the fricative is fronted to the alveolar place of articulation, as in the examples in column three of Table 11.2.

Table 11.2 Examples of the error pattern ‘deaffrication’

Target words	Child’s pronunciation	Child’s pronunciation if fricative is fronted
chew	shoe	Sue
match	mash	mass
jar	zhar (‘zh’ as in treasure)	zar
badge	bazh	baz

In the error pattern described as fronting of affricates, the affricates are produced but the place of articulation is further forward in the mouth, so the tongue is in contact with the alveolar ridge, as shown in Table 11.3.

Table 11.3 Examples of the error pattern ‘fronting of affricates’

Target words	Child’s pronunciation
chop	tsop
watch	wats
jar	dzar
bridge	bidz

Development of affricates

The affricates might be produced in simplified forms until the age of five. Early in development they might be stopped, as in Table 11.1. As these sounds develop children might produce them as fricatives (deaffrication) where ‘chair’ sounds like ‘shair’ and ‘jam’ like ‘zham’ (the ‘zh’ is the sound in ‘measure’), or they might ‘front’ the affricates, so ‘chair’ sounds like ‘tsair’ and ‘jam’ sounds like ‘dzam’.

Specific activities to increase awareness of affricates in words

Important: Before trying these activities read the general information about using the listening and discrimination methods described in Chapter 6, pages 69–71.

Stopping of affricates

Activities for work on stopping of affricates are included in Chapter 7, pages 91–3.

Deaffrication

Action game

Target sound: ‘ch’ word initial

Contrast: ‘sh’

Words: chew, shoe; chin, shin; chip ship

Resources: none necessary, but some props could be used if preferred. Select two of the word pairs to start with.

Activity

The adult needs to familiarise the children with the pairs of words. Pictures could be used to help this. Do the actions together at first. Once the child has practised the actions a few times, the adult simply says one of the words and the child does the action. The actions are: **chew** (pretends to chew gum), **shoe** (points to their shoe), **chin** (points to their chin), **shin** (points to their shin), **chip** (pretends to eat one), **ship** (pretends to be on a boat – swaying). Each action can be carried out a number of times.

Action game

Target sound: 'ch' word final

Contrast: 'sh'

Words: match, mash; witch, wish; march, marsh; catch, cash

Resources: none necessary, but some props could be used if preferred. Select two of the word pairs to start with.

Activity

As for the previous activity above. The suggested actions are: **match** (pretend to strike a match), **mash** (pretend to mash potato), **witch** (mime being a witch), **wish** (pretend to wave a magic wand), **march** (march on the spot), **marsh** (pretend to be stuck in mud), **catch** (pretend to catch a ball), **cash** (pretend to count money).

Fronting of affricates (word final only)

Catch cats

Target sound: 'ch' word final

Contrast: 'ts'

Words: catch, cats

Resources: a beanbag; a picture of two cats and a picture of a ladder (at the top of the ladder are two mice)

Activity

Place the cats at the bottom of the ladder attached with Blu-tack so they can be moved. If you say 'cats', the child moves the picture of the cats up the next rung of the ladder. If you say 'catch' they try to catch the beanbag you throw. After each turn, move away from the ladder picture or retrieve the beanbag. Keep the intonation similar as you say both the words. The game is over when the cats get the mice.

Puzzles

Target sound: 'ch' word final

Contrast: 'ts'

Words: coach, coats

Resources: enlarged pictures of a coach and coats that are cut into pieces (pictures can be found on the CD); a bag in which the puzzle pieces are kept

Activity

The child finds a piece of the puzzle the adult names: 'Find a bit of the coach' or 'Find a bit of the coats'. Say the same word a couple of times in a row sometimes to keep the child listening. To speed this up and/or simplify the task, have the puzzle pieces for the coach and coats in separate bags. The activity is repeated until the puzzles are complete.

Other pairs of words could be used in this activity.

Hedge heads

Target sound: 'j' word final

Contrast: 'ds'

Words: hedge, heads

Resources: Draw a number of scribbled pictures to represent hedges and the same number of very similar pictures to represent heads of hair.

Activity

Keep one of each pair of pictures in your hand, but hidden from the child. Place the rest on the table, but cover the pictures so only the tops of the pictures are revealed. Look at one of the cards in your hand but do not show it to the child. Say the word 'hedge' or 'heads'. The child points to one of the pictures on the table they think represents the word they heard. Let them uncover the picture to see if they were right. Then show the card in your hand as confirmation of this.

Further activities

The above activities are only a few of those that you can use to help the child who is working on the error patterns above. Many of the activities can be used with different pairs of words. Other word pairs and pictures can be found under 'Deaffrication and other error patterns affecting affricates' in 'Pairs and sets' on the CD, p. 52.

Specific activities to help children *use* affricates 'ch' and 'j' in words

The activities above are designed to help the child listen to and distinguish words with the palatoalveolar affricates 'ch' and 'j' from other sounds. Activities on the CD, pages 28–30, are designed to help children who can produce affricates 'ch' and 'j' in words, but who do not do so habitually when they speak. These activities can be used after discussion with a speech and language therapist to make sure the child is ready for the change of emphasis from listening work to saying words with the target sounds.

Important: Before trying these activities read the general information about using the generalisation and carryover methods described in Chapter 15.

12

Context sensitive voicing

Problems with using voiceless consonants – rather than the voiced consonants – at the beginnings of words. This typically affects the stops ‘p’, ‘t’ and ‘k’.

Definition

The consonants that are usually ‘voiceless’ at the beginning of words and syllables are produced as voiced, and those usually produced as ‘voiced’ at the end of words and syllables are voiceless (Table 12.1). This pattern can affect sounds other than the stops listed above, but this is less common in typical development.

In this chapter, activities to address this pattern are given only for the sounds at the beginnings of words. This is because ‘voicing’ of sounds at the ends of words is very variable in speakers of English, and the difference in words like ‘bid’ and ‘bit’, are only partly conveyed in the voicing of the final consonant (see Chapter 3, page 32).

Table 12.1 Examples of the error pattern ‘context sensitive voicing’

[Initial consonant]		[Final consonant]	
Target word	Child’s pronunciation	Target word	Child’s pronunciation
pen	ben	web	wep
ten	den	bid	bit
coat	goat	beg	beck

Development of voicing contrast

Typically developing children usually have a voicing contrast by the age of 3. This pattern does tend to persist in children with delayed speech development and is referred to in other chapters as ‘stopping’ and ‘fronting’ where it might combine with these other patterns.

Specific activities to increase awareness of voiceless consonants at the beginning of words

Important: Before trying these activities read the general information about using the listening and discrimination methods described in Chapter 6.

Initial 'p'

Name game: witch story

Target sound: 'p' word initial

Contrast: 'b'

Words: pea, bee

Resources: string; **Pea Bee** and **Bee Bee** (CD, p. 63). Laminate the characters or stick them on cardboard and cut them out so they can be attached to a piece of string.

Activity

The characters are tied onto two pieces of string that are hung over a coat hook, so that pulling on one end of the string results in the characters being lifted up reasonably high. The adult tells a story about a witch. She casts a spell on the characters so that they fly up into a tree. The adult shows the child how to slowly pull the string so the character flies a little way at a time. The adult then says the name of the character who should move, and the child pulls that string, with the adult giving a non-verbal 'stop' sign to prevent the character moving far. Once the character is at the top the adult explains that they can rescue the character (using the character's name) with the child's help. Again the adult names the characters in turn, and the child gradually lets go of the string so that the character comes a little way down in each turn.

Other characters could be used in this activity: **Pig Pig** and **Big Pig** (CD, p. 70) and **Pear Bear** and **Bare Bear** (CD, p.64).

Action game

Target sound: 'p' word initial

Contrast: 'b'

Words: park, bark; path, bath

Resources: toy cars (other actions don't need props)

Activity

The adult needs to familiarise the children with the pairs of words. Do the actions together at first. Once the child has practised the actions a few times, the adult simply says one of the words and the child does the action. The actions are: **park** (park a toy car); **bark** (bark like a dog); **path** (walk a doll or fingers along a path); **bath** (pretend to wash). In this activity it is important to just say the word 'park!' and then 'bark!' and so on, so that extra clues about the word are not provided.

You could include additional words, e.g. pat, bat; pole, bowl. The actions would be: **pat** (pretend to pat a dog); **bat** (pretend to hit a ball with a bat); **pole** (pretend to pole vault) **bowl** (pretend to bowl a ball).

Initial 't'

Name game: bossy puppet

Target sound: 't' word initial

Contrast: 'd'

Words: tea, dee (D)

Resources: pictures of **Tea Bee** and **D Bee** (Bee family) can be found on the CD; a puppet; two or three activities such as colouring, puzzles and a construction toy. These are spread out on the floor or spaced widely on the table.

Activity

The adult works the bossy puppet who tells one of the characters what to do. 'D Bee, do the puzzle', swiftly followed by another instruction 'Tea Bee, do some colouring', or 'Tea bee, do the building'. The child takes the character to the activity and does a little bit before the puppet gives a new instruction.

Initial 'k'

Throwing game

Target sound: 'k' word initial

Contrast: 'g'

Words: coat, goat; Kate, gate; coal, goal; card, guard; crane, grain

Resources: beanbags; a selection of objects from the word pairs listed above

Activity

Line the objects up at the back of a table. Some objects may need to be attached with Blu-tack, so they stand up enough to be hit with a beanbag.

Tell the child which object to aim for. This works well as a team game, with two children at a time aiming for the same object. If they hit the item, they win it.

Other objects could be included or used instead; for example for the target sound initial p: pea, bee; pear, bear; pen, Ben; pin, bin; pole, bowl.

Mixed**Eating game**

Target sound: 'p', 't' word initial

Contrast: 'b', 'd'

Words: pea, bee; peach, beach; pear, bear; tart, dart; tea, D

Resources: a selection of the above pairs of pictures (these can be found on the CD); a puppet with a mouth that can open – or a 'monster' on the hand with eyes drawn on the side of the index finger and the thumb acting as a 'mouth' that can open and shut

Activity

The pictures are placed in front of the child. The adult explains that the puppet is very hungry but they are not certain what he likes to eat. The adult suggests one of the pictures. The child finds it and feeds the puppet. If it is a nice food item the puppet gobbles it up. If not it spits it out. In order to make this useful for discrimination the adult needs to say each pair of words in successive requests; for example: 'Give him peach' followed by 'Give him beach' and 'Give him a pear' followed by 'Give him a bear'.

Action game

Target sound: 't', 'k' word initial

Contrast: 'd', 'g'

Words: tart, dart; card, guard

Resources: pack of cards or cards in envelopes; play-food tarts. Other actions don't need props

Activity

The adult needs to familiarise the children with the pairs of words. Do the actions together at first. Once the child has practised the actions a few times, the adult simply

says one of the words and the child does the action. The actions are: **tart** ('eat' a pretend tart); **dart** (pretend to throw a dart); **card** (pick a card from a pack or open an envelope with a card in it); **guard** (stand to attention). In this activity it is important to just say the word 'tart' and then 'dart' and so on, so that extra clues about the word are not provided.

You could include additional words; for example, park, bark; path, bath: using the actions provided in initial 'p' action game above.

Further activities

The above activities are only a few of those that you can use to help the child who is working on the context sensitive voicing error pattern. Many of the activities can be used with different pairs of words. Other word pairs are listed under 'Context sensitive voicing' in 'Pairs and sets' on the CD, pages 52–3

Specific activities to help children *use* voiceless consonants at the beginning of words

The activities above were all designed to help the child listen and distinguish words with voiceless consonants in word initial position. Activities on the CD, pages 12, 14, 17 and 18, designed to help children who can produce voiceless consonants in words, but do not do so habitually when they speak. These activities should only be used with the advice of a speech and language therapist.

Important: Before trying these activities read the general information about using the generalisation and carryover methods described in Chapter 15.

13

Approximant cluster reduction

Problems with 'w', 'l' and 'r' at the beginning of a word when preceded by another consonant

If the child only has a problem with approximants ('w' and 'l') preceded by 's' consult Chapter 14 as 's' clusters can follow a different pattern to those listed here.

In this chapter the focus is on helping children to produce an approximant when it is preceded by another consonant in a word. There are many of these combinations in English, for example: **pram**, **play**, **brick**, **blow**, **claw**, **crash**, **grease**, **glow**, **free** and **flat**. There are a few other combinations too, but they are not very frequent in words children are likely to say, so are not included here.

Definition

In speech production the term 'cluster' refers to two or more consonants that occur in sequence within a syllable. In this chapter the sequence is 'p', 'b', 'c/k', 'g' or 'f' followed by 'w', 'l' or 'r'. Children who demonstrate approximant cluster reduction miss one of these consonants in the sequence. As we saw in Chapter 4, children commonly use the pattern of context sensitive voicing (CSV) in combination with approximant cluster reduction. If they do this the pronunciations of the target words might sound more like those listed in column three in Table 13.1.

Sometimes there is a different pattern where the approximant is retained and the other consonant is apparently missed out. As noted in Chapter 4, the development of approximants is gradual. The pronunciations of the target words might sound more like those listed in column three in Table 13.2. This is less common, but is found in typically developing children and those with phonological impairments, so activities including pairs of words that exemplify this pattern are included below.

Table 13.1 Examples of the error pattern ‘approximant cluster reduction’ where the approximant is deleted

Target word	Child’s pronunciation	Child’s pronunciation if combined with CSV
pram	pam	bam
play	pay	bay
brick	bick	bick
blue	boo	boo
crash	cash	gash
claw	caw	gore
grease	geese	geese
glow	go	go
free	fee	vee
flag	fag	vag

Table 13.2 Examples of the error pattern ‘approximant cluster reduction’ where the approximant is retained

Target word	Child’s pronunciation	Child’s pronunciation with gliding of approximant
pram	ram	wam
play	lay	jay
brick	rick	wick
blue	loo	you
crash	rash	wash
claw	law	your
grease	reese	weese
glow	low	yo
free	ree	wee
flag	lag	yag

Development of approximant clusters

Most children produce approximant clusters by the time they are four years old. The clusters may not be completely accurate until the child is five-and-a-half or six years. So ‘flag’ might sound like ‘fyag’, ‘crash’ might sound like ‘cwash’ and ‘brick’ more like ‘bwick’. In typical development, children sometimes go through a phase of saying the clusters, but with a vowel between them; for example, play ‘puhlay’, brown ‘burown’, green, ‘gureen’ and floor ‘fuhloor’. They then go on to master the accurate pronunciation.

Activities for increasing awareness of approximant clusters

Important: Before trying these activities read the general information about listening and discrimination methods in Chapter 6, pages 69–71.

Target error pattern: approximant is deleted

Prize, pies

Target sound: 'pr' word initial

Contrast: 'p'

Words: prize, pies

Resources: some special objects the child has chosen and wrapped in paper; plastic toy food pies (or pies made from playdough); plates; a puppet

Activity

Put the plates – with two pies on each – and prizes in front of the child. The adult works a puppet who is alternately feeling very hungry or very interested in getting the prizes the child has wrapped up. The adult asks for 'prize' or 'pies' for the puppet. When the child hears the word they give the puppet a plate of pies, which are greedily eaten, or a prize, which the puppet quickly pops in his bag. Sometimes repeat the same words twice so the child has to listen carefully.

Things that go together

Target sounds: 'pr' and 'br' word initial

Contrast: 'p' and 'b'

Words: prize, pies; prawn, pawn; bread, bed; brook, book

Resources: pictures from the CD of the words listed above – or a selection of the word pairs; a bag; drawings or photographs/pictures of the associated items that go with each of these words. These are in brackets: **prize** (rosette), **pies** (plate); **prawn** (fishing net), **pawn** (chess board); **bread** (butter), **bed** (pillow); **brook** (stones), **book** (pen).

Activity

Talk about the pictures and the associated 'bracketed' items, to familiarise the child with the connections. This might take a while. Make sure the child has the connections in mind before you proceed. Once the child is familiar with the associations, put the associated (bracketed) pictures (rosette, plate, etc.) in front of the child and the paired words in a bag. The adult asks the child to find the picture that goes with 'prize' or 'pies', for example. The child then takes the picture of 'prize' or 'pies' from the bag and puts it with the connected picture. The adult then says another of the words.

Name game: witch story

Target sound: 'pl' word initial

Contrast: 'p'

Words: plait, pat

Resources: string; **Plait Cat**, **Pat Cat** (Cat family) can be found on the CD. Laminate the characters or stick them on cardboard and cut them out so they can be attached to a piece of string.

Activity

The characters are tied on to two pieces of string that are hung over a coat hook so that pulling on one end of the string results in the characters being lifted up reasonably high. The adult tells a story about a witch. She casts a spell on the characters so that they fly up into a tree. The adult shows the child how to slowly pull the string so that the character flies a little way at a time. The adult then says the name of the character who should move, and the child pulls that string, with the adult giving a non-verbal 'stop' sign to prevent the character moving far. Once the character is at the top the adult explains that they can rescue the character (using the character's name) with the child's help. Again the adult names the characters in turn, and the child gradually lets go of the string so the character comes a little way down to the ground in each turn.

This activity could involve other characters to address different approximant clusters, such as **Flat Cat** and **Fat Cat** (CD, pp. 66, 67) or **Clog Dog** and **Cog Dog** or **Frog Dog** and **Fog Dog** (CD, p. 69). All these characters are on the CD.

Things that go together

Target sound: 'pl' and 'bl' word initial

Contrast: 'p' and 'b'

Words: plane, pain; blood, bud; bleach, beach

Resources: pictures from the CD of the words listed above; a bag; drawings or photographs/pictures of the associated items that go with each of these words. These are in brackets: **plane** (sky), **pain** (medicine bottle); **blood** (plaster), **bud** (flower); **bleach** (cloth), **beach** (bucket and spade).

Activity

As above for 'Things that go together' for 'pr', 'br' target sounds.

Making people

Target sound: 'bl' word initial

Contrast: 'b'

Words: Bob, blob

Resources: playdough; a cut-out boy figure you name Bob who is further cut up into pieces to make a jigsaw puzzle; slips of paper put into a bag with 'Bob' or 'blob' written on each one

Activity

The adult explains that blob is just a lump of playdough, and it needs to be made bigger. Bob needs completing with the rest of the puzzle pieces. The playdough and puzzle pieces are to each side of the adult, out of reach. The adult picks a slip of paper and says 'Bob' or 'blob'. The child indicates if they heard 'blob' by pointing at the playdough, or if they heard 'Bob' by pointing at the puzzle pieces. If correct, the adult hands over a puzzle piece to add to the puzzle or a bit of playdough to add to 'Blob'.

Tree or tea?

Target sound: 'tr' word initial

Contrast: 't'

Words: tree, tea

Resources: a picture of a tree and of a cup of tea; smaller pictures of things that go with the tree (e.g. a leaf, bird, squirrel, kite that got stuck, nest) and things that go in tea (e.g. milk, sugar, spoon and teabag).

Activity

The pictures of tree and tea are placed on the wall a little way from where the child is sitting. The adult secretly picks one of the smaller pictures and says where it goes. The child goes up to the picture they heard (tree or tea) and the adult then shows the child the smaller picture to see if they were right. The child then attaches it to the picture on the wall and returns to their seat for the next turn. Sometimes the adult might make a 'deliberate mistake' to show the incongruities.

Furniture mending

Target sound: 'dr' word initial

Contrast: 'd'

Words: drawer, door

Resources: doll's house furniture, or playmobil/Lego furniture that has moveable doors and drawers, or a picture of a room with drawers and doors missing, and separate doors and drawers that can be stuck on; slips of paper with doors and drawers illustrated – one or other on each slip – and placed in a bag

Activity

Place the furniture in a box on the table, and the doors and drawers in a pile in front of the child. The adult takes one of the pictures from the bag and says the word 'door' or 'drawer' but does not show the picture. The child responds by picking a door or drawer from the pile. The adult shows the picture to check if the child was right. The child can then find the piece of furniture to which the door or drawer they picked belongs, and mend it. The item is returned to the box (in case it needs more than one drawer, for example). If using a picture the activity is the same, with the paper drawers and doors in a bag, and the child sticks them on the picture in the appropriate place.

Things that go together

Target sounds: 'tr' and 'dr' word initial

Contrast: 't' and 'd'

Words: tree, tea; trap, tap; track, tack; drawer, door; driver, diver

Resources: pictures from the CD of the words listed above; a bag; drawings or photographs/pictures of the associated items that go with each of these words. These are in brackets: **tree** (leaf), **tea** (spoon); **trap** (mouse), **tap** (sink); **track** (train), **tack** (hammer); **drawer** (chest of drawers), **door** (key); **driver** (car), **diver** (diving suit or boat).

Activity

As above for 'Things that go together' for 'pr', 'br' target sounds.

Name game: Who likes what?

Target sound: 'cl' word initial

Contrast: 'c'

Words: clog, cog

Resources: play-food items; **Clog Dog** and **Cog Dog** (CD, p. 69)

Activity

Place the food items on the table. The named characters should be either side of the child. The adult has a 'list' of the things each character likes. The child could hold up an item and the adult consults the list and says the name of the character who likes it. The child gives it to that character and makes it 'eat' the food.

This is adaptable for other members of the families.

Marked set of pictures

Target sound: 'gr' word initial

Contrast: 'g'

Words: grate, gate

Resources: pictures from the CD of 'grate' and 'gate' (you need ten copies of each picture). Stick the pictures on card so the child cannot see through them, and put a sticker or a pen mark on the back of one set of pictures.

Activity

Turn the cards face down on the table and ask the child to find the one you say. After a few tries they should realise, without being told, that there is a clue to which picture is which. Be amazed by their magic powers! This game can be carried out with any pair of pictures.

Things that go together

Target sounds: 'cr' and 'gr' word initial

Contrast: 'c' and 'g'

Words: crane, cane; crab, cab; grease, geese; grate, gate

Resources: pictures from the CD of the words listed above; a bag; drawings or photographs/pictures of the associated items that go with each of these words. These are in brackets: crane (**hook**), cane (**walking boots**); crab (**fishing net**), cab (**money**); grease (**frying pan**), geese (**pond**); grate (**coal or fire**), gate (**fence**).

Activity

As above for 'Things that go together' for 'pr', 'br' target sounds.

Name game

Target sound: 'fl' word initial

Contrast: 'f'

Words: flat, fat and/or flea, fee

Resources: **Flat Cat, Fat Cat** (CD, pp. 67, 68), and/or **Flea Bee, Fee Bee** (CD, p. 63)

Activity

Use these characters in either 'Name game: witch story' or 'Name game: who likes what?' described above.

Name game

Target sound: 'fr' word initial

Contrast: 'f'

Words: frog, fog

Resources: **Frog Dog, Fog Dog** (CD, p. 69)

Activity

Use these characters in either 'Name game: witch story' or 'Name game: who likes what?' described above.

Things that go together

Target sounds: 'pl' and 'bl' word initial

Contrast: 'p' and 'b'

Words: plane, pain; blood, bud; bleach, beach

Resources: pictures from the CD of the words listed above; a bag; drawings or photographs/pictures of the associated items that go with each of these words. These are in brackets: **plane** (sky), **pain** (medicine bottle); **blood** (plaster), **bud** (flower); **bleach** (cloth), **beach** (bucket and spade).

Activity

As above for 'Things that go together' for 'pr', 'br' target sounds.

Things that go together

Target sound: 'cl' word initial

Contrast: 'c'

Words: claw, core; cloak, coke; club, cub; clog, cog

Resources: pictures from the CD of the words listed above; a bag; drawings or photographs/pictures of the associated items that go with each of these words. These are in brackets: **claw** (cat's paw), **core** (apple); **cloak** (wizard hat), **coke** (drinking straw); **club** (golf ball), **cub** (lion); **clog** (foot), **cog** (clock)

Activity

As above for 'Things that go together' for 'pr', 'br' target sounds.

Things that go together

Target sound: 'fl' word initial

Contrast: 'f'

Words: flea, fee; floor, four

Resources: pictures from the CD of the words listed above; a bag; drawings or photographs/pictures of the associated items that go with each of these words. These are in brackets: **flea** (dog), **fee** (ticket); **floor** (carpet), **four** (five)

Activity

As above for 'Things that go together' for 'pr', 'br' target sounds.

Target error pattern: approximant is retained

Name game: Who likes what?

Target sound: 'tw' word initial

Contrast: 'w'

Words: Twig, wig

Resources: play-food items. **Twig Pig**, and **Wig Pig** on the CD (p. 70)

Activity

Place the food items on the table. The named characters should be either side of the child. The adult has a 'list' of the things each character likes. The child could hold up an item and the adult consults the list and says the name of the character that likes it. The child gives it to that character and makes it 'eat' the food.

The same activity could be carried out using **Clog Dog** and **Log Dog** (CD, p. 69). This is adaptable for other members of the families listed above under 'Name game: witch story'.

Make a picture

Target sound: 'gl' word initial

Contrast: 'l'

Words: glitter, litter

Resources: a star picture, or other item drawn that would benefit from the addition of glitter; pots of different coloured glitter; glue; bits of white, ripped-up paper (litter) thrown on the floor; a rubbish bin; slips of paper with pictures of glitter and litter (one or other on each slip) in a bag

Activity

The adult says that it would be nice to make a glitter picture, and they also need to clear the litter up. The adult takes one of the pictures from the bag and says the word 'litter' or 'glitter' (but doesn't show the picture). The child responds by picking up a bit of litter or a glitter pot. The adult shows the picture to check if the child was right. The child can then throw away a bit of litter, or add some glitter to the picture.

Throwing game

Target sounds: 'tr', 'dr', 'cr', 'gr' word initial

Contrast: 'r'

Words: train, drain, crane, grain, rain

Resources: pictures from the CD of the words above; skittles; light ball; a scorecard

Activity

Attach the pictures to the skittles. Tell the child which skittle to hit next by naming the picture attached. Give a point each time the child knocks the skittle you have named. After each throw stand all the skittles up again.

Target error pattern: either or both patterns can be addressed

Action game

Target sound: 'tr', 'cl' word initial

Contrast: 't', 'r', 'c', 'l'

Words: trap, tap, wrap; clap cap, lap

Resources: one of each of the following items per child: a cup and plastic spider, a pencil, a box and wrapping paper, a cap, a saucer

Activity

The adult needs to familiarise the children with the pairs of words. Pictures could be used to help this. Do the actions together at first. Once the child has practised the actions a few times, the adult simply says one of the words and the child does the action. The actions are as follows: **trap** (they catch the spider in the cup), **tap** (tap on the table with a pencil), **wrap** (begin or continue wrapping the present), **clap** (clap hands), **cap** (put the cap on and take it off again), **lap** (pretend to lap milk from the saucer like a cat). It is important to just say the words in an identical phrase such as 'now trap!' and then 'now wrap!', for example, as the child needs to listen carefully for the approximant clusters. You need to present the activity as 'fast and furious', otherwise the child will become too engrossed in some of the more interesting activities!

Further activities

The above activities are only a few of those that you can use to help the child who is working on the 'approximant cluster reduction' error pattern. Many of the activities can be used with different pairs of words. Other word pairs and pictures are listed under 'Approximant cluster reduction' in 'Pairs and sets' on the CD (pages 53–5).

Specific activities to help children use approximant clusters in words

The activities above were all designed to help the child listen to and distinguish words with and without clusters. Activities on the CD, pages 32–9, are designed to help children who can produce approximant clusters in words, but do not do so habitually when they speak. These activities can be used after discussion with a speech and language therapist to make sure the child is ready for the change of emphasis from listening work to saying words with the target sounds.

Important: Before trying these activities read the general information about using the generalisation and carryover methods described in Chapter 15.

In typical development, children sometimes go through a phase of saying the clusters, but with a vowel between them; for example 'puhlay', 'burown', 'gureen', 'fuhloor'. This means they are close to an accurate production, and are unlikely to need to carry out specific work on the clusters. This may be a stage the children with phonological impairments go through when they attempt to say the clusters. It is not helpful if the adult produces the clusters this way when modelling, however, as these pronunciations are not natural in the mature speaker. Encourage the children to try to say the whole word, rather than breaking it down. Generalisation activities and carryover words for the approximant clusters can be found on the CD, pages 32–9.

14

's' cluster reduction

Problems with production of 's' when it occurs in sequences of other consonants at the beginnings and ends of words

In this chapter the focus is on helping children to produce 's' when it is followed by other consonants at the beginnings of words, such as in words like 'sweep', 'stone' and 'scream', and at the ends of words, such as in words like 'desk', 'wasp' and 'post'.

Before proceeding with work on this speech pattern, check whether the child can produce 's' at the ends of words (like **miss** and **house**). If not, it is useful to work on this first. If the child misses off the 's' so 'house' sounds like 'how', refer to Chapter 9, 'Final consonant deletion'. If 'house' sounds like 'hout' refer to Chapter 7, 'Stopping'.

Definition

In speech production the term 'cluster' refers to two or more consonants, which occur in sequence within a syllable. In this chapter the sequence is 's' followed by another consonant, i.e. 'sm', 'sn', 'sp', 'st', 'sk', 'sl' and 'sw'.

Children who demonstrate 's' cluster reduction miss one of these consonants in the sequence. The sound they omit is usually the more difficult one, in this case the 's'. Examples of how a child might say a word are listed in column two of Table 14.1. However, sometimes there is a different pattern where the 's' sound is retained and the other consonant is apparently missed out. Examples are provided in column three of Table 14.1.

Development of 's' clusters

Most four-year-olds are beginning to get the hang of 's' clusters, especially at the ends of words ('list', 'desk'), but they are usually among the more difficult classes of sound sequences to master, and children may not say them *all* right, particularly those with three consonants like 'spl' and 'str', until they are five years old.

Table 14.1 Examples of the error pattern ‘“s” cluster reduction’

Target word	Child's pronunciation if the 's' is deleted	Child's pronunciation if the 's' is retained
smack	mack	sack
snail	nail	sail
spin, crisp	pin or bin, crip	sin, cris
store, mast	tore or door, mart	sore, mas
skip, desk	kip or gip, deck	sip, des
slow	low	sow
sweet	weet	seat

Thinking about speech sounds in ‘s’ clusters

In the group of ‘s’ clusters where the ‘s’ is followed by a ‘plosive’ (see Chapter 2/ Glossary definitions) such as ‘spin’, ‘stare’ and ‘skate’, the written form of the word is a bit misleading. The written form implies a ‘voiceless’ plosive. When these plosives are preceded by ‘s’, however, they are closer to the ‘voiced’ sounds. From the speech point of view the words would be more accurately written as ‘sbin’, ‘sdare’ and ‘sgate’.

To prove this say the words ‘spin’, ‘pin’ and ‘bin’. Now say ‘spin’ but deliberately omit the ‘s’ sound. Does the remaining bit of the word sound more like ‘pin’ or ‘bin’? Do the same thing with the words ‘stare’, ‘tear’, ‘dare’ and ‘skate’, ‘Kate’, ‘gate’. You will probably notice that ‘s’ words without the ‘s’ sound more like ‘bin’, ‘dare’ and ‘gate’. Many children ‘know’ this. Even when they delete the initial ‘s’ in a cluster, the ‘voiced’ plosive, not the voiceless one, is heard (e.g. spin ➔ ‘bin’; stare ➔ ‘dare’ and skate ➔ ‘gate’). That means that although they appear to miss off the ‘s’ sound they still know something about its effect in the word they are saying.

Implications for working with children who reduce ‘s’ clusters

The child might know a bit about the ‘s’ in an ‘s’ cluster word, but they also need to learn the importance of including the ‘s’ bit so that we understand them. That’s why using pairs or sets of words in meaningful activities are important. They provide the child with opportunities to hear and attempt to produce whole words, which differ only in one respect – the words do or do not have the ‘s’ sound before another consonant.

Choice of target words when ‘s’ is followed by a plosive (p, t or k)

When selecting minimal pairs of words from the sets below it is useful to begin with those pairs where there is a ‘voiced’ consonant in the plosive sets. These include spin, bin: spare, bear: start, dart: sky, guy.

There are not many examples of these pairs (that can be used in meaningful activities for children) so pairs of words with the voiceless consonant in the 'non-target word' (e.g. spot, pot; stable, table; and scarf, calf) are included. These are just as useful, but be careful to produce the 's' cluster words naturally yourself so that the 'plosive' sound is naturally voiced. Do not be tempted to break the word into two separate parts. If you say 'sss' 'table' this is not the same as the word 'stable'. If a child can say 'sss' 'table' it does not mean they can say 'stable', for example.

To avoid the problem, when saying a word like 'stable', lengthen the 's' slightly (as a cue) but continue to say the rest of the word naturally. So 'stable' should sound like 'sssdable'. This means the child gets a bit more information about the sound they need to be focused on, but do not lose the cues they already know about.

Activities for increasing awareness of 's' clusters in speech

Important: Before trying these activities read the general information about listening and discrimination methods in Chapter 6.

's' deleted, word initial

Puzzles

Target sound: 'sn' word initial

Contrast: 'n'

Words: snail, nail

Resources: enlarged pictures of a snail and nail that are cut into pieces (pictures can be found on the CD); a bag in which the puzzle pieces are kept

Activity

The child finds a piece of the puzzle the adult names: 'Find a bit of snail' or 'Find a bit of nail'. Say the same word a couple of times in a row sometimes to keep the child listening. To speed this up and/or simplify the task, have the puzzle pieces in separate bags. The activity is repeated until the puzzles are complete.

Other pairs of words could be used in this activity.

Spin, bin action game

Target sound: 'sp' word initial

Contrast: 'b'

Words: spin, bin

Resources: a spinning top or any object that can be spun (or a chair that the child can sit on to be spun round); a rubbish bin and paper that can be thrown away; slips of paper with 'spin' or 'bin' written on each one, kept in a bag

Activity

The child sits on a chair a little way from the spinning activity and the bin. The adult has screwed-up papers to be thrown in the bin. The adult picks a slip of paper with 'spin' or 'bin' written on it from the bag, and says the word. The child indicates by pointing at the 'spinning' activity or the 'bin', whichever one they heard. If right, the adult gives them paper to try and throw in the bin, or gives them a brief turn at the spinning activity. The child then returns to their seat and the adult selects another slip of paper from the bag.

Post office: stamp, damp

Target sound: 'st' word initial

Contrast: 'd'

Words: stamp, damp

Resources: a damp cloth; an inkpad; a set of rubber stamps; plenty of paper or envelopes; a puppet. This works best as a 'post office' role play.

Activity

The activity involves the child stamping the paper or envelope or making it 'damp'. A bossy-sounding puppet (or other toy creature) worked by the adult turns up at the 'post office' with lots of papers or envelopes. The child is the clerk. The puppet hands over one of the papers and instructs the child to either 'stamp it' or 'damp it'. Once done, the puppet takes it away and hands over the next one with one of the instructions. This is best done rapidly, so the child does not spend too long with the stamps! The adult needs to mix up the instructions so the child has to listen every time.

Stable, table

Target sound: 'st' word initial

Contrast: 'd/t' (see 'Choice of target words' above)

Words: stable, table

Resources: a picture of a table and a stable, both A4 size at least; a set of pictures of objects that go with a table (e.g. plate, cup, knife, fork, spoon); a set of pictures associated with a stable (e.g. horse, saddle, bucket) – these should be small enough to stick onto the stable and table pictures; Blu-tack or glue

Activity

The activity involves the adult suggesting whether 'stable' or 'table' is a suitable place for each of the smaller items. The pictures of the stable and table are attached to the wall a little way from where the child is sitting. The adult picks one of the smaller items (without showing it to the child) and says where it goes (stable or table). The child goes up to the picture they heard and the adult then shows them the item to see if they were right. The child then attaches the small item to the picture with Blu-tack or glue and returns to their seat for the next turn. This activity could be carried out with toys if you have the resources.

Name game: Who likes what?

Target sound: 'sc' word initial

Contrast: 'c/g'

Words: scare, care

Resources: pictures of **Scare Bear** and **Care Bear** (CD, pp. 64, 65); a puppet; cuddly toys and nice things that might be appreciated by Care Bear; scary items such as plastic monsters and Hallowe'en masks that might appeal to Scare Bear. These are placed in a bag.

Activity

The named characters should be either side of the child. The puppet instructs the adult – by whispering in his or her ear – about which bear needs something to play with. The adult says 'Scare Bear' or 'Care Bear' and hands the bag of toys to the child who selects something appropriate for the named character. The child can 'play' briefly with the object. The bag is handed back to the adult before the next turn.

Name game: bossy puppet

Target sound: 'sk'/'sc' word initial

Contrast: 'c/g'

Words: ski, key and/or scat, cat

Resources: pictures of **Ski Bee** and **Key Bee** (Bee family) and **Scat Cat** and **Cat Cat** (Cat family) can be found on the CD; a puppet; two or three activities such as colouring, puzzles and a construction toy. These are spread out on the floor or spaced widely on the table.

Activity

The adult works the bossy puppet who tells one of the characters what to do: 'Sea Bee! do the puzzle', swiftly followed by another instruction, 'Ski Bee' do some colouring' or 'Ski Bee do the building'. The child takes the character to the activity and does a little bit before the puppet gives a new instruction.

Collect a set

Target sound: 'st', 'sc' word initial

Contrast: 't/d', 'c/g'

Words: scarf, calf; scar, car; star, tar

Resources: (per child) a scarf; toy farm-animal calf; toy car; piece of 'tar' (bits of black gravel will do); star sticker; face paint crayon to draw a scar on the child

Activity

The objects are laid out in groups on a table away from the children. You say a word and they run to collect the item. You could use a timer, so it becomes a race against the clock.



Marked set of pictures

Target sound: 'sw' word initial

Contrast: 'w'

Words: sweet, wheat, or swing and wing

Resources: pictures of 'sweet' and 'wheat' or 'swing' and 'wing' from the CD. You need ten copies of each picture. Stick the pictures on card so the child cannot see through them and put a sticker or a pen mark on the back of one set of pictures.

Activity

Turn the cards face down on the table and ask the child to find the one you say. After a few tries they should realise without being told that there is a clue to which picture is which. Be amazed by their magic powers! This game can be carried out with any pair of pictures, for example pictures of 'swing' and 'wing'.

Sandwich making

Target sound: 'spr' word initial

Contrast: 'pr/br'

Words: spread, bread

Resources: This could be a real sandwich-making activity using spread (such as chocolate spread). Alternatively the child could use toy slices of bread and pretend to make sandwiches, or make sandwiches from cardboard cut out in the shape of bread, and bits of paper that can be inserted as 'spread'. Several slices of bread are needed and a puppet.

Activity

The adult works a puppet who is managing the sandwich shop and bossing the child about. The puppet tells the child what to do. If he says 'bread' the child takes a slice of bread. If he says 'spread', the child puts spread on the slice of bread. Sometimes the puppet will say 'spread' or 'bread' twice in a row, so the sandwiches sometimes get extra fillings and sometimes get nothing. The activity needs careful management. Both the extra slices of bread and the 'spread' need to be removed after each turn.

Things that go together

Target sounds: 'sn', 'st', 'sk', 'sw' word initial

Contrast: 'n' 't/d', 'k/g', 'w'

Words: snail, nail; stable, table; store, door; skate, gate; ski, key; sky, guy; swing, wing; switch, witch

Resources: pictures from the CD of the words listed above, or a selection of the word pairs; a bag; drawings or photographs/pictures of the associated items that go with each of these words. These are in brackets: **snail** (shell), **nail** (hammer); **stable** (horse), **table** (vase of flowers); **store** (shopping trolley), **door** (door handle); **ski** (ski pole), **key** (lock); **skate** (ice rink), **gate** (fence); **sky** (cloud), **guy** (bonfire); **swing** (park), **wing** (bird); **switch** (plug), **witch** (broomstick)

Activity

Talk about the pictures and the associated (bracketed) items, to familiarise the child with the connections. This may take a while. Make sure the child has the connections in mind before you proceed. Once the child is familiar with the associations, put the associated (bracketed) pictures (shell, hammer, etc.) in front of the child, and the paired words in a bag. The adult asks the child to find the picture that goes with 'snail' or 'nail', for example. The child then takes the picture of snail or nail from a bag and puts it with the connected picture. The adult then says another of the words.

's' deleted word final

Nice pet

Target sound: 'st' word final

Contrast: 't'

Words: pest, pet

Resources: pictures of animals that would make nice pets – cat, dog, hamster, guinea pig, budgie, mouse, rabbit – and pictures of creatures that might be considered 'pests' – fly, wasp, rat, slug. These are placed in a bag.

Activity

Tell a story about a child (perhaps given the name of the child you are working with) who wants a pet, but their dad is a keen gardener and might not want dogs, cats or rabbits in the garden.

The child picks one of the animals/creatures and the *adult* decides if it would make a 'pet' or a 'pest'. Adult says, 'Dad thinks it is a pet/pest'. 'Does the child think it's a pet/pest?' The child rejects the animal if both think it is a pest or if only Dad thinks it a pest. Motivation: by the end of the activity the child should have pets that are suitable from both parties' points of view.

Nest or net

Target sound: 'st' word final

Contrast: 't'

Words: nest, net

Resources: A4-size pictures of a nest and a net and smaller pictures of things that might be found in a nest (e.g. baby bird, egg, moss, feather) or a net (e.g. ball, fish, crab, seaweed). This activity could be carried out using real objects/replicas.

Activity

The activity involves the adult suggesting whether a 'net' or a 'nest' is a suitable place for each of the smaller items. The pictures of the net and nest are attached to the wall a little way from where the child is sitting. The adult picks one of the smaller items from a pile, without showing the picture to the child, and says where it goes – 'net' or 'nest'. The child goes up to the picture they heard (net or nest) and the adult then shows the child the item to see if they were right. The child then attaches it to the picture on the wall and returns to their seat for the next turn.

's' retained

Action game

Target sound: 'sn' word initial

Contrast: 's'

Words: snail, sail; snore, saw

Resources: (you need one each of these items per person): playdough to make a snail and, if using extra words below, a 'telescope' cardboard tube (see) and some stickers (stick). Other actions do not need props.

Activity

The adult needs to familiarise the children with the pairs of words. Pictures could be used to help this. Do the actions together at first. Once the child has practised the actions a few times, the adult simply says one of the words and the child does the action. The actions are: **snail** (start making a snail from a piece of playdough), **sail** (pretend to sail a boat), **snore** (make the noise), **saw** (pretend to saw). Each action can be carried out a number of times. In this activity it is important to just say the word 'snail!' or 'sail!' so extra clues about the word are not provided. Keep the instructions coming in rapid succession, so each action only continues for a few seconds.

You could include or substitute other words, e.g. stick, sick, ski, see; swing, sing. These actions would be: **stick** (attach a sticker to paper), **sick** (look ill), **ski** (pretend to ski), **see** (look through a telescope), **swing** (pretend to be on a swing), **sling** (hold arm as if in a sling), **sing** (sing).

Further activities

The above activities are only a few of those that you can use to help the child who is working on the 's' cluster reduction error pattern. Many of the activities can be used with different pairs of words. Other word pairs and pictures can be found under "'s' cluster reduction' in 'Pairs and sets' on the CD, pages 56–7.

Specific activities to help children *use* 's' clusters in words

The activities above are designed to help the child listen and distinguish words with 's' clusters. Activities on the CD, pages 39–42, are designed to help children who can produce 's' clusters in words, but do not do so habitually when they speak. These activities can be used after discussion with a speech and language therapist to make sure the child is ready for the change of emphasis from listening work to saying words with the target sounds.

Important: Before trying these activities read the general information about using the generalisation and carryover methods described in Chapter 15.

Generalising speech patterns in different words and sentences, carryover into spontaneous speech and general activities for use with any speech sound

In this book, ways of helping the child to actually produce sounds in words are not included. This is because speech and language therapists (SLTs) will usually need to give advice, and ways to help the child will differ among children. Some children, however, will naturally begin to change their speech patterns because they have incorporated new information about sounds in words through the listening and discrimination activities. When children *are* able to modify their speech patterns, it is time to practise a range of words with the target sounds in single words and sentences.

Practising

A child with a phonological impairment does not have a primary difficulty with co-ordination, but they have had a lot more practice at saying words in their old ‘wrong’ way rather than the new ‘right’ way. They have similar issues to those faced by an adult who is trying to learn and incorporate a new sound into the words of a foreign language. Sometimes we will remember the sound, and sometimes we will revert to the closest English sound, the one we have practised much more often.

For example, in French the ‘p’ in *pain* (bread) or *Paris* is actually closer to the English ‘b’ sound. It is like the sound in the English words ‘spin’ and ‘spoon’, which is more like a ‘b’ than a ‘p’. Imagine trying to remember that next time you are speaking French! However, you could practise lots of words with the new pronunciation by looking through a French dictionary and saying individual words beginning with ‘p’. Then later you might put the words into phrases or sentences remembering the new way of saying them. Finally, you might feel confident enough to try out your new, ‘weird’ (to you) but actually improved French accent with a native speaker to see what they think. By starting with a simple and repetitive practice method, you will have built up the movement pattern needed to say your ‘new’ sound in words and that new movement pattern *gradually* becomes automatically available when you try a different French word beginning with ‘p’.

The principle is very similar for children who are incorporating new sounds into their phonological system. First attempts at a new sound in words will be a bit clumsy and

may involve lots of effort, and the child will often use the more habitual sound pattern. Gradually, with practice, the child builds up the co-ordinated movement into a synergy so that the new sound is produced more automatically in words. Another useful analogy to this is thinking about learning to type or drive a car. Both are examples of activities like speech, which once learnt become automatic, co-ordinated, synchronised but still very adaptable patterns of movement. But just recall how unco-ordinated you were and how taxing it was and how much effort it required when you first learnt those skills.

Generalisation tasks

Generalisation for the child is the equivalent of looking in the dictionary and practising words that all have the same target sound. Activities the child carries out need to be kept simple. This is very much like the need to keep listening and discrimination activities straightforward in the early stages.

The child gradually learns to incorporate the new sound in other words that have not yet been practised in the pairs or sets of words you have already worked with.

- First the child names objects or pictures, and these all have the target sound, for example, **car**, **key**, **cake**, **comb** and **kite**. ('Contrast' words are not included now.)
- Next the child can try these familiar and well-practised words in *short repetitive phrases and sentences*. For example, the child could count how many 'one car, two cars...' or say a colour word, 'blue key, blue car, blue comb'.
- The words can then be produced in *more varied* sentences.
- Next aim for the child to say a few highly frequent target words with the new pattern at least 80 per cent of the time. For target 'c/k', this could be words like 'come', 'count' and 'can't'.
- Build in opportunities for *self-listening and self-monitoring*. Do not always comment on whether a word was said right and instead ask the child what they thought about it. If they don't know, continue to give a response yourself, but each time they say a word get them to think about it before saying it. That will help them to *notice* their pronunciation and give feedback to themselves about how close their attempt was to the target. Older children (age 6-plus) can be encouraged to do this throughout the production phase. Younger children may only be ready for this when they are at the stage of producing the words in varied sentences.

Activities specific to most speech sounds are provided on the CD.

Carryover

If we think back to learning the 'new' sound in French words, carryover is when the child tries out the new sound in words with the 'native speaker' in real, natural speaking situations. This is much more taxing, and often the child will say words with the old speech pattern, even though they are able to revise their productions of these

same words in the generalisation activities above. Start with words that are well practised, such as the words the child produced correctly most of the time in generalisation activities.

Specific words that can be used in natural speaking situations in class are provided on the CD, sounds at the beginnings and ends of words for speech sounds. Other ideas for helping children in this phase are provided on the CD, pages 8–10.

Black Sheep Press (www.blacksheep-epress.com) publish useful resources for generalisation and carryover activities.

Activities for practising, generalisation and carryover

These activities can be used to practise any speech sounds listed on the CD. The activities use pictures and these should all have the target sound. So if the child is practising initial 's', find up to eight pictures with 's' at the beginning of the word, such as sun, saw, soap, seal, sock, sea, sailor, seat, sign.

Here is a list of suggested activities – in all of them the child *names* the pictures during each turn. In this way they get lots of practice saying the words in a simple single-word context.

- Make two sets of cards and play matching pairs.
- Make lotto boards with the eight pictures and have two sets of individual pictures
- Catch the picture with a magnetic fishing rod (with paper clips attached to the pictures).
- Child names a picture and you put a brick on it.
- 'Steal my picture' – you have a set of cards and the child has the same pictures on a lotto board. Child names a picture and the adult 'reluctantly' gives it to the child.
- There are many similar activities that will allow the child to practise a range of words that include their target sound.

Specific activities

After this stage, move onto specific activities for generalisation and carryover that are listed on the CD. Continue with the generalisation activities above, alongside these. Refer to the sequence of progression on page 152. If the child has difficulty with accurate production of the target sounds in words at any level, go back to the previous level.

Problems and suggested solutions

The child cannot change the pattern

Having worked hard, you find the child is not able to upgrade the speech pattern you are working on. There are two things to try immediately:

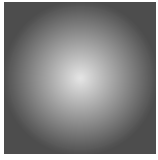
- Postpone working on production, and make sure you have carried out all the levels of the listening tasks described in Chapter 6.
- Limit the number of words you are working on, so the child gets a lot of opportunities to figure out how to produce the sound in one or two words.

Do not continue to practise words if the child is not able to modify how they say the word relatively easily. By this stage children need to be consolidating skills they already have. If this is not happening, then the activities are inappropriate for the stage the child has reached.

Discussion with a speech and language therapist is advised before working on generalisation and carryover. Further discussion is advised if the child seems to be having difficulties. The SLT might discuss selecting a different target sound or trying a different approach.

Further activities

Further ideas for generalisation and carryover activities to use with any error pattern in the daily curriculum are provided on the CD.



Glossary

Here are brief definitions of some of the terminology that might be unfamiliar to the reader. All of these terms are explained in more detail in the book.

Affricates: ‘ch’ in **chin** and **watch**, and ‘j’ in **jam** and **badge** – speech sounds produced when complete blocking of the airstream, as for the stops, is followed by release through a narrow space like the fricatives.

Allophones: the phonetic realisations of phonemes. Each phoneme has several allophones that differ in the way they are produced by the articulators. For example, the ‘t’ in **table** and the ‘t’ in **stable** differ in the way they are produced but are still categorised as belonging to the phoneme ‘t’.

Alveolar: ‘t’ in **toe**, ‘d’ in **do**, ‘n’ in **no**, ‘s’ in **so**, ‘z’ in **zoo**, ‘l’ in **low**, ‘r’ in **row** – speech sounds produced when the tongue tip is in contact with, or close to, the alveolar ridge.

Alveolar ridge: the ridge on the roof of the mouth behind the upper teeth.

Approximant cluster reduction: a developmental error pattern where children miss out the approximant in approximant clusters such as ‘pl’, ‘br’ and ‘cl’. For example, ‘please’ sounds like ‘pease’, ‘bread’ sounds like ‘bed’ and ‘claw’ sounds like ‘caw’.

Approximants: ‘w’ in **watch**, ‘y’ in **you**, ‘r’ in **ring** and ‘l’ in **light** – speech sounds produced when the articulators approach contact but are not so close that friction is produced.

Articulation: the mechanics and movements of the mouth and other parts of the body used when we speak.

Articulators: the organs involved in production of speech including the lips, tongue, teeth and hard palate.

Assimilation: a developmental error pattern where one sound influences another in a word so they become the same or similar, e.g. **yellow** (lellow), **dog** (gog).

Backing: a non-developmental error pattern where children produce alveolar consonants as velar consonants. For example, ‘tea’ sounds like ‘key’ and ‘door’ sounds like ‘goor’.

Bilabial: ‘m’ in **mouse**, ‘p’ in **pencil**, ‘b’ in **bead** – speech sounds produced when the upper and lower lips are in contact.

Carryover: the phase of intervention when a child is able to modify their speech and produce the new sounds in words, and needs daily practice targeting words in everyday speaking situations.

Cluster: a sequence of two or more consonants within the same syllable; for example **star**, **spray**, **desk**, **please**, **grape**.

Cluster reduction: a developmental error pattern where children reduce a consonant cluster. For example, ‘**please**’ sounds like ‘pease’ and ‘**grow**’ ‘go’ (known as approximant cluster reduction) and where **star** sounds like ‘tar’, ‘**spray**’ ‘pray’ or ‘pay’, ‘**desk**’ ‘dek’ (known as ‘s’ cluster reduction).

Context sensitive voicing: a developmental error pattern where the consonants that are usually ‘voiceless’ at the beginnings of words and syllables are produced as voiced, and those usually produced as ‘voiced’ at the ends of words and syllables are *voiceless*. For example, ‘pie’ sounds like ‘buy’ and ‘toad’ sounds like ‘doat’.

Contextual clues: when the listener has access to information that provides them with an idea about what a child might be saying.

Contrast: the sound the child typically uses in place of the target sound. See entry for target sound.

Deaffrication: a developmental error pattern where the sounds ‘ch’ and ‘j’ are produced as fricatives ‘sh’ and ‘zh’. For example, ‘chair’ sounds like ‘share’ and ‘jam’ sounds like ‘zham’.

Dental: ‘th’ voiceless in **thin** and ‘th’ voiced in **there** – speech sounds produced when the tongue tip is in contact with the upper teeth.

Developmental error patterns: speech patterns that are found in typically developing children.

Discrimination: throughout the book the term refers to auditory discrimination, the ability to distinguish words that are minimal pairs.

Dyspraxia, developmental: this is a term commonly used to cover many different problems with co-ordinated movements of the body. General co-ordination difficulties are commonly referred to as ‘developmental co-ordination disorder’. In children with speech impairments dyspraxia refers to a difficulty with planning and co-ordinating the movements of the tongue, lips and other speech organs. Other terms used to refer to developmental dyspraxia include *developmental verbal dyspraxia*, *developmental articulatory dyspraxia* and *childhood apraxia of speech* (CAS). (This is the preferred term in the USA.)

Final consonant deletion: a developmental error pattern where children miss off the final consonant in a word or syllable. For example, **bead** sounds like ‘bea’ and **soap** sounds like ‘so’.

Fricatives: ‘f’ in feet, ‘v’ in vet, ‘th’ in thin, ‘th’ in there, ‘s’ in sea, ‘z’ in zoo, ‘sh’ in sheep, ‘zh’ in treasure – sounds produced when the articulators come very close together at some point in the oral cavity so that air is forced at speed through a small space resulting in audible friction.

Fronting: a developmental error pattern where children produce velar consonants ‘k’, ‘g’ and ‘ng’ as alveolar ‘t’, ‘d’ and ‘n’, so ‘car’ sounds like ‘tar’, ‘goat’ ‘doat’ and ‘wing’ ‘win’.

Generalisation: the phase of intervention where the child is ready to practise saying words with problem sounds. The child needs to practise saying a range of words as single words first, then in phrase and sentence context. After this they will be ready for carryover practice.

Gliding: a developmental error pattern where children substitute the sounds ‘r’ and ‘l’ for ‘w’ and ‘y’, for example ring sounds like ‘wing’ and lamb sounds like ‘yam’.

Glottal: ‘h’ in here – and sounds made when the vocal folds act as the articulators. See also glottal stop.

Glottal stop: the sound produced when the vocal cords close to block the airflow from the lungs, and then abruptly come apart to release the flow of air. Think of the cockney way of saying ‘water’ waʔer.

Homophones: two or more words that sound the same when spoken, but have different meanings, for example ‘pen’ (to write with) and ‘pen’ (to enclose animals); thyme/time; allowed/aloud.

Labiodental: ‘f’ in farm, ‘v’ in vet – speech sounds produced when the bottom lip is in contact with the upper teeth.

Manner of articulation: how speech sounds are formed. The airflow is directed or altered to produce different classes of sound, including nasals, plosives, fricatives, affricates and approximants.

Minimal pair: a pair of words that differ by only one phoneme to create a difference in meaning, for example bee and pea; mat and mad. Near minimal pairs are those where addition of a phoneme changes the meaning of a word, for example swing and wing; bee and beak.

Nasals: ‘m’ in mouse, ‘n’ in nose, ‘ng’ in wing – speech sounds produced when air is released through the nasal cavity. The soft palate is lowered to allow the air to escape through the nose. For all other sounds the soft palate is raised to prevent nasal escape of air.

Non-developmental error patterns: speech patterns that are not usually found in typically developing children, but are found in those with speech impairments and indicate phonological disorders.

Orthographic script: the conventional system for writing a language.

Palatal: ‘y’ in you or yes – speech sounds made when the blade of the tongue is in contact with, or close to, the hard palate.

Palatoalveolar: ‘sh’ in sheep and ‘zh’ in treasure, ‘ch’ in chin and ‘j’ in jam – sounds made when the middle of the tongue is in contact with, or close to, the region just behind the alveolar ridge.

Phoneme: the ‘phonemes’ of the language are the smallest units that interchange or combine with each other to signal a change in the meaning of a word.

Phoneme awareness: the ability to consciously manipulate sounds in words such as creating spoonerisms.

Phoneme Factory series: the series includes the *Phoneme Factory: Phonology Screener* (a computerised screening test), the *Phoneme Factory: Sound Sorter* (an activity software program) and this resource book.

Phonics: a method of teaching reading that emphasises the relationships between letters and sounds.

Phonological awareness: the conscious awareness of sounds in words, including the ability to recognise rhyme, recognising the same sound occurring in words, and the ability to manipulate sounds in words by removing or changing sounds to make different words.

Phonological delay: a delay in speech development. A child continues to use developmental error patterns that are more typically found in children of a younger age.

Phonological disorder: a disorder of speech where a child is slow to develop the speech sound system and uses some non-developmental error patterns. The child might be consistent in their use of error patterns, or inconsistent.

Phonological impairment: an umbrella term for both phonological delay and disorder.

Phonological sensitivity: the unconscious knowledge we have about sounds in spoken words.

Phonology: the system of sounds in a language, and how the sounds combine.

Place of articulation: the position in the mouth where the articulators – such as the lips, or tongue tip and palate – make contact or move close together.

Plosive: another term for stop.

Reduplication: a developmental error pattern where one syllable is repeated to constitute the other syllable in a two- (or more) syllable word, e.g. bottle (bobo).

‘s’ cluster reduction: a developmental error pattern where children tend to miss out the ‘s’ in words with ‘s’ clusters, for example star sounds like ‘tar’ and snail sounds like ‘nail’.

Speech impairment: a generic term used in the book to refer to any type of speech difficulty including phonological delay, phonological disorder and dyspraxia.

Stopping: a developmental error pattern where fricatives are produced as stops, for example 'four' sounds like 'pour' and 'sea' sounds like 'tea'.

Stops: 'p' in **pea**, 'b' in **bee**, 't' in **toe**, 'd' in **do**, 'k' in **key** and **car**, 'g' in **go** – speech sounds produced when there is a blocking of the airflow followed by an abrupt release, which results in an explosive sound. Also known as plosives.

Syllable: the rhythmic units of speech. Syllables have one vowel sound, for example 'rugby' has two syllables, rug-by, and 'badminton' has three, bad-min-ton.

Target sound: the sound or sounds in a word that the child does not produce reliably. See *Contrast*.

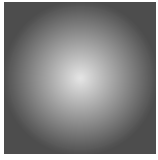
Velar: speech sounds produced when the back of the tongue contacts or is close to the soft palate: 'c/k', 'g', 'ng'.

Voiced consonants: speech sounds produced with vibration of the vocal folds. The vowels, nasals and approximants are usually voiced. Other sounds produced with voice are 'b', 'd', 'g', 'v', 'th' (as in **there**), 'z', 'zh' (as in **treasure**) and 'j' (as in **jam**).

Voiceless consonants: speech sounds produced without vibration of the vocal folds.

Voicing: in defining speech sounds voicing refers to whether or not the vocal cords vibrate in the production of a sound. When they do vibrate, the sound is voiced, and when they don't the sound is voiceless.

Weak syllable deletion: a developmental error pattern where the unstressed syllables in words are not produced, e.g. banana (nana), tomato (mato).



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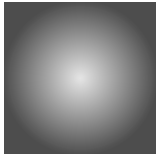
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