Materials for newly qualified teachers

ICT and SEN and disability

Taught session 2

tda

developing people, improving young lives

Core standards addressed

C4   (a)   Communicate effectively with children, young people and colleagues.

C5   Recognise and respect the contributions that colleagues, parents and carers can make to the development and well-being of children and young people, and to raising their levels of attainment.

C8   Have a creative and constructively critical approach towards innovation; being prepared to adapt their practice where benefits and improvements are identified.

C27   Design opportunities for learners to develop their literacy, numeracy, ICT and thinking and learning skills appropriate within their phase and context.

C28   Plan, set and assess homework, other out-of-class assignments and coursework for examinations, where appropriate, to sustain learners' progress and to extend and consolidate their learning.

C29   Teach challenging, well-organised lessons and sequences of lessons across the age and ability range they teach in which they:

     (a)   use an appropriate range of teaching strategies and resources, including e-learning, which meet learners' needs and take practical account of diversity and promote equality and inclusion.

C33   Support and guide learners so that they can reflect on their learning, identify the progress they have made, set positive targets for improvement and become successful independent learners.

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Taught session 2

ICT and SEN and disability

Learning outcomes

Participants will understand:

- how information and communication technology (ICT) can be used to remove barriers to participation and learning

- that ICT can increase opportunities to include pupils with SEN and/or disabilities, and

- their role in using ICT to support pupils with SEN and/or disabilities.

1 hr 15 mins

Approximate timing:	1 hour 15 minutes

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Required resources

Slide presentation	Taught session 2	
Handout 1	What can ICT offer pupils with SEN and/or disabilities?	
Handout 2	A taxonomy of e-inclusion	
Handout 3	Who needs a laptop?	
Handout 4	Whose responsibility?	
Handout 5	Points for action	
Handout 6	Self-study tasks	
Film clips	'Castle School Animations' (video 1)	**4:08 minutes**
	To view the film clip, go to: **www.wmnet.org.uk/17. cfm?s=17&m=119&p=97,view_resource&start= 1&kw=&el=15&sc=0&id=537** and click on 'View the item'.	
	'Who needs a laptop?' (video 2)	**2:33 minutes**
	SEN Training Toolkit disc one. To view the clip, just click on the relevant title in the contents list.	

Flip chart and paper

Marker pens

Activities

Activities		Timings
Activity 1	What can ICT offer pupils with SEN and/or disabilities?	**10 minutes**
Activity 2	Ways of thinking about ICT for pupils with SEN and/or disabilities	**15 minutes**
Activity 3	Technology to help pupils learn	**20 minutes**
Activity 4	Technology to enable learning	**20 minutes**
Activity 5	Review and reflection	**10 minutes**

Background

This session looks at different ways that ICT can support curriculum access for pupils with SEN and/or disabilities. It is structured around the section called 'A taxonomy of e-inclusion' from Chris Abbott's report, E-inclusion: Learning Difficulties and Digital Technologies.

This covers three elements:

- the 'drill and practice' software that is commonly used in schools

- the resources that make working with ICT possible for pupils with a range of SEN and/or disabilities, including physical, cognitive or communication difficulties

- technology that enables learning – putting ICT in the broader context of approaches to teaching and learning rather than individual learning needs.

Participants are asked to consider their own experiences of ICT use, and to reflect on how their understanding could help to increase curriculum access for all pupils.

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Pre-session tasks

All participants should complete the following tasks before attending this session.

Task 1

Technology permeates every aspect of our lives – even more outside the classroom than inside. To help get a sense of the possibilities of using ICT, make a list of the technology you have yourself (eg laptop, desktop computer, phone, digital camera, MP3 player, PSP, etc). What does this technology enable you to do?

Task 2

How do you use ICT? What social and communication tools do you use? Apart from e-mail, examples might include Flickr, Facebook, MySpace, YouTube, Blogger and so on. How could these tools be useful in schools? Bring along to the taught session a list of the ways you use ICT.

Task 3

Look back at a lesson plan in which you used ICT. Note:

- how you used it

- any restrictions you experienced

- any other resources you would like to have used

- any particular support you would have liked.

Note: Referring to a specific product/s does not constitute a recommendation by the Training and Development Agency for Schools of the products and services offered, nor will the Agency incur any liability whatsoever for any claim relating to them.

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Introduction

Show slide 1 to introduce the session.

Show slide 2 and introduce participants to the learning outcomes for the session as a whole.

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Activity 1

What can ICT offer pupils with SEN and/or disabilities?

Learning outcomes

Participants will:

- identify different ways ICT can support pupils with SEN and/or disabilities, and
- focus on learning needs.

10 mins **Approximate timing: 10 minutes**

Required resources

Handout 1   What can ICT offer pupils with SEN and/or disabilities?

Flip chart and paper

Marker pens

Task

Show slide 3 to outline the learning outcomes for activity 1.

3
Slide

> ### Activity 1
>
> ## Learning outcomes
>
> You will:
> - identify different ways ICT can support pupils with SEN and/or disabilities
> - focus on learning needs
>
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Tell participants that ICT can be used to remove barriers to participation and learning for pupils with SEN and/or disabilities.

Ask them to jot down any ways that ICT might help to include a pupil with SEN and/or disabilities.

Take brief feedback.

Answers may include that ICT:

- can motivate and engage pupils
- enables pupils to use a computer who otherwise couldn't
- helps children to write, through specialist software
- can create enlarged images for pupils with visual impairments
- can present content in different ways to suit pupils' preferred 'learning styles', and
- gives access to information when and where it is needed.

There are many other possible responses.

Show slide 4 and give out Handout 1.

4
Slide

What can ICT offer pupils with SEN and/or disabilities?

– ICT can be motivating
– ICT presents information in different ways
– ICT offers an opportunity for social interaction
– ICT provides a range of assistive technology tools

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Use Handout 1 to expand on the bullets on the slide.

Ask participants to think about their ideas again in the context of the bullet points on the slide:

- Do all their ideas fit under these headings?
- Are there other bullet points they would like to add?

Participants might suggest that ICT can:

- promote pupils' creativity
- enable pupils to share ideas, or
- allow pupils to experiment in a virtual medium.

Again, there are many other possible responses.

Note down all the extra bullet points suggested by participants on a flip chart.

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Now ask participants to look at their lists of the ways they use ICT, which they made as part of pre-session task 2.

Does their own use of ICT fit under these headings, too?

Take brief feedback and add to the flip chart any other bullets that come out of this discussion.

Tell participants that ICT can:

- improve participation in school life and access to the curriculum for pupils with SEN and/or disabilities, and

- give them richer, more engaging and inclusive educational experiences.

Explain that ICT:

- sometimes allows us to do old things in new ways, and

- can allow us to do new things altogether, both in terms of content and the way content is delivered.

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Activity 2

Ways of thinking about ICT for pupils with SEN and/or disabilities

Learning outcomes

Participants will:

- understand how we can categorise the use of ICT to remove barriers to participation and learning, and

- understand how technology can be used for training and rehearsal, and be able to judge when this is appropriate.

Approximate timing: 15 minutes

Required resources

Handout 2   A taxonomy of e-inclusion

Task

Show slide 5 and introduce the learning outcomes for activity 2.

5
Slide

> ### Activity 2
>
> ## Learning outcomes
>
> You will:
> - understand how we can categorise the use of ICT to remove barriers to participation and learning
> - understand how technology can be used for training and rehearsal, and be able to judge when this is appropriate
>
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Now show slide 6.

A taxonomy of e-inclusion

– Using technology to train or rehearse
– Using technology to assist learning
– Using technology to enable learning

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Explain that this particular way of thinking about how ICT supports pupils with SEN and/or disabilities was proposed in 2007 by Chris Abbott.

Give out Handout 2 and ask participants to read the first two paragraphs.

When they have finished, use Handout 2 to expand on slide 7.

7
Slide

Using technology to train or rehearse

"The major use of technology to train and rehearse has been through drill and practice software"

Chris Abbott, 2007

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Ask participants to work together in groups of four to think of examples of this sort of technology.

Allow a few minutes and then take brief feedback.

Responses might include:

- software to learn spellings – such as Wordshark or Starspell
- maths reinforcement programs such as RM Maths, SuccessMaker or Accelerated Math, and
- online multiple-choice exercises which allow unlimited attempts to answer.

Ask participants to think about why programs like these might be useful for pupils with SEN and/or disabilities. They might come up with ideas such as:

- reinforcement
- practice
- 'over learning'
- automatic marking
- objective assessment
- summative assessment
- more acceptable and accessible than pages of calculations
- pupils can work at their own pace
- automatically move on to higher levels
- reporting systems
- consistent presentation.

Tell participants that Becta[1] suggests that 'drill and practice' software, when used effectively, can help pupils with learning difficulties who need to 'over learn' concepts and knowledge and practise their basic skills independently, by presenting the same skills in a range of contexts. Wendy Fisher, in the Dyslexia Review, Summer 1994, suggested that drill and practice software might be particularly useful for helping dyslexic pupils gain skills.

Now ask participants if they see any limitations or disadvantages to using this software for pupils with SEN and/or disabilities.

Participants might suggest, for example, that:

- there is a danger that the computer might be left to teach pupils rather than the teacher taking responsibility for the pupils' learning
- pupils might learn things but have little understanding, and
- the programs can be dull and mechanistic.

Lead a discussion with the whole group about how, why and when participants might use drill and practice software in their teaching.

Conclude this activity by emphasising that drill and practice software, like any other teaching resource, should only be used by teachers, with discretion, as part of a planned programme to help pupils meet specified learning outcomes.

1   Learning Difficulties and ICT (http://schools.becta.org.uk/index.php?section=tl&catcode=ss_tl_inc_ac_03&rid=1805)

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Activity 3

Technology to help pupils learn

Learning outcome

Participants will understand how to make sure that pupils who use technology to access the curriculum can use it effectively.

Approximate timing: 20 minutes

Required resources

Handout 2   A taxonomy of e-inclusion

Handout 3   Who needs a laptop?

Handout 4   Whose responsibility?

Film clip   'Castle School Animations' (video 1)   **4:08 minutes**

To view the film clip, go to: **www.wmnet.org.uk/17. cfm?s=17&m=119&p=97,view_resource&start=1&kw= &el=15&sc=0&id=537** and click on 'View the item'.

Task

Show slide 8 to outline the learning outcome for activity 3.

8
Slide

> ### Activity 3
>
> # Learning outcome
>
> You will understand how to make sure that pupils who use technology to access the curriculum can use it effectively
>
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Give out Handout 2 and ask participants to read paragraph 3.

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Now show slide 9 to introduce the idea of assistive technology, and make sure everyone understands the term.

9
Slide

Assistive technology

Assistive technology includes:
- assistive and adaptive devices that promote independence for disabled people
- the processes used in selecting and using these devices

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Show slide 10 and use Handout 2 to expand on it.

10
Slide

Using technology to help pupils learn

"…technology that assists is usually linked to the need to compensate for a physical disability or difficulty"

Chris Abbott, 2007

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Tell participants that they are going to watch a video showing a pupil using assistive technology. Explain that, although it may be unusual to come across a pupil who needs this degree of technological support, laptops are becoming increasingly common in classrooms.

Show the film clip, 'Castle School Animations' (video 1).

After they have watched the film, ask participants to work in groups of four, and give out Handout 3. Tell them to complete the handout by considering the characteristics of a laptop and the learning needs it might meet.

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When they have finished, take brief feedback from the group as a whole, pointing out that:

- a range of pupils with SEN and/or disabilities may have similar learning needs, and

- it is more appropriate to focus on pupils' learning needs than on particular labels such as dyslexia, or Down's syndrome – consider how the resource will help pupils learn better.

Tell participants to stay in their groups of four. Give out Handout 4 and tell participants to complete the table.

When they have finished, lead a brief discussion, making sure the following points are brought out:

- Managing a laptop in a classroom can require input from different people with a range of roles and responsibilities. Practice may vary considerably between schools and even between different pupils in the same school. Some pupils will take on a large degree of responsibility for it themselves, while others will need a great deal of support.

- There is not a 'right answer' to who does what, but there is a need to coordinate all the tasks. Teachers should know who does this in their school. In primary schools, class teachers are often responsible for coordinating everyone involved. As pupils get older, they can take on more responsibility themselves.

- It is the class teacher's job to ensure that technology is integrated into lessons appropriately and supports the learning objectives.

Explain that pupils who need complex technological support will usually have a statement of SEN. Provision for them will therefore be made through the local authority, following an assessment by an expert in this area. Sometimes, particularly when the pupil needs a voice output communication aid (VOCA), health and children's social care services may be involved, as the device will be seen as having a role in socialisation as well as education.

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Activity 4

Technology to enable learning

Learning outcome

Participants will appreciate how ICT can transform teaching and learning.

Approximate timing: 20 minutes

20 mins

Required resources

Handout 2	A taxonomy of e-inclusion	
Film clip	'Who needs a laptop?' (video 2)	**2:33 minutes**
	SEN Training Toolkit disc one. To view the clip, just click on the relevant title in the contents list.	

Whiteboard or flip chart

Task

Show slide 11 to outline the learning outcome for activity 4.

11
Slide

> **Activity 4**
>
> ## Learning outcome
>
> You will appreciate how ICT can transform teaching and learning
>
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Ask participants to read paragraph 4 of Handout 2. Use this paragraph to expand on slide 12.

12
Slide

Using technology to enable learning

"…the use of technology makes learning possible where it was not possible before… the significant difference between this case and the other two is that it is only through the use of technology, albeit in a collaborative or supportive context, that particular learning can take place. The use of technology transforms rather than modifies the learning context."

Chris Abbott, 2007

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Ask participants to think about examples they have experienced when ICT has offered learning opportunities which would not be available through any other means. Record these on a flip chart or whiteboard.

Examples they might come up with include:

- Developing Tray, which helps pupils develop reading strategies
- a flight simulator
- a 'fly through' of an ancient monument
- changing the parameters of a virtual model to ask 'what if' questions
- 'web-quests', where participants are given real-life roles and authentic tasks then challenged to fulfil them, usually using the internet
- using ICT to contact, or even talk to, experts in particular fields.

There could be many others.

Ask participants to work in groups of four. Allocate each group one of the ideas you have recorded.

Ask each group to consider how the new ICT teaching and learning method that they have been allocated might help to include some pupils with SEN and/or disabilities, who might have been excluded by more traditional approaches.

Take brief feedback from each group. Emphasise also where these different approaches might give pupils a better chance to demonstrate what they know and can do than more traditional means of assessment.

Tell participants they are now going to see a short film showing how a laptop can transform teaching and learning in schools.

Show the film clip, 'Who needs a laptop?' (video 2).

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Activity 5

Review and reflection

Learning outcome

Participants will:

- reflect on the session, and
- identify actions they need to take.

Approximate timing: 10 minutes

Required resources

Handout 5   Points for action

Handout 6   Self-study tasks

Task

Show slide 13 to outline the learning outcome for activity 5.

13
Slide

> ### Activity 5
>
> ## Learning outcomes
>
> You will:
> – reflect on the session
> – identify actions you need to take
>
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Give out Handout 5.

Ask participants to use the handout to reflect on the session and identify personal points for action.

These might include:

- finding out more about resources to support particular pupils' needs
- thinking about aspects of their planning to look at the possibilities offered by ICT, and
- changing the way they manage ICT to support pupils with SEN and/or disabilities in their own lessons.

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This process may throw up issues that are beyond the participants' immediate control, such as resourcing or staff development. Suggest that they keep a separate record of these, and raise them back in school with their line manager or mentor.

Finally, distribute Handout 6, which lists the range of self-study material participants can use. Explain that each task takes about two hours, plus some observation/research time, and that at the end each one has two extension tasks for them to complete.

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What can ICT offer learners with SEN and/or disabilities?

ICT can be a motivating learning medium. Many learners are attracted to computers and want to learn through them. Software applications incorporating colour, pictures, animations, sound and humour can build on that interest, creating attractive learning opportunities to engage pupils.

ICT presents information in different ways. Students learn through different channels so information presented in multimedia form gives them more opportunities to connect. Information can be accessed through text, graphics or sound to suit the students' individual learning styles and strengths.

ICT offers an opportunity for social interaction. Students can work together around the computer, focusing on the learning task. Through this medium they can develop their language and social skills as well as learn from one another.

ICT provides a range of assistive technology tools. Hardware and software enable many learners with access difficulties to overcome barriers. Physical, sensory and learning difficulties can be supported by the use of ICT.

Taken from Becta, 2002, An Overview of Special Educational Needs and ICT Provision

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A taxonomy of e-inclusion

E-inclusion – the use of digital technology to assist those who find learning difficult – is an under-theorised area which has developed piecemeal over the last 30 years. In order to attempt to create a structure within which to investigate the research to date and in order to keep the needs of people with learning difficulties in mind, this section of the review proposes three broad categories of e-inclusion.

The first category is the use of **technology to train or rehearse**. Much use of technology in the 1980s and early 1990s fits into this category, as does far too much later and current use as well. Although such technology has its place, that place should be in the background and only when needed; too often this technology has taken centre stage. This type of e-inclusion is often associated with a behaviourist model of learning.

A second category of e-inclusion involves the use of **technology to assist learning**. This brings to mind the term assistive technology, but use of this term is problematic since it is differently defined in various contexts. As used in this paper, technology that assists is usually linked to the need to compensate for a physical disability or difficulty. For example, someone who is unable to speak may be able to take part in a discussion by using a speaking device. This device is therefore assisting the learning to take place but is not a catalyst for the learning itself. The use of technologies in this way is also usually not related to a specific theoretical model of learning; it is an adjunct to learning rather than the key agency through which the learning takes place.

The third category, and one which describes far less classroom practice than is sometimes claimed, is the use of **technology to enable learning**, where the use of technology makes learning possible where it was not possible before. In this case, the technology may be mobilised in an active role in the learning process: perhaps by asking questions, intervening in an activity or presenting interactive scenarios or simulations. This might involve the use of technologies to facilitate the creation of collaborations and communities where learners work together, an approach more often associated with social-constructivist models of learning, and engaging more specifically with learning in social contexts and learning through collaboration and interaction with other people. Crucially however, the significant difference between this category and the other two is that it is only through the use of technology, albeit in a collaborative or supportive context, that particular learning can take place. The use of technology transforms rather than modifies the learning context.

This extract is taken from C Abbott, 2007, E-inclusion: Learning Difficulties and Digital Technologies, Report 15, Futurelab

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Handout 3

Who needs a laptop?

This table lists just a few of the ways in which a laptop can support pupils' learning. Jot down the range of SEN or disabilities each might offer support to (eg improved presentation of work might remove barriers for a pupil with a physical disability such as cerebral palsy, a motor difficulty such as dyspraxia or a learning difficulty such as dyslexia).

What a laptop offers	Who is likely to benefit
Easier method of recording	
Recording other than with text	
Faster working	
Better presentation of learning tasks (see things more easily)	
Better presentation of work	
Access to a wide range of resources	
Activities presented in more accessible formats	
Personalised tasks	
Status of using new technology	
Access to peripherals (eg CCTV, touch screen)	
Continuity between home and school	

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Whose responsibility?

A pupil in your class has a laptop to help remove barriers to taking part and learning. Complete the table by filling in who should be responsible for that support in each case. Some tasks may have more than one person's name. Those involved may include the SENCO, teaching assistant, pupil, parent/carer, class/subject teacher, technician, school keeper, headteacher, form tutor, other pupils, health professionals, local authority – or someone else.

Task	Whose responsibility?
Keep battery charged	
Print out work	
Provide electronic versions of worksheets	
Upload worksheets	
Submit work electronically	
Make sure laptop is kept securely	
Seating the pupil where there is room for the laptop, plus books and peripherals, (and sometimes a network point and socket) and suitable lighting	
Loading software and keeping it up to date	
Virus checking	
Internet safety	
Setting the laptop up in class	
Getting it to the lesson on time	
Insuring it	
Providing the laptop	
Making sure everyone does what they should	
Deciding what lessons to use it in	

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Points for action

What do I want to do next to develop my practice?

_____

_____

_____

_____

How will I do this?

_____

_____

_____

_____

What is my timescale for this to happen?

_____

_____

_____

_____

How will I know if I have been successful?

_____

_____

_____

_____

Do I need to involve anyone else in enabling this to happen?

_____

_____

_____

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Self-study tasks

Every Child Matters

- Inclusion and Every Child Matters (SST 1)

- SEN and disability legislation (SST 2)

- English as an additional language and SEN (SST 3)

- Children's needs and development (SST 4)

- ICT and SEN (SST 5)

Cognition and learning

- Moderate learning difficulties (SST 6)

- Dyslexia and specific learning difficulties (SST 7)

- Working memory (SST 8)

Behavioural, emotional and social needs

- Behavioural, emotional and social difficulties (SST 9)

Communication and interaction

- Speech, language and communication needs (SST 10)

- Autistic spectrum disorders (SST 11)

Physical and sensory impairment

- Visual impairment (SST 12)

- Hearing impairment (SST 13)

- Handwriting (SST 14)

- Developmental coordination disorder/dyspraxia (SST 15)

Working in partnership

- Working with colleagues in school (SST 16)

- Working with parents/carers and other professionals (SST 17)

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