Key learning

You will also have the opportunity to:
Receive guidance, practise, and receive feedback in coaching meetings to improve at:

- Balancing exposition, repetition, practice and retrieval of critical knowledge and skills.
- Starting expositions at the point of current pupil understanding.
- Combining a verbal explanation with a relevant graphical representation of the same concept or process, where appropriate

Mentor notes

This unit should be completed at the point when the trainee begins to take responsibility for teaching whole lessons and leading at least parts of planned lessons. It could be completed over several weeks with different activities forming the focus of mentoring.

As well as supporting trainees in the activities outlined above, you may also wish to consider the following suggested prompts for coaching conversations on deeper learning:
How did the pupils respond to your instruction of the complex task?
What was the impact of the use of an alternative mode of instruction of the task on the pupils' comprehension? (it might be effective to focus on the impact on a single pupil who typically finds instructions challenging)

Suggested practice to model and deconstruct or form a focus of observations:
Modelling how lessons link previous knowledge with new knowledge.
Reducing cognitive load and the use of dual-coding of instructions to facilitate comprehension and working memory.

Key Reading

Caviglioli, O (2019). Dual coding With Teachers

John Wiley & Sons. Cowan, N. (2008) What are the differences between long-term, short-term, and working memory? Progress in brain research, 169, 323-338.

Gathercole, S., Lamont, E., & Alloway, T. (2006) Working memory in the classroom. Working memory and education, 219-240.

Rosenshine, B. (2012) Principles of Instruction: Research-based strategies that all teachers should know. American Educator, 12–20.
https://doi.org/10.1111/j.1467-8535.2005.00507.

Curriculum Links

This unit builds on the knowledge introduced in foundation sessions on how children learn; including cognitive theories of learning. In sessions on planning, the importance of linking to prior learning will be introduced but may be challenging for trainees who have limited curriculum knowledge.
- Some aspects of PPU03 on setting up tasks are further developed in this unit.
- Subject sessions in Term 1 cover challenging areas of the subject curriculum including common misconceptions.
- Questioning and dialogic teaching approaches are introduced in Terms 1b & 2a.

Introduction

To date we have introduced some of the main learning theories that influence teaching. Here, we focus on cognitive theories of learning and the implications for teaching. There is an opportunity to try out teaching approaches that are underpinned by cognitive and constructivist learning theory.

Key learning

Learning involves a lasting change in pupils' capabilities or understanding. Prior knowledge plays an important role in how pupils learn; committing some key facts to their long-term memory is likely to help pupils learn more complex ideas. An important factor in learning is memory, which can be thought of as comprising two elements: working memory and long-term memory;
- Working memory is where information that is being actively processed is held, but its capacity is limited and can be overloaded.
- Long-term memory can be considered as a store of knowledge that changes as pupils learn by integrating new ideas with existing knowledge. Where prior knowledge is weak, pupils are more likely to develop misconceptions, particularly if new ideas are introduced too quickly.

In this unit you will make connections between the induction sessions and the practices in your school. You will have the opportunity to:
Discuss with a mentor and analyse how they:
- Identify possible misconceptions and plan how to prevent these forming
- Break complex material into smaller steps (e.g. using partially completed examples to focus pupils on the specific steps).
- Reduce distractions away from what is being taught (e.g. keeping the complexity of a task to a minimum, so that attention is focused on the content).
- Encourage pupils to share emerging understanding and points of confusion so that misconceptions can be addressed.
- Link what pupils already know to what is being taught (e.g. explaining how new content builds on what is already known).

Cont'd…

Activities

These tasks must be completed as part of your training. Required items are highlighted in bold and summarised below.

1. Observe how at least three expert colleagues use starts of lessons to link new learning to prior learning and provide opportunities to retrieve prior knowledge. **Record your notes on Observation Records**.

2. For an instruction to a more complex task, **design an alternate mode** of explanation to use alongside verbal instruction (e.g., graphical, modelling, demonstrating).

3. With your mentor identify a common misconception that is likely to arise in a topic you are teaching. Plan how you will address this in your teaching and **make notes** on how successfully you addressed the misconception.

4. As a focus for feedback and discussion in a coaching meeting, discuss and make notes on how successfully you can balance exposition, repetition, practice and retrieval of critical knowledge and skills.

Activity Outputs

Save these items separately [on Moodle](#)

1. Observation Record for three lessons from Activity 1.

2. Resource or artefact designed for Activity 2 or mentor feedback notes from the lesson.

3. Weekly mentor meeting notes, describing how successfully you addressed a misconception in Activity 3.

Synoptic Writing

This is an optional task.
You need to complete this for 6 PPUs during the year.

With reference to the key reading in this Study Unit, write 500 words, reflecting on:

1. How insights from cognitive science are embedded in expert teaching through strategies such as dual-coding, retrieval practice, spaced learning and reducing cognitive load.

Highlight new elements to include in your teaching repertoire.