

Classroom Practice

The following 'Learn that' statements have been addressed through taught sessions, both in Whole School Issues and in Maths. The 'taught sessions' referred to below are maths specific sessions.

Learn that...

1. Effective teaching can transform pupils' knowledge, capabilities and beliefs about learning.
2. Effective teachers introduce new material in steps, explicitly linking new ideas to what has been previously studied and learned.
3. Modelling helps pupils understand new processes and ideas; good models make abstract ideas concrete and accessible.
4. Guides, scaffolds and worked examples can help pupils apply new ideas, but should be gradually removed as pupil expertise increases.
5. Explicitly teaching pupils metacognitive strategies linked to subject knowledge, including how to plan, monitor and evaluate, supports independence and academic success.
6. Questioning is an essential tool for teachers; questions can be used for many purposes, including to check pupils' prior knowledge, assess understanding and break down problems.
7. High-quality classroom talk can support pupils to articulate key ideas, consolidate understanding and extend their vocabulary.
8. Practice is an integral part of effective teaching; ensuring pupils have repeated opportunities to practise, with appropriate guidance and support, increases success.
9. Paired and group activities can increase pupil success, but to work together effectively pupils need guidance, support and practice.
10. How pupils are grouped is also important; care should be taken to monitor the impact of groupings on pupil attainment, behaviour and motivation.
11. Homework can improve pupil outcomes, particularly for older pupils, but it is likely that the quality of homework and its relevance to main class teaching is more important than the amount set.

Corresponding Taught Sessions

Effective Lesson Planning

Mathematical Variation

Developing Explanations Through Mathematical Representations and Structures

The Effective use of Assessment and Feedback in Maths

How to Teach Adaptively in Maths

Learn How To....

Plan effective lessons, by:

- Observing how expert colleagues break tasks down into constituent components when first setting up independent practice (e.g. using tasks that scaffold pupils through meta-cognitive and procedural processes) and deconstructing this approach.

And - following expert input - by taking opportunities to practise, receive feedback and improve at:

- Using modelling, explanations and scaffolds, acknowledging that novices need more structure early in a domain.

- Enabling critical thinking and problem solving by first teaching the necessary foundational content knowledge.
- Removing scaffolding only when pupils are achieving a high degree of success in applying previously taught material.
- Providing sufficient opportunity for pupils to consolidate and practise applying new knowledge and skills.

Make good use of expositions, by:

- Discussing and analysing with expert colleagues how to use concrete representation of abstract ideas (e.g. making use of analogies, metaphors, examples and non-examples).

And - following expert input - by taking opportunities to practise, receive feedback and improve at:

- 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.

Model effectively, by:

- Discussing and analysing with expert colleagues how to make the steps in a process memorable and ensuring pupils can recall them (e.g. naming them, developing mnemonics, or linking to memorable stories).

And - following expert input - by taking opportunities to practise, receive feedback and improve at:

- Narrating thought processes when modelling to make explicit how experts think (e.g. asking questions aloud that pupils should consider when working independently and drawing pupils' attention to links with prior knowledge).
- Exposing potential pitfalls and explaining how to avoid them.

Stimulate pupil thinking and check for understanding, by:

- Discussing and analysing with expert colleagues how to consider the factors that will support effective collaborative or paired work (e.g. familiarity with routines, whether pupils have the necessary prior knowledge and how pupils are grouped).
- Receiving clear, consistent and effective mentoring in how to provide scaffolds for pupil talk to increase the focus and rigour of dialogue.

And - following expert input - by taking opportunities to practise, receive feedback and improve at:

- Planning activities around what you want pupils to think hard about.
- Including a range of types of questions in class discussions to extend and challenge pupils (e.g. by modelling new vocabulary or asking pupils to justify answers).
- Providing appropriate wait time between question and response where more developed responses are required.

Mentor Meeting Activity

Pre-reading:

Elleman, A. M., Lindo, E. J., Morphy, P., & Compton, D. L. (2009) The Impact of Vocabulary Instruction on Passage-Level Comprehension of School-Age Children: A Meta-Analysis. *Journal of Research on Educational Effectiveness*, 2(1), 1–44.

<https://doi.org/10.1080/19345740802539200>

*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.x>

Discussion with the trainee, based on what you have read:

- What are the key points and aspects from the reading?
- Any aspects you think you can use in your teaching?
- How could you implement them into your teaching?

Drawing on the trainees observations:

Discuss the sorts of questioning the trainee has observed teachers use during lessons. Who did they ask? What did they ask? Were there any follow up questions? Were misconceptions addressed? What kind of answers were given and accepted? Which teacher's standards does questioning support in the classroom? What different questioning techniques are there? - pause, pounce, bounce etc.

Discuss how teachers

- Address common misconceptions
- Target key students for questioning (PP? Disengaged?)
- Ask open questions in order to draw answers out from students
- Ask follow up questions where necessary
- Allow time for students to respond
- Give praise to encourage student responses

Consider a specific class the trainee has planned a lesson for. Review together the amount of time that they think is necessary to spend at the board and discuss how to use that time effectively. Together, write some dialogue that could accompany the lesson that promotes effective and impactful questioning during a specific topic. Where do students go wrong? How do trainees know this without teaching the topic?

Follow up Activity

- Produce lesson plan with questioning as a focus
- Include key questions to ask students which will break down the problem initially and then assess their understanding. Identify which students they could ask, and the take-up-time needed for each question.
- Include a challenge for the lesson to get students to justify every answer they give.