

Mathematics Feedback Prompts

Substantive knowledge

Trainees' substantive knowledge should be evident in both their planning and their teaching:

Declarative Knowledge – “I know that” The trainee should be able to: know relevant number facts for the 4 operations, explain relationships between number facts and operations, use symbols and vocabulary accurately, describe the properties of 2D and 3D shapes and the shapes themselves, present statistics appropriately, know the difference between discrete and continuous data.

Procedural knowledge – “I know how” The trainee should be able to: confidently calculate using the 4 operations and understand how they relate to pupils' informal methods, use knowledge of relationships to find missing numbers and missing digits.

Conditional knowledge – “I know when” Trainees should be able to: organise their thinking to solve different types of problems, to reason, to give mathematical proof.

Disciplinary knowledge

Disciplinary knowledge considers how mathematical knowledge originates and is revised. It is through disciplinary knowledge that pupils learn the practices of mathematicians. This should allow pupils to understand the connections between different areas of the subject and thus apply their increasingly fluent mathematical knowledge to solving problems and reasoning in a variety of contexts.

Effective Pedagogy
Use questioning effectively to promote mathematical discussion and develop mathematical understanding and responding accordingly.
Use challenging and meaningful tasks to develop mastery.
Use concrete representations, e.g. manipulatives and visual resources to support pupils' conceptual understanding.
Predict and then address mathematical misconceptions, adapting teaching accordingly.
Effective approaches used to review mathematical learning, e.g. consideration given to pre-requisite mathematical skills, appropriate formative assessment.
Provide opportunities to develop metacognitive skills, e.g. learning from mistakes and misconceptions, developing problem solving strategies, applying skills in other areas of the curriculum.

Develop use of pupils' retrieval skills, e.g. calculation strategies, number bonds, times tables.

Demonstrate knowledge of the mathematics curriculum by effectively sequencing learning that links prior knowledge and new learning together.