

Target-setting in mathematics – an exemplar. The area for development statements and target statements in columns 1 and 2 are taken from the maths Lesson Observation grid. (I=inadequate; RI= requires improvement; G=good; O=Outstanding)

Area for development	Target statement	Strategies	Mentor actions	Trainee Actions	Success Criteria
Open questions are used, but children are perhaps over-prompted. (RI)	Open questions and some higher order questions promote deeper thinking. (G)	<ul style="list-style-type: none"> • Include questions which address hypothesising & predicting; designing & comparing procedures; interpreting results and applying reasoning • Review Bloom's taxonomy • Use talking partners to give time for pupils to think for themselves • Use concept cartoons • Use NCETM progression maps to access reasoning questions related to different aspects of the curriculum 	<ul style="list-style-type: none"> • Analyse initially observed lesson with the trainee to highlight missed opportunities to promote deeper thinking • Review planned questions before the lesson • Make note of examples of pupil's deeper thinking during lesson observation 	<ul style="list-style-type: none"> • Research higher order questions • Specifically plan for higher order thinking opportunities in subsequent lessons • Plan strategies that encourage pupil thinking and prevent over-prompting • Collect evidence of pupils' deeper thinking resulting from these questions 	<ul style="list-style-type: none"> • Trainee able to produce evidence demonstrating deeper thinking from pupils over a week of mathematics lessons, and at least expected pupil progress.
The teacher is able to use subject knowledge beyond that being taught, to support learning. (G)	The teacher uses their in-depth subject knowledge to extend learning for all pupils through appropriate challenge and support. (O)	<ul style="list-style-type: none"> • Identifying connections between different areas of mathematics and between mathematics and other curriculum subjects • Analyse and adjust tasks and questions to increase challenge by developing reasoning and problem solving, e.g. convert closed questions to open questions; reverse the question (If this is the answer, what is the question?); identify resources which will help develop multiple representations of the concept • Drews and Hansen (2007) Using resources to support mathematical thinking • Analyse and adjust tasks and questions to provide scaffolding by identifying prerequisite knowledge, breaking down into smaller steps, identifying models and images to support the concept, identifying possible teacher and pupil scaffolding • NCETM curriculum resource tool – making connections button 	<ul style="list-style-type: none"> • Negotiate access to maths subject leader for discussions about progression and useful supporting resources • Identify what maths resources are available across the school and how these can be accessed 	<ul style="list-style-type: none"> • Detailed assessments of pupils' progress and individual needs, particularly underachieving pupils • Select questions, activities and resources which will move these children on • Planning includes how connections (within maths or between maths and other subjects) will be made explicit to pupils to help contextualise their learning 	<ul style="list-style-type: none"> • Evidence of good progress from target individuals over a fortnight • At least three lesson plans demonstrate making connections explicitly

Misconceptions are noticed and used as opportunities for enhanced learning, e.g. through discussion, modelling, clear explanations by pupils and/or teacher (G)	Misconceptions are anticipated (e.g. identified in planning, consciously elicited through probing questions or explored through choice of teaching strategy). (O)	<ul style="list-style-type: none"> Research likely misconceptions for the topic, e.g. Cockburn and Littler (2008) Mathematical misconceptions; Hansen (2014) Children's errors in mathematics Investigate use of concept cartoons to elicit and explore misconceptions Investigate NCETM progression map for reasoning questions Investigate the use of sorting and classifying tasks Dialogic and Thinking skills activities, e.g. odd one out; True or False; Always/Sometimes/Never 	<ul style="list-style-type: none"> Share experiences of misconceptions from previous pupils Discuss strategies for identifying and addressing misconceptions 	<ul style="list-style-type: none"> Include potential misconceptions on lesson plan Plan opportunities to elicit and address pupils' misconceptions Evaluate the success of the strategy/ies chosen to elicit and address misconceptions, considering the impact on different groups of pupils 	<ul style="list-style-type: none"> Planning consistently identifies potential misconceptions and how these will be elicited and addressed. Trainee able to articulate the impact of the strategy on pupil progress, providing some specific evidence of good pupil progress.
The teacher relies heavily on teacher talk and teacher explanation of new concepts, with a limited range of suitable tasks for pupils. (I)	The teacher explains new concepts clearly and provides a range of appropriate tasks that exemplify the concepts. Pupils experience the concept in useful ways. (RI)	<ul style="list-style-type: none"> Break the concept down into knowledge and skills Identify resources which will help illustrate and represent the concept Haylock (2014) Mathematics explained for primary teachers NCETM curriculum resource tool, e.g. subject knowledge, activities, exemplification and videos 	<ul style="list-style-type: none"> Arrange for trainee to observe a lesson, focusing on teacher explanation and pupil activities, with opportunities for the trainee to discuss the observations with the mentor and / or observed teacher Provide support for planning, based on trainee's ideas Team teach a lesson with the trainee 	<ul style="list-style-type: none"> Research the concept thoroughly Observe and analyse a lesson from an experienced teacher Lesson plan to include 'teacher talk' to show how the concept will be explained and a range of activities and resources for pupils to explore the concept themselves Team teach with mentor 	<ul style="list-style-type: none"> Mentor lesson observation notes clarity of explanation, reasonable balance between teacher talk and pupil activity, and appropriate choice of resources and activities Trainee provides evidence that at least some pupils have made progress