

## Curriculum – Science

Pedagogy			
Curriculum questions – preparation/introductory	Curriculum questions - development	Curriculum questions – enhancement/extending	Secondary development tasks
<p>What questions can you ask pupils to help them develop their own learning (metacognition)?</p> <p>Give an example of when you have used retrieval practice and it has helped support learning.</p> <p>What are the key words and definitions that pupils need to know and use for this topic?</p> <p>What numerical skills are needed in this topic?</p> <p>Give examples of how you have provided feedback within a lesson.</p>	<p>Can you give an example of when you have modelled your own thinking processes in the classroom?</p> <p>Can you give examples of how you have developed metacognition and motivation with pupils? For example, how have you helped pupils to develop a weak argument into a stronger one?</p> <p>Have you considered the etymology of the terminology used in science and how that can help students' understanding?</p> <p>How do the mathematical skills used link to the maths curriculum and how can you develop students' mathematical skills?</p> <p>How can pupils improve from the feedback you have provided?</p>	<p>Can you identify any threshold concepts and how would you explore these with pupils?</p> <p>How can you make models more useful for learning? For example, can you provide more than one model and how do you compare the models to the concept you are explaining?</p> <p>How can you encourage students to use specialist vocabulary in their own oracy between each other as well as when talking to you?</p> <p>How can you overcome the mathematical skills barriers that some students might face in order to ensure the scientific content is still understood.</p> <p>How can you build elaborative interrogation into your teaching?</p>	<ul style="list-style-type: none"> <li>Lesson observations focussing on how keywords and other vocabulary are introduced and developed with pupils - mentor observing trainee and trainee observing colleagues (Use '8. Choose your own focus' observation proforma)</li> <li>School-based reflective task 6: Subject &amp; pedagogical knowledge, planning and progress</li> </ul>
Conceptual understanding -Analogies, misconceptions and models			
<p>What misconceptions might a pupil have for this topic?</p> <p>Give an example of when you have used a model to help explain a concept.</p>	<p>How will you challenge any misconceptions a pupil might have for this topic?</p> <p>How have you developed your model to better fit the concept you are explaining?</p>	<p>Can you identify any threshold concepts and how would you explore these with pupils?</p> <p>How can you make models more useful for learning? For example, can you provide more than one model and how do you compare the models to the concept you are explaining?</p>	

Practical work			
When planning a practical consider what you intend the pupils to learn; Substantive knowledge, disciplinary knowledge or both? Methods, techniques, data analysis or explanation development?	How can you ensure that pupils achieve your intent when carrying out a practical experiment or watching a practical demonstration?	How can you make practical work as purposeful as possible? Consider different approaches including virtual experiments and open-ended projects.	
Are there any demonstrations that could support the learning in this topic?	How can a demonstration help to address any misconceptions or support learning in this topic?	How can a practical demonstration help to accelerate the learning of the students in this topic?	
Classroom Management			
Do you think there is anything you could do to make the laboratory safer for the students learning science?	Do you think that the laboratory could have been organised more efficiently in order to maximise learning time?	Have you considered whether there are alternative arrangements for a practical classroom such as different groups of students accessing different practical activities in order to better meet their needs?	