Science - Feedback Prompts

Substantive Knowledge

Knowledge of subject content and concepts: Strong substantive subject knowledge is important for high quality science teaching.

Students will be able to demonstrate:

A secure understanding of the concepts of science being taught on placement. If their subject knowledge is weak, they should be directed to address this through reading and research within their targets.

Disciplinary Knowledge

Disciplinary knowledge refers to knowledge of methods scientists use to answer questions, knowledge of apparatus and techniques, data analysis and how science uses evidence to develop explanations. It links with the working scientifically aspects of the Science National Curriculum.

Students should be able to demonstrate the appropriate disciplinary knowledge to:

- Teach pupils how to select and use appropriate equipment
- Teach pupils how to measure, record, present and interpret information using age appropriate methods
- Plan for sessions which use the 5 different types of enquiry as appropriate for the key stage in which they are placed.
- Consider health and safety and use risk assessments where appropriate

Curriculum Knowledge

Students should have an awareness of the aspects of science that taught within each key stage. They should use this knowledge in their planning to support children to connect new learning with their prior experiences and lay the foundations for future learning.

Students should understand which aspects of disciplinary knowledge are taught within Y1/2; Y3/4 and Y5/6 and plan for learning which focuses on progression in the appropriate skills.

Effective approaches
Plan to enable pupils to progress in both substantive and disciplinary knowledge within each lesson (Content knowledge and working scientifically)
Support children to understand concepts by engaging in first-hand practical experiences wherever possible.
Use different approaches such as models, analogies or secondary sources to help pupils understand scientific concepts which are challenging to teach practically and to reinforce.
Use a range of approaches to elicit children's ideas and misconceptions in science including concept cartoons and concept maps and tackle these misconceptions through teaching.
Develop opportunities for children to apply their understanding of scientific concepts to solve problems and investigate.
Model correct scientific vocabulary on the plan and throughout the lesson and plan time for pupil talk to reinforce this new vocabulary, thinking and ideas
Utilise the learning environment and resources to enhance science provision including learning outside the classroom where possible.
Provide feedback to pupils that is related to children's learning in science linked to the learning objectives
Adapt teaching to enable equitable access of all learners to the science curriculum. These adaptations should consider the pupil's science attainment and provide challenge for all learners.
Make connections between different concepts within and beyond the science curriculum to connect new knowledge to existing concepts or ideas in order strengthen the learning