# What Do Scientists Do? : Science : Year 3/4

PlanBee

| | Learning Objective | Overview | Assessment Questions | Resources |
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| **Lesson 1** | To identify the steps involved in the scientific method. | Children are challenged to think about their own idea of what a scientist is and does before exploring the three different branches of science and what each branch involves. The children then look into the process of the scientific method for conducting investigations and experiments. They must think about what each step involves and why each one is important to the process. Alternatively they can research more information about different science careers. | • Can children think about the qualities a scientist might need?<br>• Are children able to describe the three main branches of science?<br>• Can children give a brief description of the scientific method? | • Slides<br>• A5/6 plain paper<br>• Scientific Method Steps<br>• Worksheet 1A/1B/1C<br>• Access to the internet (FSD? activity only)<br>• Science Career Fact Cards (FSD? activity only)<br>• Challenge Cards 1A (FSD? activity only)<br>• Fact File Template (FSD? activity only) |
| **Lesson 2** | To generate suitable enquiry questions and make careful observations. | Children investigate the job of a forensic scientist by looking into the different things they analyse and research. The children will look closely at fingerprints and how they are unique to every individual. After discussing this, the children must think of some enquiry questions before using their observation skills to compare and analyse fingerprints. | • Can children make careful observations of patterns, similarities and differences?<br>• Are children able to generate an enquiry question about fingerprints?<br>• Can children think of a simple hypothesis for their enquiry question? | • Slides<br>• Worksheet 2A/2B/2C<br>• Fingerprints Pattern Card<br>• Tape<br>• Magnifying glasses (optional)<br>• Suspect Sheet 2A (FSD? activity only)<br>• Fingerprints of willing teachers (FSD? activity only) |
| **Lesson 3** | To plan a comparative fair test. | Children explore the careers of microbiologists and pharmacologists who develop new medicines. They will investigate the process of testing a new medicine using a fair test and discuss the importance of fair testing. The children will learn the terms dependent, independent and control variables and use these to plan fair tests. | • Can the children identify ways that an experiment is not a fair test?<br>• Are children able to plan a fair test?<br>• Are children able to identify dependent and independent variables? | • Slides<br>• Worksheet 3A/3B<br>• Experiment Card 1A<br>• Teacher Notes 3A (FSD? activity only)<br>• Worksheet 3C (FSD? activity only)<br>• Experiment equipment stated on Teacher Notes 3A (FSD? activity only) |
| **Lesson 4** | To draw conclusions from careful observations. | Using the context of a zoologist's study the children will practise their scientific observation skills based around birds. The children are challenged to identify expected behaviours, diets and possible habitats by making observations of the birds' beaks, wings and feet. Alternatively they can think like a zoologist and design an enclosure based on an animals' natural behaviours. | • Can children make clear and careful observations?<br>• Can children draw conclusions from these observations?<br>• Are children able to classify animals based on their observations? | • Slides<br>• Worksheet 4A/4B/4C<br>• Bird Cards 4A<br>• Classification Card 4A<br>• Animal Information Cards 4A (FSD? activity only)<br>• Worksheet 4D (FSD? activity only) |
| **Lesson 5** | To create a hypothesis and plan an investigation to answer an enquiry question. | Children will investigate the role of botanists and how they have helped people from farmers to astronauts with their study and research. The children will think about what plants need in order to grow healthily and use this understanding to generate hypotheses, fair test procedures and results tables to record an investigation. Alternatively they can explore the plants around them and observe, group and classify non-flowering and flowering plants. | • Can children predict the outcome to an investigation using existing knowledge and understanding?<br>• Are children able to think about how they will collect and record their data efficiently?<br>• Are children able to identify the dependent and independent variables in their investigation? | • Slides<br>• Worksheet 5A/5B/5C<br>• Three to five different liquids to water plants with e.g. water vinegar, fizzy drink, milk, cold coffee etc.<br>• Plants (already established plants reduces experiment time)<br>• Worksheet 5D (FSD? activity only)<br>• Clipboards (FSD? activity only)<br>• Tree ID Sheet 5A (FSD? activity only) |
| **Lesson 6** | To conduct a practical experiment, record findings in a table and draw conclusions from data. | Children will consolidate their understanding of the scientific method by planning an investigation based around the studies of sports scientists and physiologists. They will explore how muscles help us move and test how quick their reactions are. | • Can children follow the scientific method in their investigation?<br>• Are children able to describe what their results show?<br>• Can children draw a conclusion, reflecting on their hypothesis? | • Slides<br>• Worksheet 6A/6B/6C<br>• Rulers<br>• Chalk (FSD? activity only)<br>• Metre rulers/tape measures (FSD? activity only) |



*NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan*