



## Ideas for the primary science curriculum

This guidance aims to support schools and providers of initial teacher education (ITE) in their continuing professional development (CPD) and the implementation of the National Curriculum for science.

This pedagogical information is complimented by a series of resource packages created by specialists at the National STEM Centre, funded by the Gatsby Charitable Foundation. These resource packages can be found online at:

**[www.nationalstemcentre.org.uk/primaryscience](http://www.nationalstemcentre.org.uk/primaryscience)**

The guidance has been commissioned by the Expert Subject Advisory Group – Science, which is made up

of subject experts from schools, universities, providers of initial teacher education, Ofsted and subject associations. As such the advice is based on current research and good practice as well as the statutory requirements.

The materials are aimed at anyone who has a responsibility to train teachers or to deliver the national curriculum.

# Introduction

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Principles and big ideas in science education (Harlen, W. (Ed.) 2010: <http://stem.org.uk/rxd75>) suggests that science education has 3 main goals:

1. to understand a set of 'big ideas' in science
2. to develop scientific capabilities i.e. gathering and using evidence
3. to develop scientific attitudes

This is to ensure that, every individual is able 'to take an informed part in decisions, and to take appropriate actions, that affect their own wellbeing and the wellbeing of society and the environment.'

This is reflected in the National Curriculum for Science for Key Stages 1 and 2 which is split into Scientific Enquiry and Scientific knowledge and conceptual understanding, the basis for which is the Early Years and Foundation Stage document ([www.gov.uk/government/policies/improving-the-quality-and-range-of-education-and-childcare-from-birth-to-5-years/supporting-pages/early-years-foundation-stage](http://www.gov.uk/government/policies/improving-the-quality-and-range-of-education-and-childcare-from-birth-to-5-years/supporting-pages/early-years-foundation-stage)).

## Key areas

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There are several key areas which have been identified by the Expert Subject Advisory Group – Science as particularly difficult to teach:

These are:

- **Fossils**
- **Identifying and naming common plants, animals**
- **Classification of plants and animals**
- **Evolution and inheritance**
- **Digestive system in humans**
- **Forces – that motion can be transferred using gears and pulleys**

These resources provide pedagogical information around these key areas, including examples of addressing common misconceptions and use of scientific vocabulary, as well as links to packages of resources created by National STEM Centre Primary Specialists.

## Working scientifically

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The curriculum states that 'Working Scientifically' should not be taught as a separate strand to Scientific Knowledge and Conceptual Understanding. Children should experience different types of science enquiries, e.g. observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations), researching using secondary sources and understand the uses and implications of science, today and for the future.



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