SCIENCE AND TECHNOLOGY: Science

The minimum content is set out below.

The statutory requirements are set out in **bold** and additional guidance appears in plain text. *All examples are in italics*.

Developing pupils' *Knowledge, Understanding and Skills*	*(Objective 1)* *Developing pupils as Individuals*	*(Objective 2)* *Developing pupils as Contributors to Society*	*(Objective 3)* *Developing pupils as Contributors to the Economy and the Environment*
Pupils should have opportunities, through the contexts opposite, to: **develop skills in scientific methods of enquiry to further scientific knowledge and understanding:** **planning for investigations,** **obtaining evidence,** **presenting and interpreting results;** **develop creative and critical thinking in their approach to solving scientific problems;** **research scientific information from a range of sources;** **develop a range of practical skills, including the safe use of science equipment;** **learn about:** **Organisms and Health** • **Interdependence of plants and animals** • **Cells, genes and reproduction**	**Pupils should have opportunities to:** **Explore emotional development**, for example, the changes associated with puberty etc. **Investigate ways of improving own learning by finding out how the brain functions.** **Personal Understanding** **Explore physical, chemical and biological effects on personal health**, for example, inherited characteristics, exercise and nutrition, misuse of chemicals, loud sound etc. **Personal Health** **Opportunities must also be provided to explore issues related to:** **Mutual Understanding** Respect and co-operate with others in the process of scientific enquiry, for example, work effectively as part of a team in investigative work etc. **Moral Character** Recognise and challenge over-simplistic or distorted generalisations about science with informed and balanced responses and take responsibility for choices and	**Pupils should have opportunities to:** **Investigate how the media** (internet, television, radio, newspapers) **help inform the public about science and science related issues.** Explore some of the strengths and limitations of these sources of information, for example, maintain a journal of science issues in the news and compare and contrast different approaches to dealing with scientific issues etc. **Media Awareness** **Explore some ethical dilemmas arising from scientific developments**, for example, testing of new chemical products for weapons development, growing genetically modified crops etc. **Ethical Awareness** **Opportunities must also be provided to explore issues related to:** **Citizenship** Consider factors that need to be taken into account when assessing statements that claim to be based on scientific research into issues affecting society, for example, the nature, quality and source of the data etc.	**Pupils should have opportunities to:** **Identify how skills developed through science will be useful to a wide range of careers**, for example, jobs involving animal welfare, building and construction, education, electrical work , engineering, environmental management, financial services, food and farming, forensics, information and communications technology, journalism, plumbing, technology, pharmaceuticals, medicine etc. **Employability** **Investigate a product of economic importance to determine the science behind it**, for example, explore a successful local product, and generate ideas for a product of their own etc. Investigate a product to determine best value, for example, compare performance and cost of an economy and branded product, consumer product testing etc. **Economic Awareness** **Investigate the effects of pollution**, for example, water, air, land, sound etc **and**

- **Healthy body and mind** **Chemical and material behaviour** - **Atoms and chemical changes** - **Structures, properties, uses of materials** - **Elements, compounds and mixtures** **Forces and energy** - **Forces and energy transfer** - **Using electricity** - **Sound and light** **Earth and Universe** - **The environment and human influences** - **The solar system and universe.**	actions. **Spiritual Awareness** Develop a sense of wonder about the universe, for example, the scale from the smallness of the atom to the vastness of outer space, the complexity, diversity, and interdependence of living things etc.	**Cultural Understanding** Consider how the development of scientific ideas or theories relate to the historical or cultural context, for example, the development of the heliocentric model of the solar system, Jenner's work on vaccination etc.	**specific measures to improve and protect the environment**, for example, renewable energy, efficient use of resources and waste minimisation etc. **Explore the importance of biodiversity, how it impacts on our lives and how it is affected by human activity.** **Investigate what can be done to conserve and promote biodiversity**, for example, school wildlife gardens / wilderness areas, anti-pollution strategies, habitat management etc. **Education for Sustainable Development**

| Learning Outcomes

The learning outcomes require the demonstration of skills and application of knowledge and understanding of Science.

Pupils should be able to: | demonstrate a range of practical skills in undertaking experiments, including the safe use of scientific equipment and appropriate mathematical calculations; use investigative skills to explore scientific issues, solve problems and make informed decisions; research and manage information effectively, using Mathematics and ICT where appropriate; show deeper scientific understanding by thinking critically and flexibly, solving problems and making informed decisions, using Mathematics and ICT where appropriate; demonstrate creativity and initiative when developing ideas and following them through; work effectively with others; demonstrate self management by working systematically, persisting with tasks, evaluating and improving own performance; communicate effectively in oral, visual, written, mathematical and ICT formats, showing clear awareness of audience and purpose. |