



Science and Technology Support Towards a Science and Technology Plan forStage 2

<p>BE S2.1</p> <p><i>Creates, models and evaluates built environments reflecting consideration of functional and aesthetic factors</i></p> <p>Over time, environments are built differently because technologies change, as do people's needs.</p> <p>People have different work roles in the processes of designing and constructing buildings and spaces.</p> <p>There are established techniques for drawing built environments, e.g. scale, front view, top view.</p> <p>Buildings and spaces can be evaluated in relation to functional and aesthetic qualities.</p> <p>Availability of materials, know-how and other resources influence the design and construction of buildings and spaces.</p> <p>There are accepted techniques for shaping, joining and finishing materials and for constructing buildings and structures.</p> <p>Computing applications may be used to develop and present ideas for buildings and their interiors.</p>	<p>IC S2.2</p> <p><i>Creates and evaluates information products demonstrating an understanding of the needs of particular audiences.</i></p> <p>Information products can be evaluated, modified and improved to better meet the needs of different audiences.</p> <p>Different media and technologies can be chosen to tailor information products to the needs of particular audiences.</p> <p>Factors such as age, culture and access to technology influence the suitability of information products for particular audiences.</p> <p>Information can change the ways in which people behave.</p> <p>Actions and decisions depend on the quality of the information that people have.</p> <p>Information products have changed over time as technologies have developed and changed.</p> <p>People work in many roles to create information products, e.g. reporter, editor, web site designer, photographer, actor.</p>	<p>LT S2.3</p> <p><i>Identifies and describes the structure and function of living things and ways in which living things interact with other living things and their environment.</i></p> <p>Plants and animals depend on each other in their environments.</p> <p>Environments for living things need to provide basic requirements for the life of those living things.</p> <p>Environments may be disturbed in a range of ways by human and natural actions, and these disturbances can affect the living things in those environments.</p> <p>Internal organs (e.g. heart, lungs) and systems (e.g. respiratory, nervous) serve particular purposes which help living things (animals and plants) to function and survive.</p> <p>The cell is the building block of living things and growth occurs when cells increase in number.</p> <p>Technological developments mean that body parts can sometimes be replaced by transplants or artificial organs.</p> <p>Biotechnology (e.g. selective breeding, genetic engineering) can be used to manipulate plants and animals.</p>	<p>PP S2.4</p> <p><i>Identifies various forms and sources of energy and devises systems that use energy.</i></p> <p>Energy can exist in various forms e.g. movement, electricity, light, sound, heat.</p> <p>People in the local community use energy in different ways, e.g. bakers use heat for baking, farmers make use of solar energy to grow crops.</p> <p>Solar energy has many uses (e.g. drying clothes, heating the home, growing vegetables).</p> <p>Systems need an energy source in order to operate, e.g. food for the body, petrol for the car.</p> <p>Systems, like our body, use energy when they are working.</p> <p>The ways in which people have used energy [resources] have changed over time.</p> <p>A machine is an energy system.</p> <p>Mechanical energy involves both forces and movement.</p>	<p>PS S2.5</p> <p><i>Creates and evaluates products and services considering aesthetic and functional factors</i></p> <p>Over time, products change and develop because technologies change, as do people's needs.</p> <p>Services are systems that provide for people's needs.</p> <p>People have different work roles in the processes of designing and manufacturing products and providing services.</p> <p>There are established techniques for drawing products, such as scale, front view, top view, and for representing systems, such as organisational diagrams and flow charts.</p> <p>There are established techniques for making products in large numbers (mass production).</p> <p>Functional and aesthetic considerations influence the design of products and services.</p> <p>In the manufacture of products, there are accepted techniques for shaping, joining and finishing materials.</p>	<p>ES S2.6</p> <p><i>Identifies some of the features of the solar system and describes interactions that affect conditions on Earth.</i></p> <p>The relative positions of the Earth, sun and moon can explain the passing of time, day and night, eclipses, phases of the moon and the seasons.</p> <p>The solar system includes the planet and several of these can sometimes be seen with the naked eye, e.g. Venus, Jupiter.</p> <p>Each of the planets has its own physical characteristics, but only the Earth has the atmospheric conditions suitable to maintain life as we know it.</p> <p>The stars appear to remain fixed in their positions relative to each other but also appear to move around a point over the period of an evening.</p> <p>The distances to the moon and the planets are large compared with distances travelled on Earth, but minute compared with the distances to the stars.</p>
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INV S2.7 *Conducts investigations by observing, questioning, predicting, testing, collecting, recording and analysing data, and drawing conclusions.*

Poses “decide which”, “find a way to” or “find the effect of” questions.

Identifies, with guidance, the types of measurements and data to be collected and decides how to do this and with whom.

Uses equipment accurately, reliably and safely.

Records data in an appropriate form and works out trends or patterns in the collected data.

Reports to others, using simple factual texts that have been chosen in consultation with the teacher, e.g. information reports, procedures and explanations.

Comments on the limitations of the investigations in relation to equipment, size of sample, repeatability.

Suggests improvements to procedures.

DM S2.8 *Develops, implements and evaluates ideas using drawings, models and prototypes at appropriate stages of the design process.*

Identifies how designs change to better meet people's needs.

Works collaboratively to generate ideas for simple products, systems and environments.

Reflects on design ideas for simple products, systems and environments, and suggests improvements.

Communicates ideas through annotated sketches and models and uses scale in drawings and models.

Describes how materials, equipment and resources have been used to produce products, systems and environments.

Works collaboratively to plan and sequence major steps in design and production.

Devises means of evaluating the functional and aesthetic qualities of products, systems and environments.

Suggests how design processes could be improved to produce better results.

UT S2.9 *Selects and uses a range of equipment, computer-based technology, materials and other resources with developing skill to enhance investigation and design tasks.*

Uses specialised equipment, materials and processes to assist investigating and designing and making.

Recognises that technologies are developed to allow us to design things differently and to investigate more efficiently.

Follows procedures to operate specialised equipment and software.

Chooses and uses computing applications to record, organise, manipulate, present and store information when investigating and designing and making.

Considers functional and aesthetic issues such as safety, appearance, durability and cost when making choices of equipment, materials and processes.