



Knowledge and Skills Progression – Humankind and Processes



	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Humankind</p> <p>Everyday products</p>	<p>Everyday products, such as cups, plates and spoons are designed to help us. Name and explore a range of everyday products and explore how things work.</p>	<p>Everyday products are objects that we use every day. These objects have a specific use. Name and explore a range of everyday products and begin to talk about how they are used.</p>	<p>Everyday products are objects that are used routinely at home and school, such as a toothbrush, cup or pencil. All products are designed for a specific purpose. Name and explore a range of everyday products and describe how they are used.</p>	<p>Products can be improved in different ways, such as making them easier to use, more hardwearing or more attractive. Explain how an everyday product could be improved.</p>	<p>Particular products have been designed for specific tasks, such as nail clippers, the spinning top and the cool box. Explain how an existing product benefits the user.</p>	<p>Design features are the aspects of a product's design that the designer would like to emphasise, such as the use of a particular material or feature that makes the product easier to use or more durable. Investigate and identify the design features of a familiar product.</p>	<p>Culture is the language, inventions, ideas and art of a group of people. A society is all the people in a community or group. Culture affects the design of some products. For example, knives and forks are used in the western world, whereas chopsticks are used mainly in China and Japan. The design of products needs to take into account the culture of the target audience. For example, colours might mean very different things in different cultures. Explain how the design of a product has been influenced by the culture or society in which it was designed or made.</p>	<p>People's lives have been improved in countless ways due to new inventions and designs. For example, the Morrison shelter, designed by John Baker in 1941, was an indoor air-raid shelter used in over half a million homes during the Second World War. It saved the lives of many people caught in bombing raids. Analyse how an invention or product has significantly changed or improved people's lives.</p>
<p>Humankind</p> <p>Staying safe</p>	<p>It is important to listen to adults and follow simple rules and</p>	<p>Rules keep us safe when using equipment.</p>	<p>Rules are made to keep people safe from danger. Safety</p>	<p>Hygiene rules include washing hands before handling food,</p>	<p>Electrical appliances must only be used under the</p>	<p>Chemicals are used in the home every day. They</p>	<p>Safety features are often incorporated into products that</p>	<p>The safety of the user has to be taken into account when</p>

	<p>procedures when using equipment and tools. Show an understanding that tools and equipment need to be used safely and collaborate with others when moving large equipment.</p>	<p>Safety rules include always listening carefully and following simple instructions, using equipment only for the tasks they are designed for and washing hands before touching food. Follow rules and instructions to keep safe.</p>	<p>rules include always listening carefully and following instructions, using equipment only as and when directed, wearing protective clothing if appropriate and washing hands before touching food. Follow the rules to keep safe during a practical task.</p>	<p>cleaning surfaces, tying long hair back, storing food appropriately and wiping up spills. Work safely and hygienically in construction and cooking activities.</p>	<p>supervision of an adult. Safety rules must also be followed when using electricity: fingers and other objects must not be put into electrical outlets, anything with a cord or plug should never be used around water and a plug should never be pulled out by its cord. Use appliances safely with adult supervision.</p>	<p>include cleaning products, such as bleach and disinfectant, but also paints, glues, oils, pesticides and medicines. Most chemical products carry a hazard symbol showing in what way the chemical could be harmful. Chemicals should only be used under adult supervision. Appropriate safety precautions, such as wearing goggles and gloves, working in a well-ventilated room, wiping up spills and tying back long hair, should be taken. Work safely with everyday chemical products under supervision, such as disinfectant hand wash and surface cleaning spray.</p>	<p>might cause harm. Some examples include the child-safety caps on medicine bottles, seatbelts in cars, covers for electrical sockets and finger guards on doors. Explain the functionality and purpose of safety features on a range of products.</p>	<p>designing a new product. Methods to help keep users safe include providing clear instructions for use; clear indication of the age range for which it is designed; safety features (such as child-resistant packaging); warning symbols and electrical safety checks. Demonstrate how their products take into account the safety of the user.</p>
Processes	Vehicles and ride-on toys have wheels to help them move.	Vehicles and machines have wheels and axles to help	An axle is a rod or spindle that passes through the centre of a	A mechanism is a device that takes one type of motion or	Levers consist of a rigid bar that rotates around a fixed	Mechanisms can be used to add functionality to a model. For	Pneumatic systems use energy that is stored in	Mechanical systems can include sliders, levers, linkages,

<p>Mechanisms and movement</p>	<p>Explore, build and play with a range of resources and construction kits with wheels.</p>	<p>them move. Explore, build and play with a range of resources and construction kits with wheels and axles.</p>	<p>wheel to connect two wheels. Use wheels and axles to make a simple moving model.</p>	<p>force and produces a different one. A mechanism makes a job easier to do. Mechanisms include sliders, levers, linkages, gears, pulleys and cams. Use a range of mechanisms (levers, sliders, wheels and axles) in models or products.</p>	<p>point, called a fulcrum. They reduce the amount of work needed to lift a heavy object. Sliders move from side to side or up and down, and are often used to make moving parts in books. Axles are shafts on which wheels can rotate to make a moving vehicle. Cams are devices that can convert circular motion into up-and-down motion. Explore and use a range of mechanisms (levers, sliders, axles, wheels and cams) in models or products.</p>	<p>example, sliders or levers can be used in moving pictures, storybooks or simple puppets; linkages in moving vehicles or puppets; gears in motorised vehicles or spinning toys; pulleys in cable cars or transport systems and cams in 3-D moving toys or pictures. Explore and use a range of mechanisms (levers, axles, cams, gears and pulleys) in models or products.</p>	<p>compressed air to do work, such as inflating a balloon to open a model monster's mouth. These effects can be achieved using syringes and plastic tubing. Use mechanical systems in their products, such as pneumatics.</p>	<p>gears, pulleys and cams. Other mechanisms include pneumatics and hydraulics. Explain and use mechanical systems in their products to meet a design brief.</p>
<p>Processes Electricity</p>	<p>Batteries power some objects. A switch turns them off and on. Explore battery-powered objects using switches to turn them off and on.</p>	<p>Many appliances at home and school need electricity to work. The appliances need to be attached to electricity through a plug and socket, or use batteries. Identify products that use electricity</p>	<p>Electricity is a form of energy. Many household appliances use electricity, such as kettles, televisions and washing machines. They can be switched on by completing the circuit to allow the flow of electricity or off by breaking the</p>	<p>A series circuit is made up of an energy source, such as a battery or cell, wires and a bulb. The circuit must be complete for the electricity to flow. Create an operational, simple series circuit.</p>	<p>An electric circuit can be used in a model, such as a lighthouse. It can be controlled using a switch. Incorporate a simple series circuit into a model.</p>	<p>Components can be added to circuits to achieve a particular goal. These include bulbs for lighthouses and torches, buzzers for burglar alarms and electronic games, motors for fairground rides and motorised</p>	<p>Electrical circuits can be controlled by a simple on/off switch, or by a variable resistor that can adjust the size of the current in the circuit. Real-life examples are a dimmer switch for lights or volume control on a stereo. Use electrical circuits of increasing</p>	<p>Computer programs can control electrical circuits that include a variety of components, such as switches, lamps, buzzers and motors. Understand and use electrical circuits that incorporate a variety of components (switches,</p>

		to make them work.	circuit to prevent electricity from flowing. This can be a switch on the appliance or a wall socket switch. Identify products that use electricity to make them work and describe how to switch them on and off.			vehicles and switches for lights and televisions. Incorporate circuits that use a variety of components into models or products.	complexity in their models or products, showing an understanding of control.	lamps, buzzers and motors) and use programming to control their products.
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