**Physics KNOWLEDGE AND UNDERSTANDING**

Year 3

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| --- | --- |
| Forces | Light |
| compare how things move on different surfaces  notice that some forces need contact between two objects, but magnetic forces can act at a distance    observe how magnets attract or repel each other and attract some materials and not others  describe magnets as having two poles  predict whether two magnets will attract or repel each other, depending on which poles are facing.  compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials | recognise that they need light in order to see things and that dark is the absence of light  notice that light is reflected from surfaces  recognise that light from the sun can be dangerous and that there are ways to protect their eyes  recognise that shadows are formed when the light from a light source is blocked by a solid object  find patterns in the way that the size of shadows change. |

**Physics KNOWLEDGE AND UNDERSTANDING**

Year 4

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| --- | --- |
| Electricity | Sound |
| identify common appliances that run on electricity  construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers  identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery  recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit  recognise some common conductors and insulators, and associate metals with being good conductors. | identify how sounds are made, associating some of them with something vibrating  recognise that vibrations from sounds travel through a medium to the ear  find patterns between the pitch of a sound and features of the object that produced it  suggest ways of making changes in the pitch of a sound  find patterns between the volume of a sound and the strength of the vibrations that produced it  recognise that sounds get fainter as the distance from the sound source increases. |

**Physics KNOWLEDGE AND UNDERSTANDING**

Year 5

|  |  |
| --- | --- |
| Forces | Earth and Space |
| explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object  identify the effects of air resistance, water resistance and friction, that act between moving surfaces  recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.  compare forces: direction, strength of push, speed  recognise that objects move due to an applied force, applied forces can change shape, make things speed up/slow down, change direction, stop  identifying the direction a force acts and measure forces. | describe the movement of the Earth, and other planets, relative to the Sun in the solar system    describe the movement of the Moon relative to the Earth  describe the Sun, Earth and Moon as approximately spherical bodies  use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky.  describe how shadows change throughout the day and can predict the time, due to Earth’s rotation.  know that objects are pulled downwards because of the gravitational attraction between them and the Earth  know that planets orbit due to gravity |

**Physics KNOWLEDGE AND UNDERSTANDING**

Year 6

|  |  |
| --- | --- |
| Electricity | Light |
| associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit and suggest ways of changing the current in a circuit.  compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches  use recognised symbols when representing a simple circuit in a diagram.  recognise some common conductors and insulators, and associate metals with being good conductors  describe how electrical devices are connected to work in a circuit – so that it creates a complete circuit | know that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye  explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes  use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them  identify patterns in the way that the size of shadows change |

*“On our journey of faith, with Jesus as our guide, we share friendship, value learning and show*

*respect for ourselves and others, as we live, learn, play, work and pray together in our community.”*