Science Overview Physics Colgate Primary school

(Oak & Cedar Cycle 2019-20 2020-21 2021-22)

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|  | Year1 (Apple/Maple) | Year 2(Apple/Maple) | Year 3(Oak & Cedar) | Year 4(Oak & Cedar) | Year 5(Oak & Cedar) | Year 6 (Willow) |
| **Forces & Movement** | *(There are no set objectives however these can be looked at in terms of objects/toys requiring push and pull forces. Could also group materials as to whether they are attracted to a magnet or not)** describe the simple physical properties of a variety of everyday materials
* compare and group together a variety of everyday materials on the basis of their simple physical properties.
 |  | * 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
* 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
* describe magnets as having two poles
* predict whether two magnets will attract or repel each other, depending on which poles are facing.
 |  | * 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.
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| **Light** | *(There are no set objectives however these can be looked at in terms of opaque, translucent, transparent materials etc. Explore shadow play and generally light and dark ‘caves’)** describe the simple physical properties of a variety of everyday materials
* compare and group together a variety of everyday materials on the basis of their simple physical properties.
 |  | * 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.
 |  | * 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.
 | * recognise that light appears to travel in straight lines
* use the idea 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.
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| **Sound** |  |  |  | * 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
* 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.
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| **Electricity** |  |  |  | * 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.
 |  | * associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the 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.
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