KS2 Science

PROGRESSION GRID – PHYSICS

YR	Electricity (Year 4 & 6)	Forces (Year 3 & 5)	Light (Year 3 & 6)	Sound (Year 4)	Earth and Space (Year 5)
5/6	Suggest ways of changing the current within a circuit (resistance) and how batteries provide energy 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	improving movement by changing level of friction, resistance weight id due to the force of gravity Identifying the direction a force acts recognise that some mechanisms (levers, pulleys and gears) allow a smaller force to have a greater effect Magnets have a field around them	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	Suggest ways of making changes in the pitch of a sound Vibrations are not always directly visible Sound is a vibration which can travel Explain how sound is heard through different materials	Use models to explain effects of motion of the Earth – Night/Day, Year Length, Day Length that objects are pulled downwards because of the gravitational attraction between them and the Earth Planets orbit due to gravity
4/5	associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit Describe how electrical devices are connected to work in a circuit – so that it creates a complete circuit Electrical device is affected by the current. Explain how changing the number or type of components in a series circuit can make bulbs brighter or dimmer e.g. batteries, bulbs, wires	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 Measuring forces How a small force can move a large weight (force) magnets attract or repel each other and attract some materials and not others describe magnets as having 2 poles predict whether 2 magnets will attract or repel each other, depending on which poles are facing Some forces (magnets) act at a distance	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 Describe how shadows change throughout the day. 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 sound being heard through different materials vibrations from sounds travel through a medium to the ear find patterns between the volume of a sound and the strength of the vibrations that produced it	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 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. Time: day, month, year and how it is related Evidence for Earth, moon and planets being a sphere
3/4	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 some common conductors and insulators, and associate metals with being good conductors use recognised symbols when representing a simple circuit in a diagram	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 some forces need contact between 2 objects, but magnetic forces can act at a distance objects move due to an applied force, applied forces can change shape, make things speed up/slow down, change direction, stop Forces cause springs or elastic bands to stretch/compress	recognise that light appears to travel in straight lines to form shadows notice that light is reflected from surfaces You can see in a mirror because the light bounces back. (Reflected) Light: The fainter the further away.	recognise that sounds get fainter as the distance from the sound source increases identify how sounds are made, associating some of them with something vibrating find patterns between the pitch of a sound and features of the object that produced it	describe the sun, Earth and moon as approximately spherical bodies Explain differences between Sun/Earth/Moon and other planets and that they are approximately spherical Identify the different planets and explain some key features (temperature, surface, atmosphere) Explain what a moon is - orbits
2	construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers	compare how things move on different surfaces To compare forces: direction, strength of push, speed. Recognise that when things speed up, slow down, or change direction there is a cause e.g. a push or a pull	recognise that they need light in order to see things and that dark is the absence of light recognise that light from the sun can be dangerous and that there are ways to protect their eyes To compare a variety of light sources: brighter/dimmer.	Link - sound is louder if it is hit harder Sounds are heard when they enter the ear Compare a variety of sounds: loudness, pitch	Describe some differences between the Earth, moon and the Sun Describe differences between day and night
1	identify common appliances that run on electricity	Identify forces as pushes and pulls Indicate how forces can make things move. Describe changes in an objects being moved e.g. cars going faster, slowing down, changing direction	Indicate light sources e.g. the sun. recognise light as having a variety of sources.	Indicate sources of sound. describe changes in sounds. recognise sound has a range of sources.	Identify the Earth, Sun, moon, planets

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