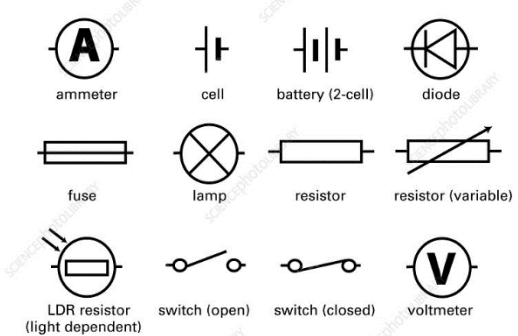
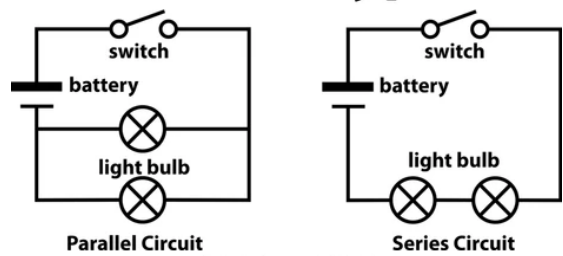


# Knowledge Organiser - Science

## Year 6 Spring Term 1 - Tomorrow's World

Recap from previous years	Important vocabulary	Key facts	Pictures/diagrams
<p>Science - working scientifically</p> <p>Light - (may have missed this unit previously for covid)</p> <p>Computing - coding</p> <p>Circuits - covered in year 4 but may have missed due to covid</p>	<p><u>Retrieval vocabulary</u></p> <p>Electrical circuits</p> <ul style="list-style-type: none"> <li>• electricity - a form of energy that we use to power appliances</li> <li>• electric current - electricity moving through an electrical conductor or space</li> <li>• Appliances - a device or piece of equipment designed to perform a specific task</li> <li>• Wires - metal drawn out into a thin flexible thread (often surrounded by insulation)</li> <li>• Bulbs - a device used to convert electricity into light</li> <li>• Buzzers - an electrical device that makes a buzzing noise and is used for signalling.</li> <li>• crocodile clips - a sprung metal clip with long, serrated jaws used in electrical circuits</li> <li>• battery cell - a singular battery</li> <li>• Battery - a container with one or more cells which turns chemical energy into electrical energy</li> <li>• Motor - a machine that produces movement or action</li> <li>• Switch - a device for making and breaking the connection in an electrical circuit</li> <li>• electrical conductor - a material that allows electricity to flow through it</li> <li>• electrical insulator - a material that does not allow electricity to flow through it</li> </ul>	<p><b>How does light travel?</b></p> <ul style="list-style-type: none"> <li>• Light travels in straight lines therefore shadows form when light is blocked.</li> <li>• We can make light move around corners using reflection.</li> <li>• Shadows have the same shape as the objects that cast them.</li> <li>• The size of the shadow depends on how far away the light is.</li> </ul> <p><b>How does light help us to see?</b></p> <ul style="list-style-type: none"> <li>• We see things when light enters our eyes.</li> <li>• Our pupils change size and get bigger to let more light in when it is dark and less light in when it is bright.</li> <li>• This is important because too much light can damage our eyes.</li> <li>• Not all objects give off light and so we see some objects because light reflects off their surface and into our eyes.</li> <li>• Light enters our eyes and hits the retina, which is found at the back of the eye.</li> </ul> <p><b>How do we represent components of a circuit in a simple diagram? / How does the number of cells affect the components in a circuit?</b></p> <ul style="list-style-type: none"> <li>• To make a circuit work, it needs to have a power source and needs to be a complete circuit.</li> <li>• The more cells used in a circuit, the brighter the bulb, volume of the buzzer and/or speed of the motor.</li> <li>• Switches can be used to control circuits. They change the flow of an electrical circuit. They can break and complete circuits.</li> </ul>	 <p><b>Circuit Types</b></p>  <p>shutterstock.com · 1619901676</p>

- electrical circuit - a complete route that an electric current can flow around
- Travel - to move
- Circuit diagram - an image of a circuit
- Symbols - the images/symbols used on a circuit diagram to represent the different components of a circuit

### Light

- Opaque - not able to be seen through/not transparent
- Transparent - something that can be seen through
- Mirror - a surface, typically of coated glass, which reflects a clear image
- Reflection - the throwing back of a surface of light without absorbing it
- Retina - a layer at the back of the eyeball that contains cells sensitive to light
- Pupil - the round opening in the centre of the iris
- Iris - the coloured part of the eye
- Cornea - the transparent layer forming the front of the eye
- Lens - a nearly transparent layer behind the iris which focuses light rays onto the retina
- Optic nerves - the nerve that carries messages from the retina to the brain

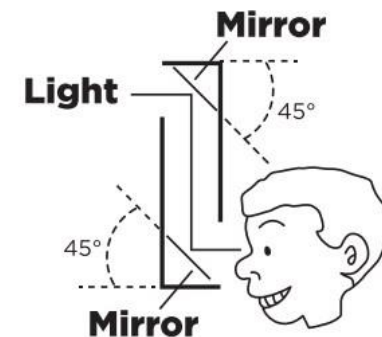
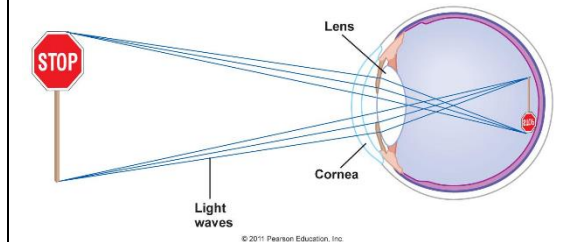
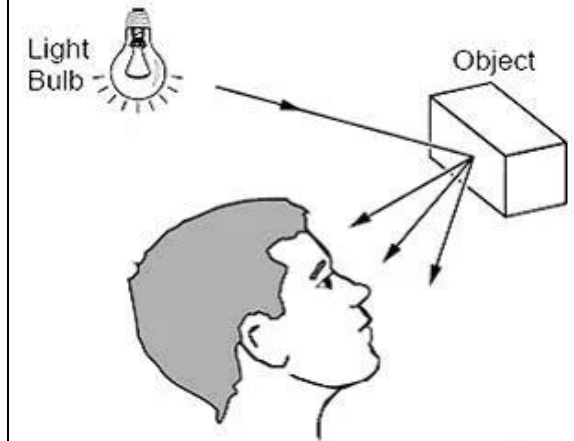
### Computing

- Algorithms - a set of instructions to complete a task/for a purpose
- Browser - a computer program used to navigate between web pages
- Code - a set of instructions/a system of rules written in a programming language

### Working scientifically

### How does the position of switches affect the components in a circuit? / How does the length of cables affect the components in a circuit?

- Electricity will only travel around a circuit that is complete. That means it has no gaps. You can use a switch in a circuit to create a gap in a circuit. This can be used to switch it on and off.
- When a switch is open (off), there is a gap in the circuit. Electricity cannot travel around the circuit. When a switch is closed (on), it makes the circuit complete. Electricity can then travel around the circuit.
- The resistance in a wire increases as the length of the wire increases and thickness of the wire decreases. This makes it more difficult for the current to flow.



- Variables - an element, feature of factor likely to vary or change
- Prediction - an educated guess about the outcome of an experiment
- Conclusion - a summary of the experiment and its findings
- Fair test - an experiment where one variable is changed, and all of the other variables are kept the same
- Method - the way in which an experiment is done
- Results - the outcome(s) of an experiment

#### New vocabulary

##### Circuits

- Mains - the power supply that comes through our plug sockets and travels across power lines
- Voltage - the strength of a power supply, measured in volts
- Wattage - the strength of a power supply measured in watts
- Series circuits - a circuit where the current travels through each component

##### Light

- Periscope - a tube with a system of mirrors that can see things that are otherwise out of sight. They are often used on submarines

Computing

- Debugging - the process of identifying and removing errors from computer hardware or software
- Component - a part or element of a larger whole
- Database - a structured set of data held in a computer
- Encryption - the process of converting information or data into a code (specially to prevent unauthorised access)