Autumn 1 Science Knowledge Organiser – Energy: Light and shadows

Question for Learning: **What is a light source?** • Examples of light sources and luminous objects: light bulbs, the sun, and glow sticks. • Non-luminous objects: shiny diamonds, mirrors and road signs. • The moon is not a light source. • Darkness is the absence of light and we need some light to be able to see. • It is important to protect our eyes from harm, including not looking directly at the sun and other bright light sources.	 Research
Question for Learning: **What is reflection?** • Light bounces off a surface when it reflects. • Rejective surfaces or materials: mirrors, glass or metallic objects. • The smoothness or how still the surface is will affect the quality of the **reflection**.	 Identifying, grouping and classifying
Question for Learning: **Where do shadows come from?** • Shadows form when light is blocked by a material (usually opaque). • Opaque materials form darker shadows or translucent and transparent materials form lighter, fuzzier shadows. • The colour, position and material of an object can affect the way a shadow appears.	 Pattern seeking
Question for Learning: **Do shadows change during the day?** • The position of the light source (the sun) causes shadows to change throughout the day. • Shadows are longer when the sun is low in the sky, such as sunrise or sunset. • Shadows are much shorter when the sun is high in the sky.	 Observation over time
Question for Learning: **Can the distance of the light source affect the size of its shadow?** • The distance or the angle of the light can change the size of a shadow. • The closer a light source is, the larger the size of the shadow.	 Comparative / Fair Testing
Question for Learning: **How do different people work with light and shadows?** • Opaque materials are most appropriate to make a shadow puppet as they block out light. • To get a shadow, the puppet needs to go between the screen and the light source.	 Problem Solving

Key Words	
Light source	Where light comes from
Opaque	A property of a material where no light can pass through
Transparent	A property of a material where most light can pass through
Translucent	A property of a material where some light can pass through
Reflective (shiny)	A surface that light bounces off more.
shadow	A dark area caused by something blocking the light.