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| **Science: Key Stage 2- Year 6** |
| **Learning Challenges** |
| **How can we find out if spiders and files are related?** | **Have we always looked like this?** | **Why can we see the stars at night?** |
| **National Curriculum content** |
| Biology – living things and their habitats | Biology- Evolution and inheritance  | Physics – Light  |
| *Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals* *Give reasons for classifying plants and animals based on specific characteristics*  | *Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth**Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to parents**Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution*  | *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* |
| **Key Knowledge** |
| * Classify living things into broad groups according to observable characteristics and based on similarities and differences
* Know how living things have been classified
* Give reasons for classifying plants and animals in specific ways
 | * Know how the \earth and living things have changed over time
* Know how fossils can be used to find out about the past
* Know about reproduction and offspring, recognising that offspring normally vary and are not normally identical to their parents
* Know how animals and plants are adapted to suit to their environment
* Link adaptation over time to evolution
* Know about evolution and can explain what it is
 | * Know how light travels
* Know and demonstrate how we see objects
* Know why shadows have the same shape as the object that casts them
* Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror
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| **Learning Challenges** |
| **Could you be the next Nintendo apprentice?** | **Why is the heart the most important pump we own?** | **How do you see what is happening on the surface when you are in a submarine?** |
| **National Curriculum content** |
| Physics – Electricity  | Biology- Animals including humans  | Scientist and Inventors  |
| *Associate the brightness of a lamp with the number and voltage of cells used**Compare and give reasons for variations in how components function**Use recognised symbols when representing a simple circuit* | *Describe the ways in which nutrients and water are transported within animals, including humans**Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood* *Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function* |  |
| **Key Knowledge** |
| * Compare and give reasons for why components work and do not work in a circuit
* Draw circuit diagrams using correct symbols
* Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer
 | * Identify and name the main parts of the human circulatory system
* Know the function of the heart, blood vessels and blood
* Know the impact of diet, exercise, drugs and lifestyle on health
* Know the ways in which nutrients and water are transported in animals, including humans
 | * Know that Alexander Fleming is recognised for discovering penicillin.
* Understand how Marie Curie’s discovery of radium and polonium and her contribution to finding treatments for cancer.
* Understand the importance of William Harvey’s discoveries about the circulation of blood.
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