

Subject: Science Year 6: Evolution and inheritance

NC/PoS:

- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
- identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution

Prior Learning (what pupils already know and can do)

Check the children can recall key facts from the unit [Science, Year 3, Rocks and soil](#), [Science, Year 4, Classification and changing habitats](#) and [Science, Year 5, Life cycles and reproduction](#)

End Goals (what pupils MUST know and remember)

- know humans can live all over the world because they can wear clothes and build houses suited to different conditions
- know most plants and animals can only live in certain environments
- know animals and plants are adapted to their habitat
- know living things can develop adaptations to suit the place they live
- know that the living things that are best adapted to their habitat are more likely to survive.
- know that animals and plants produce offspring that look like their parents
- Know parent plants or animals pass on characteristics
- know when living things change over time – this is evolution
- Know an example of evolution
- know that fossils show how living things have changed – how they have evolved

Key Vocabulary: adaptations, environments, survival, survive, climbers, deciduous, evergreen, defense, inheritance, heredity, traits, characteristics, evolution, changes over time, natural selection, fossils

Session 1: Use resources from Kapow lesson 1: Variation

Review prior learning –

- Fossils are the preserved remains or traces of a dead organism. They formed when things that lived were trapped within rock.
- Living things have notable differences that can be used to group them in varying ways.
- Environments can change and this can sometimes pose dangers to living things.
- Plants use both asexual and sexual reproduction to produce offspring.
- Animals use sexual reproduction to produce offspring.

LO: To explain why there are differences within a species.

Working scientifically LO: To group factors.

Use the **Attention Grabber** to explore variations within a species.

Use the **Main Event** to introduce Charles Darwin and Alfred Wallace and their findings.

Children should write an explain variation within a species in their books using one of the examples.

Vocabulary: characteristic, environment, environmental, gene, inherit, species, variation

Session 2: Use resources from Kapow lesson 2: Inheritance

Recap and recall: Display the *Presentation: Variation in dogs* and children list the variations between these breeds of dogs.

LO: To recognise the inheritance of characteristics in plants and animals.

Use the *Presentation: Matching offspring to parents* to highlight possible variations of offspring from their parents.

Use the **Main Event** to explore inheritance. Children create their own profiles using the *Presentation: Studying inheritance*.

Move on to the *Presentation: Scientists and inheritance* to help develop their understanding of inheritance, but **do not** do the suggested activity on selective breeding- **instead** move on to the activity in the **Wrapping Up** section.

In their books, children can record examples of inherited characteristics, environmental characteristics and 'both inherited and environmental' characteristics.

Vocabulary: breed (verb), family tree, inheritance, offspring, parent (biological)

Session 3: Use resources from Kapow lesson 3: Adaptions

Recap and recall: Use the *Presentation: Variation in strawberries*. Ask pupils to identify the characteristics that strawberry plants inherit.

LO: To explain why adaptation is necessary.

Use the **Attention Grabber** to explain that the leaves of the Venus flytrap trap and digest insects; this is an example of **adaptation**- a characteristic that helps an organism to survive in its habitat.

Use the **Main Event** to explore adaptions to habitats.

In their books, ask the children to write an explanation of how each adaptation helps the animal survive in its habitat (you can display the worksheet as a scaffold)

Vocabulary: adaptation, habitat, survival

Session 4: Use resources from Kapow lesson 4: Modelling natural selection

Recap and recall: Use the *Presentation: Penguin adaptations*; children can 'Think-pair-share' variations they can see.

LO: To model how natural selection affects population size

Working scientifically LO: To evaluate the degree of trust and pose new questions for further enquiry.

Use the **Attention Grabber** to look more at the Galapagos finches.

Move on to the **Main Event** to and use the *Presentation: Modelling Galapagos finches* to look at natural selection. The children model how natural selection works by pretending to be Darwin's finches (follow the rules for the enquiry). Groups can record their results on the table provided.

Use the **Wrapping Up** section to look back at their predictions from the start of the lesson.

Vocabulary: natural selection, reproduce, variable, competition, population, survival of the fittest

Session 5: Use resources from Kapow lesson 5: Evolution

Recap and recall: Use the *Presentation: 3, 2, 1 Natural Selection* to recall the enquiry carried out last session.

LO: To describe the theory of evolution.

Working scientifically LO: To consider evidence used to inform theories.

Use the **Attention Grabber** to explore how horses have evolved over time.

Move on to the **Main Event** to introduce the fact that natural selection can lead to the evolution of a species over time.

Children should record in their books the 5 stages of evolution:

1. **Variation:** individuals in a species have differences that are **inherited** from their parents.
2. **Struggle to survive (competition and adaptations):** there is competition for limited resources and some individuals will be better adapted to compete or survive in their habitat.
3. **Survival of the fittest (natural selection):** the best-adapted individuals will survive and reproduce, whereas the least-adapted individuals are more likely to die.
4. **Advantages inherited:** the survivors reproduce and pass on the genes for useful characteristics to their offspring.
5. **Gradual change:** over a long time, and if this variation stays useful, species change from their ancestors and evolve with these inherited characteristics.

You can look at the evolution of giraffes and the mammoth (you don't need to do the Giraffe faces activity, just look at the stages).

This could be enhanced with illustrations/written examples of each stage using the finch, horse, giraffe or mammoth examples.

Vocabulary: ancestor, evolution, extinct, changes over time

Session 6: Use resources from Kapow lesson 6: Evidence for evolution

Recap and recall: Use the *Presentation: True or false?* to discuss whether they think animals can choose to adapt when the environment changes, justifying their answers with scientific examples.

LO: To recognise evidence that can be used for evolution.

Working scientifically LO: To consider the degree of trust in the evidence used.

Use the **Attention Grabber** to introduce Mary Anning and her work on fossils.

Use the **Main Event** section to revise fossil formation and use the *Resource: Using evidence for evolution* and answer the following questions:

- What evidence has the scientist used?
- What conclusions did they come to?
- Does everyone agree with the conclusion?

Children should write an explanation in their books to demonstrate how fossils can show how living things have evolved.
Complete the unit assessment quiz

Vocabulary: evolution, changes over time, fossils

Link to career scientist: Palaeontologist

[https://pstt.org.uk/application/files/8916/2851/6246/Evolutionary_biologist - Telma G. Laurentino.pdf](https://pstt.org.uk/application/files/8916/2851/6246/Evolutionary_biologist_-_Telma_G._Laurentino.pdf)

[https://pstt.org.uk/application/files/3116/2851/6245/Evolutionary_biologist - Dr Kelsey Byers.pdf](https://pstt.org.uk/application/files/3116/2851/6245/Evolutionary_biologist_-_Dr_Kelsey_Byers.pdf) -

Scientists who have helped develop understanding in this field: Charles Darwin, Alfred Wallace