

Medium Term Plan: Supporting Implementation of LTP/Progression Grid

Subject: Science **Year:Y6– 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)

All animals need shelter, nutrients, water, and air. All plants need space, nutrients, water, and air. All living things are suited to particular habitats. Name the habitats: pond, forest, oceans, desert, and rainforest. All living things reproduce. Fossils are found in sedimentary rock and show how things used to look

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 over time, increasingly the animals and plants will end up with features that make them well-adapted to their habitat
- 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 Charles Darwin's (an English naturalist) scientific theory of evolution by natural selection became the foundation of modern evolutionary studies
- Know an example of evolution is Darwin's finches – beaks adapted over time based on food source
- know that fossils show how living things have changed – how they have evolved

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

Session 1: review prior learning - match different animals/plants to their habitat. Revisit the needs of animals and plants. In which type of rocks are fossils found? What do fossils tell us?

Introduction to Charles Darwin https://www.youtube.com/watch?v=JOk_0mUT_JU

Introduction to Alfred Wallace <https://www.youtube.com/watch?v=KT2YbugYcjQ>
and to evolutionary biologists

Session 2: Recap: What do all animals need from their habitat? Name 5 different habitats

Children learn that humans can live all over the world because they can wear clothes and build houses suited to different conditions. Most plants and animals can only live in certain environments. Animals and plants are adapted to their habitat.

FOCUS: To Research animals that have adapted to suit their environment

<https://www.youtube.com/watch?v=ZT8YswmQuAg&t=133s> watch mud skippers 15.15 – 18.55

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- The otter has special adaptations: eyes and nostrils that close underwater, webbed feet to move in water and long whiskers to feel vibrations to help find food
- A bullfinch has a short cone-shaped beak for cracking seeds and a toe pointing backwards so they can perch
- The camel has adaptations to survive hot environments: store water in their bodies, sandy for camouflage, big feet to stop sinking into sand, loses less water through small amounts of sweat and wee and most of its body fat in hump to able to lose heat via rest of body
- The penguin has adaptations to survive cold environments: rounded body shape to reduce heat loss, streamlined body for swimming, a layer of fat all over body for warmth, oily feathers to keep them waterproof and webbed feet

N.B: adaptation means the process of change by which an organism or species becomes better suited to its environment.

Vocabulary: adaptations, environments, survival, survive

Session 3: Recap: how have the following adapted to their environment: camel, penguin, otter, and bullfinch? Why?

Children learn living things can develop adaptations to suit the place they live. The living things that are best adapted to their habitat are more likely to survive. Over time, increasingly the animals and plants will end up with features that make them well-adapted to their habitat.

FOCUS: to research plants that have adapted to suit their environment

Watch <https://www.youtube.com/watch?v=moOCK8OggBw> (4.55 – 6.40)

- a cactus has: long roots to find water, fleshy stems to store water and thin needle leaves to limit water
- Water lilies, float on the surface of the water. Water lilies can thrive in muddy water because of this adaptation. Since their leaves float, they can easily take in light. The light does not have to go through muddy water in order to reach the leaves.
- Plants in the lowest part of the rainforest are short and grow close to the ground. Since very little light gets to this part of the rainforest, these plants adapted to have very large leaves. The sizable surface area of their leaves allows them to catch as much light as possible, which helps them survive.

Look at the adaptation sheet for plants and observe plants in the school grounds and discuss how they have adapted. Research other plants' adaptations

Vocabulary: climbers, deciduous, evergreen, defence

Session 4: Recap: how have the following adapted to their environment: deciduous trees, ivy, cactus, water lilies? Why?

Children learn that animals and plants produce offspring that look like their parents. Parent plants or animals pass on characteristics.

LO: to observe how offspring are not identical to their parents

Watch <https://www.youtube.com/watch?v=K3F5BV82Lg8> for teachers

<https://www.youtube.com/watch?v=GqEConjFPvg> looking at dogs

Usual human inherited traits: hair colour, eye colour, shape of nose, dimples, hairline, height

N.B: Inheritance - something is passed on to the next generation. Offspring are not identical to their parents and some characteristics are inherited. Other differences new in the offspring – mutations

Vocabulary: inheritance, heredity, traits, characteristics

Session 5: Recap: why are offspring not identical to their parents? Name 3
inherited traits

Children learn when living things change over time – this is evolution. Charles Darwin's (an English naturalist) scientific theory of evolution by natural selection became the foundation of modern evolutionary studies. An example of evolution is Darwin's finches – beaks adapted over time based on food source.

FOCUS: To observe how Darwin's finches adapted and evolved

<https://www.youtube.com/watch?v=s64Y8sVYfFY>

Research and use finches' sheet to observe differences

N.B: Evolution - a change in the characteristics of living things over time. It happens when there is competition to survive (natural selection). Happens when there are differences within a species caused by inheritance and mutations.

Vocabulary: evolution, changes over time, natural selection

Session 6: Recap: how did Darwin's finches adapt and why?

Children learn that fossils show how living things have changed – how they have evolved

LO: to compare fossils to modern animals

<https://www.youtube.com/watch?v=fEYJUK3sz8c> fossils and evolution

<https://www.youtube.com/watch?v=pktDgFy5IcE> David Attenborough

Compare woolly mammoth fossil to an elephant

Look at evidence of horse evolution over last 50 million years

N.B: Evolution - a change in the characteristics of living things over time. It happens when there is competition to survive (natural selection). Happens when there are differences within a species caused by inheritance and mutations.

Vocabulary: evolution, changes over time, fossils

Link to career scientist: Palaeontologist

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[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