Year 4 Living things and their habitats

SCIENTIFIC CONTEXT: Biology

KEY VOCABULARY:

Organism	something which can grow, respire (take in oxygen), excrete (get rid of waste), reproduce and is sensitive to changes in its surroundings.
Species	particular kinds of living organisms.
Genes	tiny parts in all your cells which give you certain characteristics (e.g. colour of eyes, height, personality) and can be passed onto the next
Vertebrates	Animals with a backbone
Invertebrates	Animals without a backbone
Habitat	Any area where plants and animals can live undisturbed (comes from a Greek word meaning :"home").

Key Questions

1. How can living things be grouped?
2. How can classification keys can be used to help group, identify and name living things?
3. How can changes in the environment pose dangers to living things?

As Scientists we will:

- recognise that living things can be grouped in a variety of ways,
- explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment,
- recognise that environments can change and that this can sometimes pose dangers to living things.

Working scientifically:

- Gather, record, classify and present data in a variety of ways to help in answering questions ,
- identify differences and similarities related to simple scientific ideas,
- record findings using keys,
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.

Notable scientist: Carl Linnaeus

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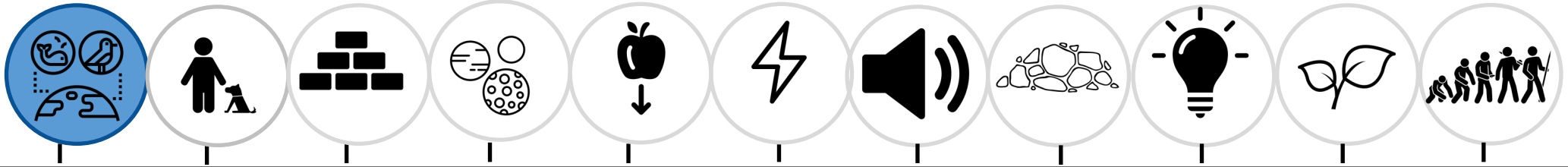

What I need to know?

There is an enormous variety of living things on the planet. It is possible to group them according to certain similarities or differences in their features, both external and internal.

All living things can be divided into five kingdoms: animal, plant, fungi, protoctista, which includes algae and amoeba, and prokaryotes, which includes all bacteria – single-celled organisms with no nucleus. However, not all scientists agree on these groupings. Some animals are difficult to classify, as they do not share all the specified characteristics of the group.

In each kingdom there are many different species. These are living organisms that are very similar to each other. The adults are capable of reproducing. There are around 1 million different species of animal and 400,000 plant species in the world. It is rare that reproduction can take place across species.

Opportunities for Science Capital

Watch David Attenborough documentaries
Keep up to date with climate change news .

Deforestation research.

Assessment:

By the end of this unit the children should:

- Appreciate the enormous diversity of living things on Earth and be able to give reasons for classifying living things together in particular ways.
- Be able to group living things in a variety of different ways according to common characteristics.
- Be introduced to the work of Carl Linnaeus.
- Understand that all living things can be classified into one of five different kingdoms.
- Be introduced to, and be able to name, each of the five kingdoms of life: animals, plants, fungi, prokaryote and protoctista.
- Appreciate that each kingdom contains many different species.

Know that plants can be sub-divided into flowering or non-flowering groups and be able to provide examples of both.

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Theme 1: Classifying living things

Starter

KWL grid

Watch clip: https://www.tigtagworld.co.uk/film/why-do-we-classify-PRM00146/

Ask the pairs to discuss why they think scientists classify living things. Give the pairs 5 minutes to discuss this and ask them to feed back one key point to the rest of the class. Give credit for all the points the children make.

Main

Substantive knowledge:

Download lesson plans and presentation from: https://ypte.org.uk/lesson-plans/living-things-and-their-habitats-year-4

Work through slides up 20 slide 28, corresponding teacher input notes can be found on the teacher input notes up to page 5.

Plenary

Disciplinary knowledge
Working scientifically objective: classifying and presenting data and identifying differences, similarities related to simple scientific ideas

Print and cut animal pictures from pages 6-8 on the teacher input document:

Ask the children, in groups, to cut out the animal pictures and then sort them according to their own criteria. Encourage them to use their own ideas and ask them to record the names of all their groups and the animals that belong in each group e.g. warm/cold-blooded, vertebrate/invertebrate, wings/no wings, number of legs etc. They will see that an animal can belong to many groups.

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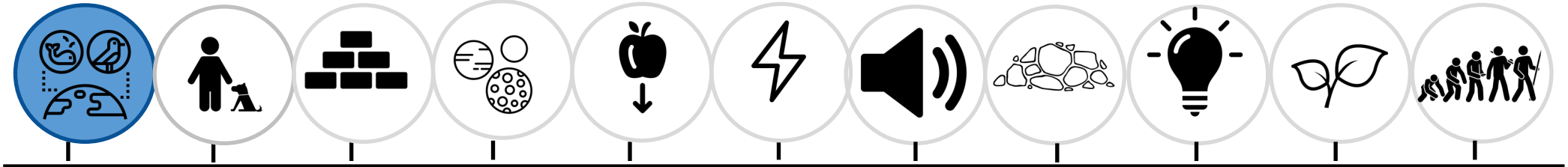

Theme 2: Local habitats

Starter

Recap

Deeper thinking opportunity: https://explorify.uk/en/activities/odd-one-out/funky-feet

Main

Substantive knowledge:

Work through activities and clips from slides 3-5

https://onedrive.live.com/view.aspx?resid=54CF08BDFC25132B!23374&ithint=file%2cpptx&authkey=!ACCUE1-0HlGJ4PE

Plenary

Disciplinary knowledge
Working scientifically objective: Gather, record and classify data

Today we are environmental scientists.

Recap previous work on classifying and habitats. Consider school grounds/local area as a habitat and go on a search for living things (incl. plants) in the grounds. Take a camera/ draw/make lists of larger things and collect smaller things. Classify the living things into groups e.g. vertebrates / invertebrates / plants. Create subsets within groups e.g. flowering / non-flowering plants, birds / mammals/ invertebrates etc.

See full TAPS plan: Y4plan Local survey - Do.docx

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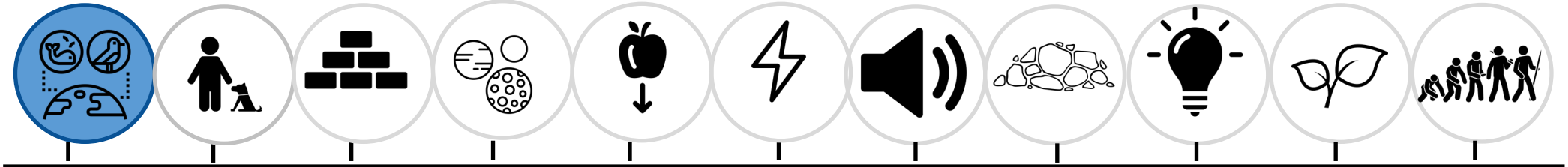

Theme 3: Classification keys

Starter

Recap

Main

Substantive knowledge:

Use the same lesson plans and presentation from theme 1: https://ypte.org.uk/lesson-plans/living-things-and-their-habitats-year-4

Work through slides 29-32 on the presentation with accompanying teacher notes on pages 9 -10.

Plenary

Disciplinary knowledge
Working scientifically objective: recording findings using keys

Minibeast Challenge (pages 12-13 from the teacher input document) Cut around the minibeast pictures, so you have 10 picture cards. Challenge the children to use the minibeast classification key (page 11) to identify each of the minibeasts.

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Theme 4: Environmental changes

Starter

Recap

Ask the children how they think people can change the environment in both good and bad ways. Has anything happened in their local area that has put wildlife at risk? Do they or their families do anything to help wildlife? Enter their ideas in two mind maps on the whiteboard - positive and negative effects.

Main

Substantive knowledge:

Use the same lesson plans and presentation from theme 1: and 3 https://ypte.org.uk/lesson-plans/living-things-and-their-habitats-year-4

Work through slides 33-45 on the presentation with accompanying teacher notes on pages 14-16

Plenary

Disciplinary knowledge
Working scientifically objective: report on findings from enquiries, including displays

Ask the children to design a poster that informs people about the dangers of litter to plants and animals.

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Theme 5: Carl Linnaeus

Starter

Recap/deeper thinking opportunity: https://explorify.uk/en/activities/what-if/the-ice-caps-melted

Main

Disciplinary knowledge:

Research

Working scientifically objective: Report and present findings from enquiries in written forms.

Carry out research on Carl Linnaeus and present findings in an infographic style.

Questions to research:

1) Who was Carl Linnaeus?
2) His career in science.
3) His legacy.

Plenary

Complete KWL grid