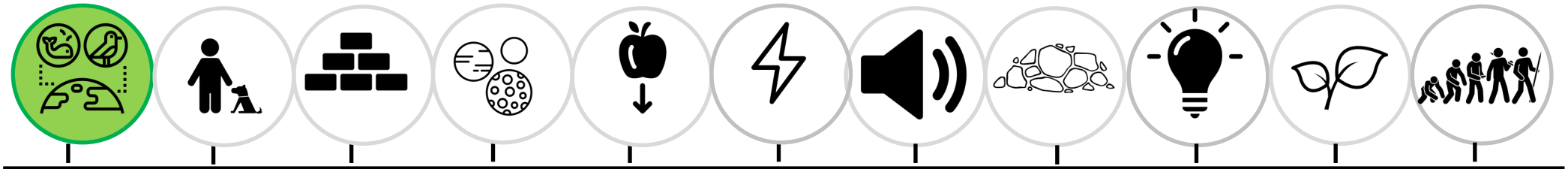
Year 6: Living things and their habitats

SCIENTIFIC CONTEXT: Biology



KEY VOCABULARY:

Key	A key is a series of questions about the characteristics of living things.
Bacteria	A single-celled microorganism.
Microorganism	An organism that can only be seen using a microscope, e.g. bacteria, mould and yeast.
Species	A group of animals that can reproduce to produce fertile offspring.
characteristics	Special qualities or appearances that make an individual or group of things different to others.
classify	To sort things into different groups.
Invertebrate	An animal lacking a backbone .
Vertebrate	An lacking with a backbone.

Key Questions:

1) Can you 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?

2) Can you give reasons for classifying plants and animals based on specific characteristics?

As Scientists we will...

Pupils should be taught how to 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.

Pupils should be taught how to give reasons for classifying plants and animals based on specific characteristics.

Working Scientifically

Pupils should be taught how to record data and results using scientific diagrams and labels, classification keys and tables.

Notable scientists:

Pupils should research the work of and recognise the significance of Carl Linnaeus.

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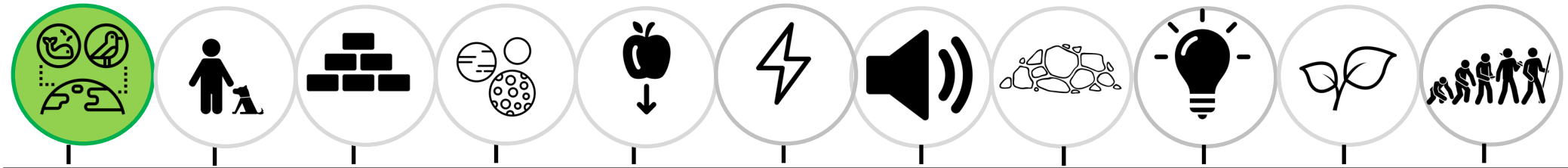

What I need to know:

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 clips from David Attenborough documentaries introducing key concepts surrounding classification of living things.

Part of science capital includes scientific media consumption- documentaries, reports etc. Here are links that provide daily science news for children. Checking in on these every now and then would be beneficial to help children see science in the wider world.

https://www.sciencenewsforstudents.org/

https://www.sciencejournalforkids.org/

Assessment:

By the end of this area of study, children should be able to give reasons for classifying plants and animals.

They should be able to 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.

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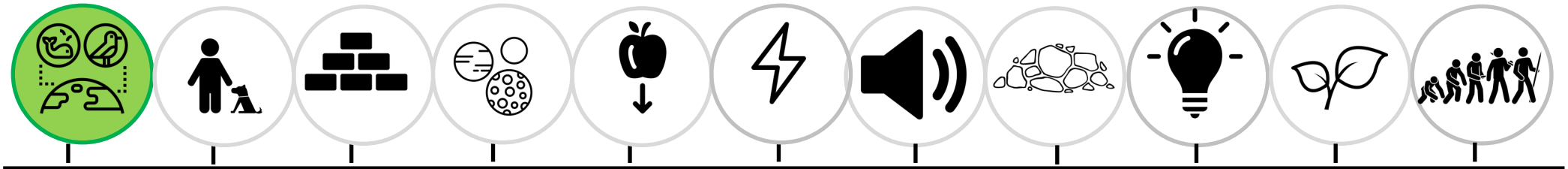

Theme 1: Classification

Starter

KWL grid– prompt with questions such as ‘’What broad groups can living things be put in to?’

Nando’s chilli challenge recapping key learning on living things and their habitats from year 4.

Main

Substantive knowledge

Classification of living things and the work of Carl Linnaeus from:

Year 6 Lesson 1 classification and Carl Linnaeus.pptx - Microsoft PowerPoint Online (live.com)

Disciplinary knowledge

Grouping & Classifying

Working scientifically objective: record data using tables.

Year 6 Lesson 1 classification and Carl Linnaeus.pptx - Microsoft PowerPoint Online (live.com)

Example on slide 6.

Children classify living things by grouping into animals, plants, fungi and micro-organisms. Could extend children by asking them to add examples of their own.

Plenary / assessment

Quiz (including odd one out):

https://www.tigtagworld.co.uk/mindmap/#/lessons/CLASS00353/quiz

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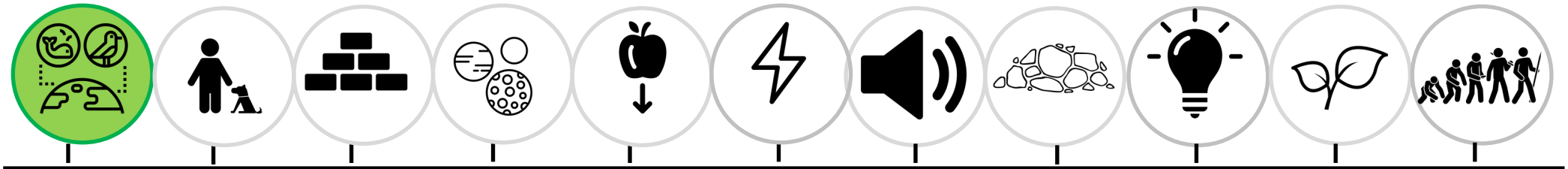

Theme 2: Vertebrates

Starter

Recap: Give me 5!

5 minutes, name me 5 animals, plants etc.

Vertebrate Snap Game: https://www.tigtagworld.co.uk/mindmap/#/lessons/CLASS00356/activities/starter

Main

Substantive knowledge

Work through activities focusing on activity matching vertebrate groups with their characteristics: https://www.tigtagworld.co.uk/mindmap/#/lessons/CLASS00356/activities/main

Plenary / assessment

Review: https://www.tigtagworld.co.uk/mindmap/#/lessons/CLASS00356/activities/review

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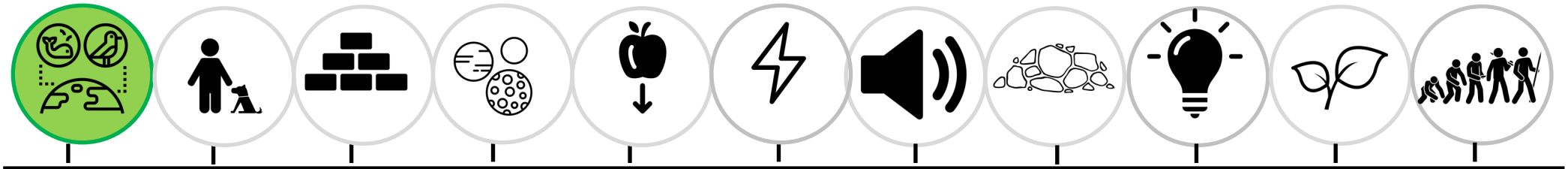

Theme 3: Branching database

Starter

Recap: quiz, https://www.tigtagworld.co.uk/mindmap/#/lessons/CLASS00356/quiz

Main

Disciplinary knowledge

Grouping & Classifying

Working scientifically objective: record data using a classification key

Read through slides 2-4 Year 6 Lesson 3 Branching keys.pptx - Microsoft PowerPoint Online (live.com)

Children practise creating branching databases classifying liquorice.

Plenary / assessment

Apply knowledge of vertebrates and branching databases by creating a vertebrate classification key, slide 5 onwards: Year 6 Lesson 3 Branching keys.pptx - Microsoft PowerPoint Online (live.com)

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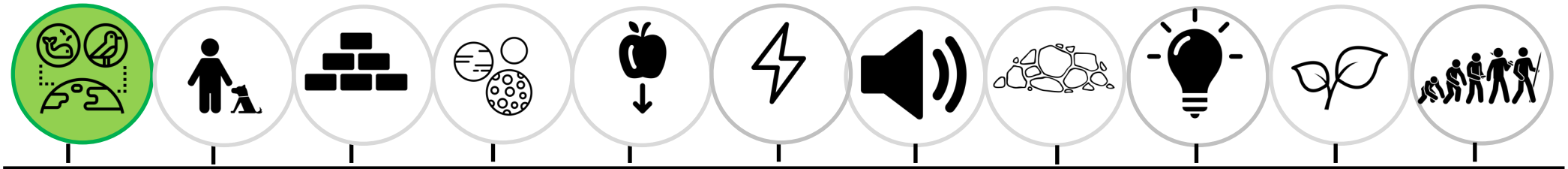

Theme 4: Invertebrates

Starter

Recap-

Beat the Clock: write down everything you've learned so far during this topic

Main

Substantive knowledge

These activities get children thinking about the diversity of different invertebrate types: https://www.tigtagworld.co.uk/mindmap/#/lessons/CLASS00355/activities/main

Disciplinary knowledge

Research

Working scientifically objective: report and present findings.

Today we are zoologists!

Explain that their task is to research different invertebrates (show egs).

Discuss: how will you share what you have found out? Agree options e.g. poster, labelled diagram or model (playdough), written report, information leaflet, drama, animation etc.

Give small groups a different invertebrate group to focus on (annelids, molluscs, insects, arachnids, crustaceans and myriapods). Each group must give an example and describe the features which make it a member of its classification group. Present/share with rest of the class.

Follow link for full plan: Invertebrate research

Plenary / assessment

Children to present/share with rest of the class.

Groups peer assess against agreed success criteria.

(assessment indicators can be found on TAPs plan)

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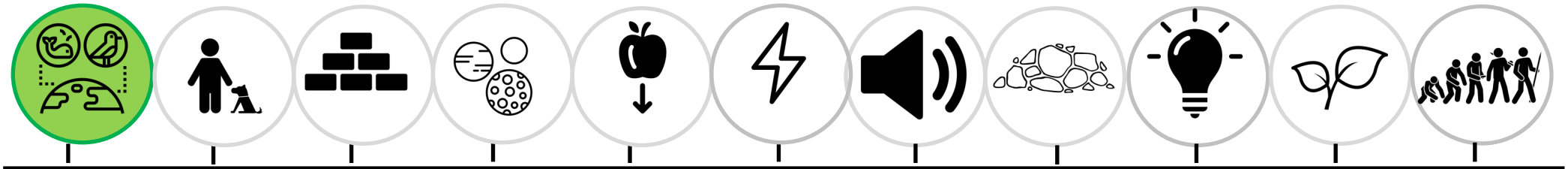

Theme 5: Plant classification

Starter

Recap

Main

Substantive knowledge

Show a range of photos of plants (flowers, grasses, trees etc.). If you saw all these plants together, how would you classify them?

You could group them by their ability to produce flowers.

Sunflowers and apple trees are both flowering plants.

Pine trees, mosses and ferns cannot produce flowers, and are known as non-flowering etc.

Watch clip: https://www.tigtagworld.co.uk/film/plant-classification-PRM00696/

Plenary / assessment

Disciplinary knowledge

Grouping & Classifying

Working scientifically objective: record the results of a survey using a classification key.

We are going to be environmental scientists.

Remind children about how to use/make a classification key. Emphasise the requirement for yes/no questions and scientific language.

We do not yet have a classification key specific to our local environment – what living things would we expect it to include? Discuss classification groups (flowering/nonflowering plants etc) appropriate to local habitat. Conduct a local wildlife survey of plants around the school grounds, collecting plant samples or drawings/photos to help to make a key.

Ask pupils to make a key to identify 6-8 local plants. Children try others' keys to see it can successfully classify a member of their sample.

Follow link for full plan (including assessment indicators): Outdoor keys

Complete KWL