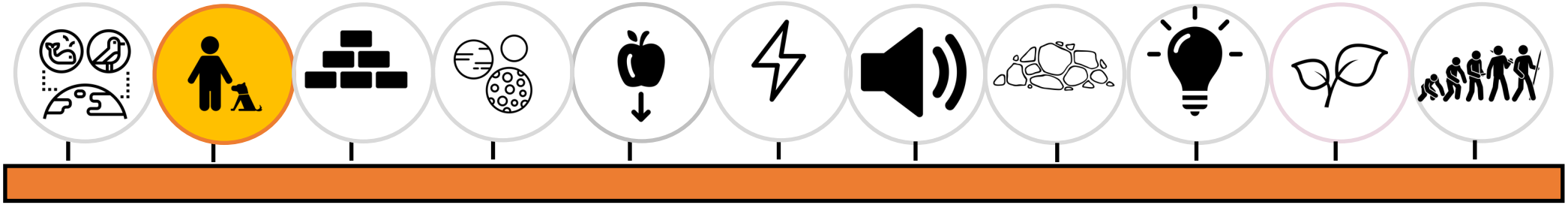
Year 3: Animals including humans

SCIENTIFIC CONTEXT: Biology



As Scientists we will:

- identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat
- identify that humans and some other animals have skeletons and muscles for support, protection and movement.

Working scientifically:

- report on what we have found out using displays,
- ask relevant questions and use different types of scientific enquiries to answer them,
- classify data,
- record findings using labelled diagrams.

Notable scientist: Jamie Oliver (healthy eating/healthy school meals)

Key Questions:

1) What are the right types and amounts of nutrition for animals, including humans?
2) Can animals, including humans, make their own food? Where do they get their nutrition from?
3) Why do humans and some animals have skeletons and muscles?

Year 3: Animals including humans

SCIENTIFIC CONTEXT: Biology

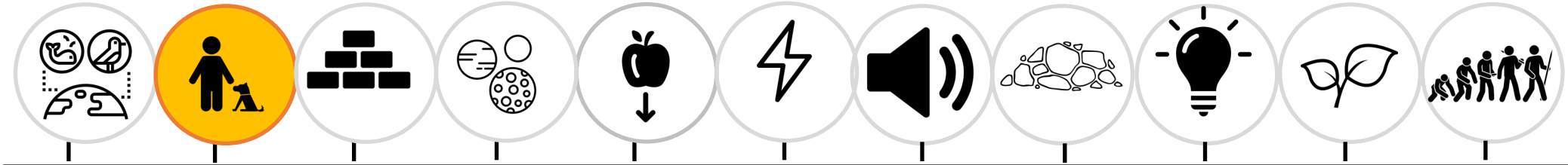
KEY VOCABULARY:

Nutrition	The taking in and use of food and other nourishing material by the body.
Nutrients	Nutrients are the substances in food that our bodies process to enable it to function.
Carbohydrates	Carbohydrates (carbs) are the body's major source of energy.
Sugars	*Sugars are a kind of carbohydrate*.
Protein	Proteins are nutrients that make up the tissues of our body, like muscles or bones .
Vitamins	itamins are nutrients that humans need in order to grow, reproduce, and be healthy.
Fibre	Fiber is a type of carbohydrate that the body doesn't digest
Fat	Fats are nutrients in food that the body uses

Skeleton	The bones of the body form a framework called the skeleton.
Bone	Bone provides structure and support to the body.
Muscles	Muscles are attached to bones by tendons and help them to move.
Joint	A joint is a place where two or more bones meet
Support	A thing that bears the weight of something or keeps it upright.
Movement	The process or the state of changing place or position of the body or a body part from one position to another
Protection	The action of protecting

Year 3: Animals including humans

SCIENTIFIC CONTEXT: Biology



What I need to know:

Animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. Food contains a range of different nutrients – carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water – and fibre that are needed by the body to stay healthy. A piece of food will often provide a range of nutrients. Humans, and some other animals, have skeletons and muscles which help them move and provide protection and support.

Opportunities for science capital:

Options: book School Food Show Down: Healthy Eating Roadshow

Visit from physiotherapist (potential for parents to come in)

Part of science capital includes scientific media consumption- documentaries, reports etc. So, I have added a couple of links which give 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 topic, pupils should be able to explain what the right types and amount of nutrition is and that they cannot make their own food; they get nutrition from what they eat; they should be able to explain that some animals haves skeletons and muscles used for support, protection and movement.

When working scientifically, pupils should be able to: **r**eport on what they have found out using displays; ask relevant questions and use different types of scientific enquiries to answer them; classify data and record findings using labelled diagrams.

Year 3: Animals including humans

SCIENTIFIC CONTEXT: Biology

Theme 1: Nutrition

Starter:

KWL grid

Use prior learning from KWL grid to plan a re-cap.

Main:

Substantive knowledge

Explain that some living things, such as plant, can make their own food. However, we cannot; we get the nutrition we need from the food we eat so it is really important that our body gets the right types of nutrients and the right amount.

Work through films and activities on tigtag, work to be done individually in science books:

https://www.tigtagworld.co.uk/mindmap/#/lessons/CLASS00362/activities/main

Ensure the main food groups and why we eat them (e.g. carbs for energy) are on the working wall.

Deeper thinking opportunity: https://explorify.uk/en/activities/odd-one-out/fuel-up

Plenary/assessment:

Disciplinary knowledge

Working scientifically objective: reporting on what we have found out using displays.

Now we know the different food groups and how they keep us healthy (refer back to working wall), we are going to design a balanced meal.

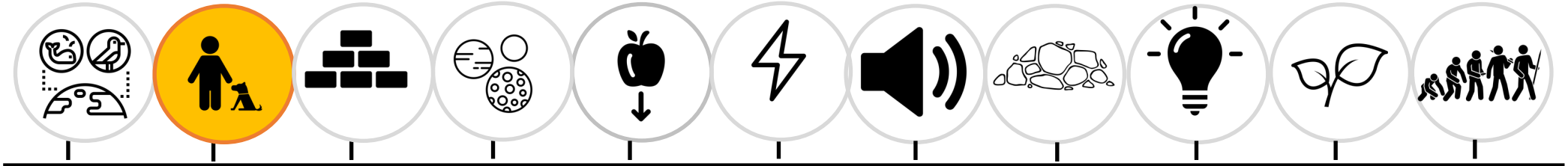
Lower ability: this could be just a main meal, such as lunch.

Higher ability: you may want to push them to create a breakfast and lunch plate including short explanations of why they included that type of food (e.g. I included toast in my breakfast because it is a carbohydrate and it will give you energy to start the day.) This can either be recorded on their plates, or you may prefer to note it on post-it-notes to add to floor book.

Give children pictures of food items and a paper plate; pupils to record work on the plate (see picture on left).

Year 3: Animals including humans

SCIENTIFIC CONTEXT: Biology



Theme 2: Skeletons

Starter:

Recap: True or false quiz recapping previous lesson. For example:

True or false…

1) We need more fats than vegetables.
2) Rice and pasta are carbohydrates.
3) Proteins don't help us grow.
4) The key to a balanced diet is eating a good mixture of all the nutrients you need to stay healthy.
5) We can make our food.
6) The key nutrients are: fish, bread, sweets and nuts.

Deeper thinking opportunity: https://explorify.uk/en/activities/what-if/you-only-ate-chips

Main:

Substantive knowledge

Watch film: https://www.tigtagworld.co.uk/film/function-of-the-skeleton-PRM00107/

Ask: What are the three main functions of the skeleton? Can you give examples of the important organs that need to be protected and name the bones that protect them? What are attached to the bones to allow movement? What are found between the bones to allow movement?

Pupils write skeleton explanations in books, writing templates and sentence stems should be used for any struggling. Follow link for example: file://rdc2166/staff$/sarah.brogden/Downloads/Y3eg_Animals_Skeleton_explanations-1.pdf

Plenary/assessment:

Disciplinary knowledge

Pattern seeking

Working scientifically objective: Ask relevant questions and use different types of scientific enquiries to answer them.

Today we are going to be osteologists

Discuss differences between human skeletons, taking care when discussing differences between children in class. Consider which bones can be more easily measured e.g. skull, foot, part of arm/leg etc. Ask children to use these ideas to create a question to be investigated, e.g.
Are adult heads bigger than children's heads?
Do older children have longer arms/bigger feet etc?
Am I/Are you a square? (look at arm span versus height)
Ask children to explain how they will answer their question. Support them to carry out their **pattern seeking enquiries** to answer their own questions.
See full plan on share-point: 'skeleton qs'

Year 3: Animals including humans

SCIENTIFIC CONTEXT: Biology

Theme 2: Skeletons cont.

Starter:

Recap activity

Main:

Substantive knowledge

From the tigtag website, download the 'build a skeleton activity sheet' (enlarge this to A3) and 'human skeleton labelled diagram': https://cdn-media.tigtagworld.com/learning-materials/life-processes/body-systems/activity-sheets/Build_a_skeleton_Activity_sheet.pdf

Activity can be done as whole class, or in groups.

- Display the outline of the human body on a classroom wall. Share the bones and labels out randomly around the class. Ask the children to come and attach their bones and labels (starting with the head) to the outline of the human body to build a skeleton.
- Tell the children that a number of the names of bones may be unfamiliar to them. They are not expected to know and remember all the names, but rather try to discover as much about the skeleton as they can. Give the children plenty of opportunity to move bones and labels around as the skeleton builds.
- When the spine is added, introduce the word "vertebrae" and point out that all animals with a backbone are called vertebrates. Those that do not have a backbone are called invertebrates.
- Once all the bones have been added, display the Human skeleton (labelled) diagram on the

Plenary/assessment:

Disciplinary knowledge

Grouping and comparing

Working scientifically objective: classifying data

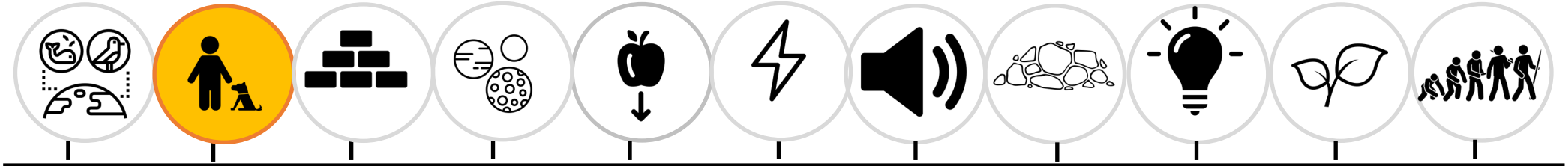
Explain: Not all animals have skeletons like ours. We can classify living things depending on if they have a back bone (spine) or not. We call these vertebrates or invertebrates. A further classification of skeletons comes from if an animal has a skeleton and where it is. All vertebrates have an endoskeleton. However invertebrates can be divided again between those with an exoskeleton and those with a hydrostatic skeleton.

Research different animals and classify/group into. Lower ability could just classify into vertebrate and invertebrate, MA/HA could further classify those with an exoskeleton and those with a hydrostatic skeleton. Here are some examples of animals you could research:

- Elephant,
- Jelly fish,
- Crab,

Year 3: Animals including humans

SCIENTIFIC CONTEXT: Biology



Theme 3: Joints and muscles

Starter:

Recap activity:

Odd one out- https://explorify.uk/en/activities/odd-one-out/funny-bones

Main:

Substantive knowledge

Work through videos and activities on tigtag: https://www.tigtagworld.co.uk/mindmap/#/lessons/CLASS00332/activities/main

Plenary/assessment:

Disciplinary knowledge:

Working scientifically objective: recording findings using labelled diagrams.

Create a model of the elbow joint in pairs of groups (follow link for all resources: https://www.stem.org.uk/resources/elibrary/resource/35233/human-body-game#&gid=undefined&pid=5)

In their books, pupils to draw a diagram of their model when the muscle is relaxed and when it is contracting and label (e.g use knowledge from previous lesson to label bones). Alongside the diagram, pupils write a short explanation about why we need muscles and what they do.

(e.g. Where one bone meets another we have a joint; these are essential for movement. Where there are joints, muscles control the movement. However, muscles can only pull on a bone; they can't push it. We need muscles to move.)

Complete KWL grid