Year 5: Living things and their habitats

SCIENTIFIC CONTEXT: Biology

KEY VOCABULARY:

Life Cycle	A series of stages a living thing goes through during its life
Sexual reproduction	A form of reproduction in which genetic material from two individuals of opposite sexes mixes to create off-spring.
Asexual reproduction	A type of reproduction that creates offspring that are genetically identical to the parent
Fertilise	the part of the reproductive process when the male and the female sex cells fuse together
Reproduce	the process by which living things produce offspring
Egg	a single female reproductive cell
Live young	Most mammals give birth to live young (instead of lay-ing eggs like birds or reptiles)
Metamorphosis	a process some animals go through to become adults. It is a series of physical changes.
Plantlets	a small, undeveloped plant.
Runners	Stem like growths extending from a mother plant's growing point,
Cuttings	a technique for reproducing plants asexually

As Scientists we will...

Pupils should be taught to describe the differences in the life cycle of a mammal, an amphibian, an insect and a bird.

Pupils should be taught to describe the life process of reproduction in some plants and animals.

Working Scientifically:

Pupils should be taught to:

Record data using scientific diagrams and labels,

Report and present findings from enquiries, in oral and written forms such as displays and other presentations, using appropriate scientific language.

Notable Scientist: Jane Goodall

Key Questions

1) **What are the differences in the life cycles of a mammal, an amphibi-an, an insect and a bird?**

2) **Can you describe life process of reproduction in a some plants and ani-mals?**

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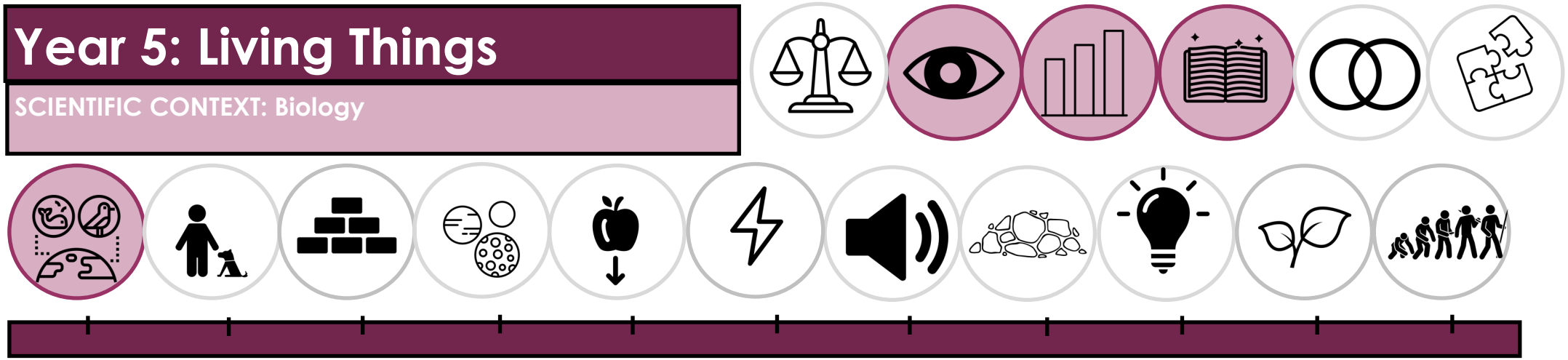

What I need to know:

As part of their life cycle, plants and animals reproduce. Most animals reproduce sexually. This involves two parents where the sperm from the male fertilises the female egg. Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be born live, such as babies or kittens, and then grow into adults. In other animals, such as chickens or snakes, there may be eggs laid that hatch to young which then grow to adults. Some young undergo a further change before becoming adults e.g. caterpillars to butterflies. This is called a metamorphosis. Plants reproduce both sexually and asexually. Bulbs, tubers, runners and plantlets are examples of asexual plant reproduction which involves only one parent. Gardeners may force plants to reproduce asexually by taking cuttings. Sexual reproduction occurs through pollination, usually involving wind or insects.

Opportunities for science capital

Visit from a vet (potential for parents to come in).

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 topics, pupils will be able to describe the differences in the life cycle of a mammal, an amphibian, an insect and a bird and the life process of reproduction in some plants and animals. Pupils should also know who Jane Goodall is and how she has contributed to the world of science.

Pupils will be able to record data using scientific diagrams and labels as well as report and present findings from enquiries, in oral and written forms such as displays and other presentations, using appropriate scientific language.

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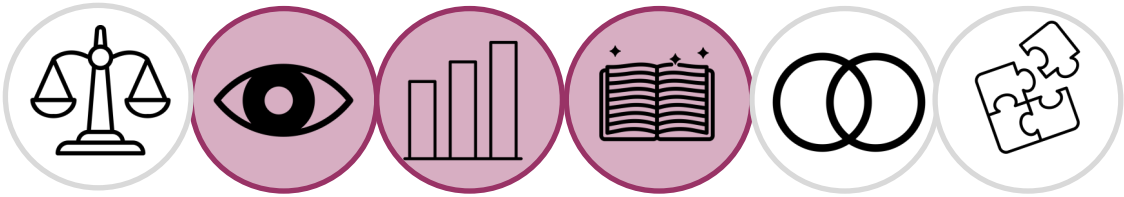

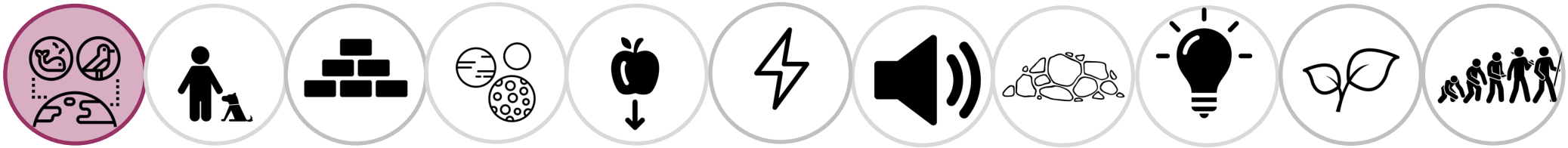

Theme 1: Reproduction in plants, sexual.

Starter

Prior learning to recap with Nando's spicy take away:

Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans)

Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)

Complete KWL grid.

Main

Substantive knowledge:

In year 3 children will have studied the life cycle of a plant. They will now be learning about the pollination and fertilisation stages in more detail and the specific parts of the flower where these stages take place.

Using the presentation from https://ypte.org.uk/lesson-plans/living-things-and-their-habitats-year-5-plant-reproduction, recap the life cycle of a plant and look at the parts of a plant diagram. Work through the following slides studying the parts of a plant and their function (stop at asexual reproduction slide), using the accompanying teacher input from: file:///C:/Users/sarah.johnstone/AppData/Local/Temp/Temp1_Plants-Yr5.original.zip/Plants-Yr5/PlantsYr5LessonPlan.pdf

Using lilies, or tulips, children dissect flowers, identify and label each part of the plant (male and female).

Now focus on the information about pollination and fertilisation at the end of page 3 in the teacher input. Watch video from https://www.bbc.co.uk/bitesize/topics/zxfrwmn/articles/zfn6t39 to reinforce learning.

Plenary / assessment

Demonstrate knowledge of sexual reproduction in plants by presenting pollination and fertilisation process in a comic-strip style.

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Theme 1: Reproduction in plants, asexual.

Starter

A quiz to recap on what the children learned in Year 3 about the main parts of a plant and the life cycle processes of pollination, seed production, seed dispersal and germination.

Check potatoes and onions from previous lesson and draw diagrams with labels following observations.

Main

Substantive knowledge:

Using the presentation from https://ypte.org.uk/lesson-plans/living-things-and-their-habitats-year-5-plant-reproduction, work through slides on asexual reproduction. Emphasise the fact that this is different sexual as only one parent plant is required and the plantlet will be identical to the one parent.

Disciplinary knowledge:

Observation over time

Working scientifically objective: recording data using scientific diagrams and labels

Set up two observations over time, one showing natural asexual reproduction, another demonstrating artificial asexual reproduction in plants.

1) In groups, children leave potatoes over time and observe tubers growing.
2) In groups, use artificial asexual reproduction to re-grow spring onions and observe changes over time.
3) Children to keep a track of their observati with labels.

Plenary / assessment

Discuss:

What is the difference between sexual and asexual reproduction?

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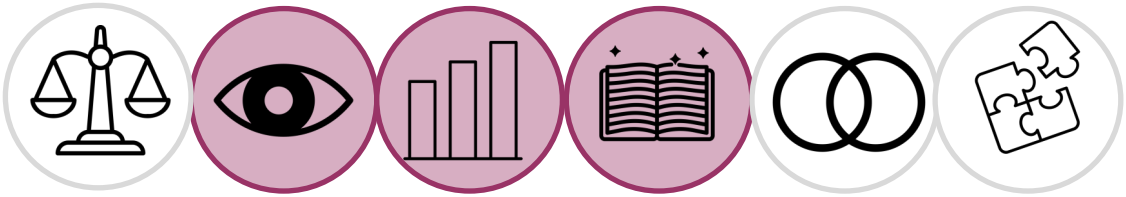

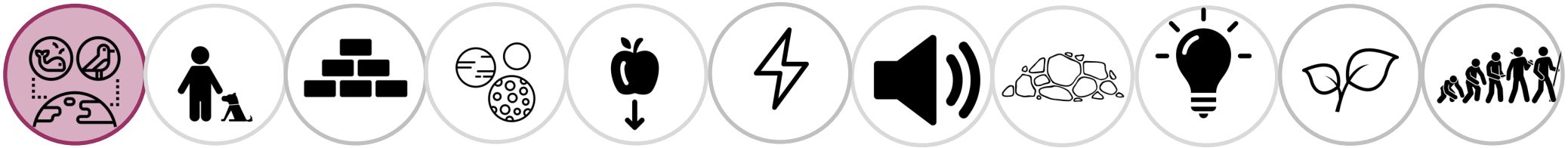

Theme 2: Reproduction in animals

Starter

Recap:

Explain to an alien how plants reproduce both sexually and asexually.

Observe and draw progress made with potato tubers and spring onions.

Main

Substantive knowledge:

Follow full lesson including videos from: https://onedrive.live.com/view.aspx?resid=54CF08BDFC25132B!23367&ithint=file%2cpptx&authkey=!ALzaYeXBxJP-oYU

Disciplinary knowledge:

Research enquiry

Working scientifically objective: Report and present findings from enquiries, in oral and written forms such as displays and other presentations, using appropriate scientific language.

Ask children to research the life cycles of a bird, insect, amphibian and mammal using a range of secondary sources. This could be in small groups or individually. Discuss possibilities for presenting their research (if possible, provide a purpose e.g. presenting to younger children/parents etc.)

See TAPS for full plan: life cycles

Plenary / assessment

Children could choose to make a model, a mime/drama, a rap/song or a poster/book. Agree on criteria for successful presentation of research e.g. clear order to life cycle, comparison between two life cycles, use of scientific vocabulary etc. Children present their research to the intended audience. Groups could peer assess against agreed success criteria.

Complete KWL grid.