

Year Group: 5	Main Curriculum Area: Science	Topic Area: Living things & their habitats	CC Links: SMSC (Jigsaw)	
Vocabulary	life cycle, life span, reproduction, sexual, asexual, runner, embryo, metamorphosis, pupa, larva, chrysalis, caterpillar, tadpole, hatchling, fledgling, insect			

Knowledge (for this lesson)		- Know that the life cycle of a living thing is a series of stages of development starting with a fertilized egg in animals or a seed in many plants - To describe the life process of reproduction in some plants and animals by exploring sexual reproduction in plants.			
Common misconceptions (if relevant to this lesson)		- all plants start out as seeds - all plants have flowers - plants that grow from bulbs do not have seeds			
Working scientifically (if relevant to this lesson)		Making observations (of actual flowers); recording and presenting evidence (labelled diagram)			
	Enquiry Question	Activate and Teach	Practice and Apply	Reflection	Resources
Lesson 1	What are the parts of a flower?	NB: Generally this lesson contains quite a lot of recapping on the previous learning (mainly from year 3) ACTIVATE – Use the EQT Yr3 plants kahoot as a whole class (cdn answering on whiteboards) to recall knowledge from Year 3 and challenge any misconceptions. Parts of a Flower: Children recap what they learnt in Year 3 about the parts of a flower and their function. Follow through powerpoint to cover the parts of a flower in detail. Children complete practice task 1 and then apply task 1.	Practice Task 1 – Cdn to cut out names of the part of flowers and try to label the different blank flowers provided. Work in pairs. Mix them up and then swap to another group to solve it again. Cdn to also try and identify the parts on the actual flowers provided. Apply task - Draw and label a flower (SEN can use example drawing used in practice task 1) and annotate the purpose of each part of the flower. Encourage children to name the flower if they can. EXTRA: If you have a flower / plant they could have a go at dissecting and finding some of the parts.	Try Y5 kahoot questions 2, 3 and 10 as a whole class	Powerpoint Task sheets Flowers (daffodils, lilies or tulips or flowers around school)

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Common misconceptions (if relevant to this lesson)		- all plants start out as seeds - all plants have flowers - plants that grow from bulbs do not have seeds			
Working scientifically (if relevant to this lesson)		Answering questions and concluding (sorting evidence into pollination categories);			
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Lesson 2	How do plants reproduce?	ACTIVATE – Retrieve parts of a flower from last lesson (see ppt). Follow ppt to explain methods of pollination using the information and the pictures. Cdn to complete practise and apply task to sort pictures and statements into the correct columns. Then complete teaching from ppt to explain pollination as part of sexual reproduction vs asexual reproduction in plants. Check learning via hinge questions (see ppt). Explain Apply Task 2 (Practical task on ppt) - cdn to try and regrow spring onions.	Practise Task: Cdn to cut out plants (add in real plants if available) and statements and have a go at sorting them between insect and wind pollinated plants in pairs. Mix them up and swap groups. Explain in pairs why the plants/statements are sorted that way. Apply Task: Chn to finalise tabular split of plants/statements between insect and wind pollinated. EXTRA: What is the benefit of a plant being able to self pollinate? Apply Task 2: Chn to set up investigation to regrow spring onions from roots of parent plant (see task on ppt).	Discuss how the cdn expect the spring onions to change/grow.	Tasks Powerpoint Examples of wind and insect pollinated plants; Spring onions

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Common misconceptions (if relevant to this lesson)		- all plants start out as seeds - all plants have flowers - plants that grow from bulbs do not have seeds			
Working scientifically (if relevant to this lesson)		Making observations (of asexual plant growth); Recording and presenting evidence (of different life cycles)			
	Enquiry Question	Activate and Teach	Practice and Apply	Reflection	Resources
Lesson 3	What is the difference between sexual and asexual reproduction?	ACTIVATE – Chn need to consider the differences between sexual and asexual reproduction (provide them with cut outs so they can sort them into those that relate to sexual and those that relate to asexual reproduction in pairs). Cdn to explain to partner how they know which ones relate to which form of reproduction. (reveal answers via ppt) Discuss how the spring onions have grown from last week – how is this possible? Which one has grown the most? Why might that be? (longer roots/water changed more regularly/exposed to more sunlight) Explain Apply Task – drawing the life cycle of a sexually reproducing flowering plant. Use ppt to support.	Activate/Practise Task: Differences between sexual and asexual reproduction: Children to sort differences into sexual vs asexual reproduction and stick into book. Cdn to add plant examples if possible for each side. Apply Task: All to draw the life cycle of a flowering plant using sexual reproduction.	As a class, add to the life cycle of the plant, the differences when asexually reproducing.	Tasks Powerpoint Spring onions continued

Knowledge (for this lesson)		- Know that in amphibians (e.g. frogs) a fertilized egg develops into an embryo and then hatches into a tadpole; the tadpole develops adult characteristics, metamorphoses into the adult form after which it can reproduce and the cycle can begin again - Know that in many insects (e.g. butterflies) a fertilized egg develops into wingless feeding form called a larva (caterpillar); the larva feeds then later becomes a pupa (chrysalis) with a protective cocoon; inside this cocoon, the pupa metamorphoses into the adult butterfly after which it can reproduce and the cycle can begin again (see the diagram below)			
Common misconceptions (if relevant to this lesson)		Tadpoles and caterpillars are different species to frogs and butterflies.			
Working scientifically (if relevant to this lesson)		Recording and presenting evidence (of different life cycles); Evaluating (comparing life cycles)			
	Enquiry Question	Activate and teach	Practice and apply	Reflection	Resources
Lesson 4	What are the similarities and differences between the life cycles of amphibians and insects?	ACTIVATE: Check on spring onions 'planted' 2 weeks ago –what do you notice? Cops & Robbers - What are the differences between sexual and asexual reproduction in plants? Check answers using knowledge organiser to support. Show BBC video to explain how every living thing has a life cycle: https://www.bbc.co.uk/teach/class-clips-video/science-ks2--ks3-the-life-cycles-of-different-organisms/zvh8qp3 Metamorphosis: Explain metamorphosis using the Lesson Presentation plus knowledge organiser definition. Animals That Change: Children talk about animals they know that undergo metamorphosis, using the pictures on the Lesson Presentation to prompt them. Use HINGE QUESTION to clarify learning and deal with any misconceptions. Explain Practice Task: Amphibians and Insects: Children use the cut outs to work in pairs to create an amphibian and an insect life cycle. Act these out to each other. Discuss what the chn have found out. Share new knowledge or facts and as a pair, both life cycles to be stuck in books (only one life cycle per book but both covered within the pair). Bring the discussion round to thinking about generating some similarities and differences between the animals. Record a couple as a class on the w/b and then children complete apply task. Vids to support if wanted: Frog lifecycle: https://www.youtube.com/watch?v=AMs3waaW75g (start at 43 seconds in) Butterfly: https://www.youtube.com/watch?v=kVm5k99PnBk (linked on powerpoint)	Practice task: Amphibians and Insects life cycle. Chn to use cut up descriptions and pictures to create an amphibian and an insect life cycle in a pair (split them so each person sticks one of the life cycles in their book); cdn act out the life cycles to each other. Use actual class caterpillars to support. Apply task: To identify various similarities and differences between the life cycles of amphibians and insects.	Game: In pairs. Chn choose an animal (from the lesson) and draw it in one of the stages of metamorphosis. Partner has to guess the animal and the stage it is at (see ppt)	Cops and robbers sheet Powerpoint Cut out life cycles Task sheet Caterpillars and butterfly garden

Knowledge (for this lesson)		Know that in birds (e.g. robins) a fertilized egg hatches in a nest (a hatchling) and is fed by its parents until it is ready to fly (i.e. becomes a fledgling); it then leaves the nest and grows into an adult after which it can reproduce and the cycle can begin again			
Common misconceptions (if relevant to this lesson)		All eggs contain mini birds.			
Working scientifically (if relevant to this lesson)		Recording and presenting evidence (of different life cycles); Evaluating (comparing life cycles)			
	Enquiry Question	Activate and teach	Practice and apply	Reflection	Resources
Lesson 5	What is the life cycle for a bird?	ACTIVATE – Pictionary to include flower parts, plant life cycle, amphibian life cycle and insect life cycle. Cdn to add comments around each picture (see ppt). What is an Egg? Explain the role of eggs in a bird's life cycle. Children discuss parts of an egg (provide print out of the sheet) and crack open an egg using the visualiser so all can see it on the screen – what parts can we identify? (see ppt to support) Life Cycle of a Bird: Watch: Can you name the stages of the life cycle? - YouTube and compare the life cycle of a chicken to that of a magpie Magpie Life Cycle - The RSPB Use HINGE QUESTIONS as per powerpoint to check understanding before tasks. Practise task: Children try to order the stages of the life cycle of a bird shown on the Lesson Presentation (provide cut outs, one per table group). Reveal the correct order and discuss the stages. Can also make a bird life cycle flip book. Explain the tasks (as shown on ppt)	Practice task: Cdn to order the stages of a bird life cycle and make a bird life cycle flip book Apply task: Cdn to then use flip book to describe the life cycle of a robin (also shown on the ppt pictorally) Extension: Compare and contrast the bird life cycle with the insect or amphibian life cycle from last week	How do bird eggs differ from amphibian and insect eggs and why?	Pictionary Bird life cycle flip book Eggs

Knowledge (for this lesson)		- describe the differences in the life cycles of a mammal - describe the life process of reproduction in some plants and animals. - Know that in most mammals (e.g. dogs) a fertilized egg develops in the womb into an embryo and is then born and fed on milk before it is weaned onto the food that is adapted to eat; it then develops to maturity in a period called adolescence after which it can reproduce and the cycle can begin again			
Common misconceptions (if relevant to this lesson)		mammals are in eggs inside the mother			
Working scientifically (if relevant to this lesson)		Evaluating (comparing life cycles)			
	Enquiry Question	Activate and teach	Practice and apply	Reflection	Resources
Lesson 6	What is the life cycle of a mammal?	ACTIVATE: Everything _____ knows about the life cycle of living things (see ppt and brain dump starter sheet). TEACH: Work through ppt and discuss the difference between the different mammals (placentals, monotremes and marsupials). Cdn to discuss examples of each that they know. Discuss humans verbally in line with knowledge above but being sensitive to appropriate 'science' learning. Introduce tasks – cdn to work in teams of 3 so they each make a different life cycle wheel to compare.	Practise Task – Chn use the templates to make life cycle wheels for various mammals Apply Task – Compare and contrast the 3 life cycle wheels (verbal – capture main themes on flipchart)	Can you describe the life cycle of a mammal as compared to the life cycle of another class of animals? Smartgrade test for assessment.	Powerpoint Brain dump starter sheet Life cycle wheel templates Poss – ipads / laptops