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IPSWICH BOROUGH COUNCIL
Heritage LOTTERY FUNDED

1 Lifecycles

Life cycles are the different stages of life for a living thing. In science it is usually displayed as a circular diagram showing each stage in words and/or pictures.

A **life cycle** is presented as a circle to show that the process is cyclical from birth, through the different stages of adolescence then into the reproductive stage and starting the cycle again.

Simple life cycle

Most animals including fish, mammals, reptiles and birds have very simple life cycles:

- They are born either alive from their mother or hatched from eggs
- They grow up and no full transformations occur
- These animals have three stages - before birth, young and adult. The young are typically similar to the parent, just smaller. The young slowly ‘grow’ to become adults.

Incomplete metamorphosis

Animals that undergo a metamorphosis such as amphibians like frogs and newts have a slightly more complicated life cycle. They undergo a metamorphosis (a big change) for example:

- **Egg** - they are usually hatched from eggs
- **Larva/tadpole** - they spend their ‘childhood’ under water, breathing with gills
- **Adult** - they grow into adults and move to the land, breathing with lungs

Complete metamorphosis

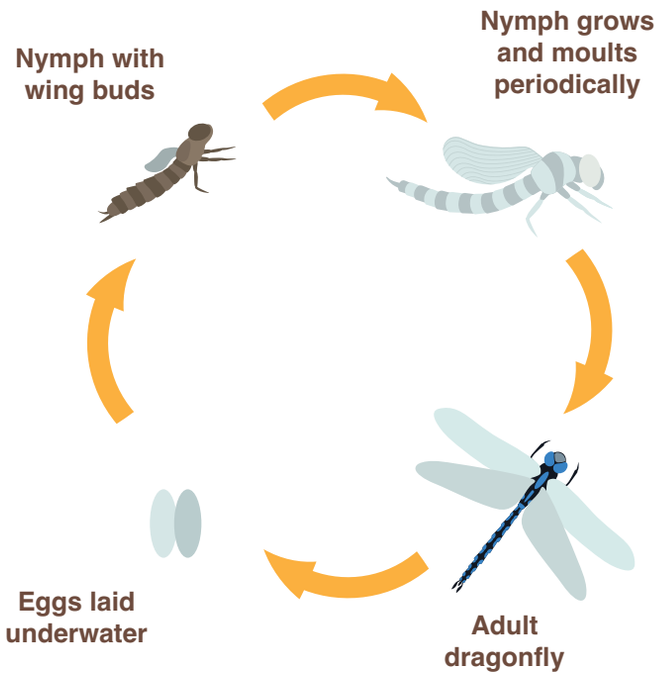
Animals that undergo a complete metamorphosis such as butterflies have four stages in their life cycle and undergo the greatest change of all:

- **Egg** - unborn stage
- **Larva** - young stage, this is when most of the feeding is done (they usually look like worms)
- **Pupa** - inactive (no feeding) stage between larva and adult stages (usually well camouflaged)
- **Adult** - final, breeding stage (they usually grow wings)

Animals that go through a complete metamorphosis go to bed looking one way and wake up a completely different creature Wow!

Examples of life cycles that can be observed in Holywells Park

Dragonfly life cycle



LIFE CYCLE
Eggs laid underwater on plant stems. Nymph develops gradually, moulting skin periodically, until at three years, it leaves the water and moults before flying off as an adult dragonfly. The adult then mates and dies in a few weeks time.

FOOD
Nymph: fish and small aquatic animals
Adult: flying insects

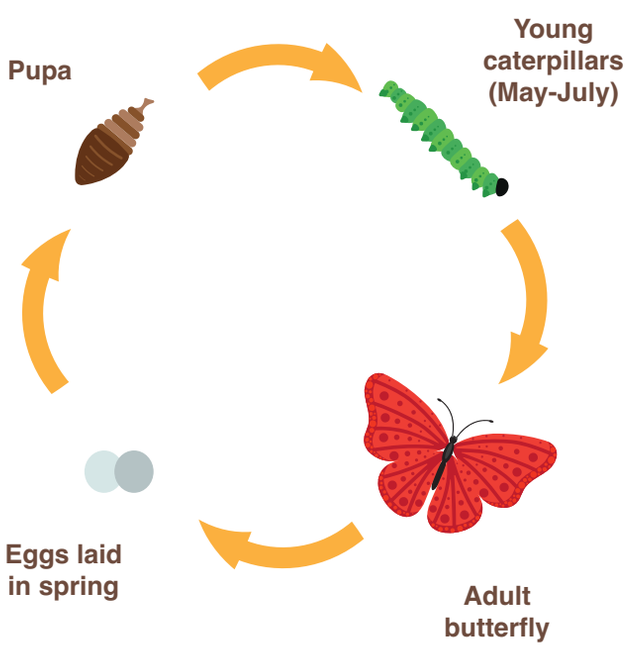
HABITAT
Woodland, parks, gardens. Needs ponds and pools to breed in

Butterfly life cycle

LIFE CYCLE
Eggs laid on caterpillars foodplant. Caterpillar hatches then later pupates inside a crysallis before emerging as an adult. The butterfly overwinters as an adult.

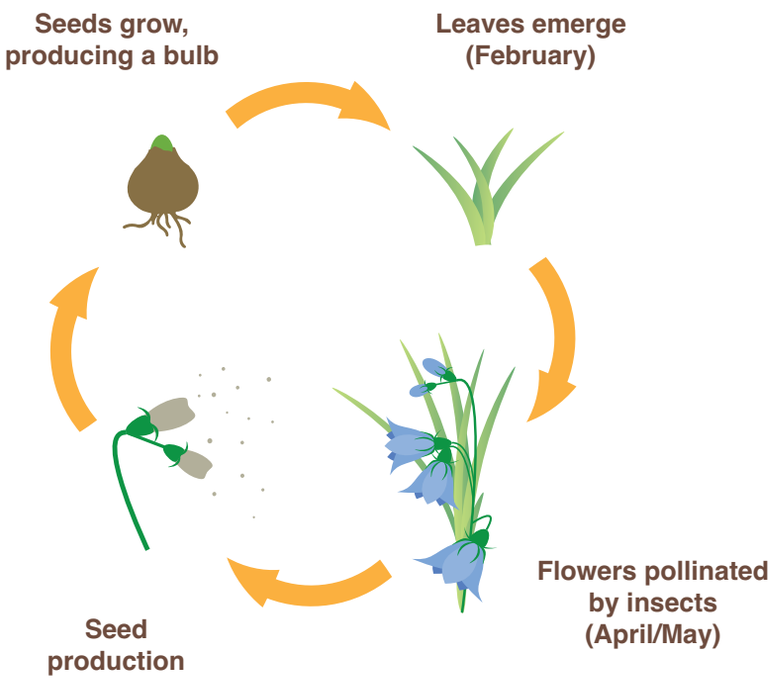
FOOD
Lava: stinging nettle
Adult: nectar from wide range of flowers

HABITAT
Woodland margins, hedgerows, gardens, parks, and other areas where foodplant grows



Examples of life cycles that can be observed in Holywells Park

Bluebell life cycle



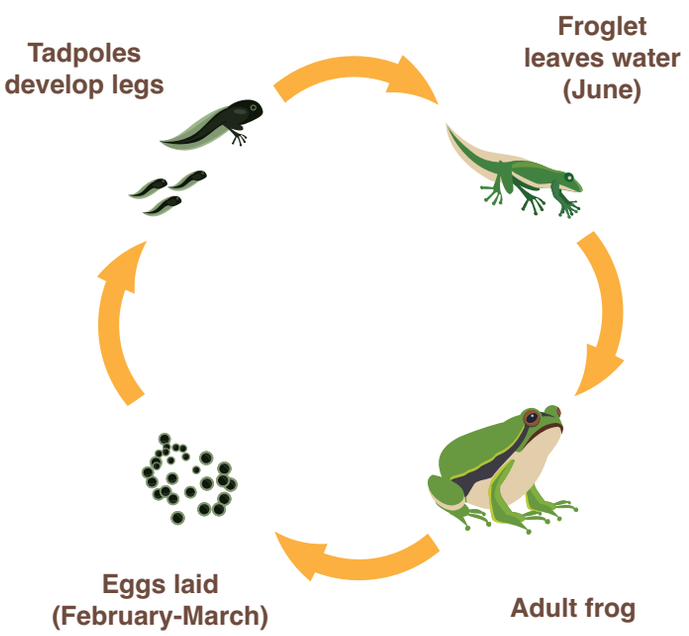
LIFE CYCLE
Individual plant starts as a seed, then develops into a bulb, producing leaves and when strong enough, flowers. Once fertilised or pollinated by insects, the flowers produce seed and in turn, further bluebells.

HABITAT
Woodland, preferring less densely shaded areas

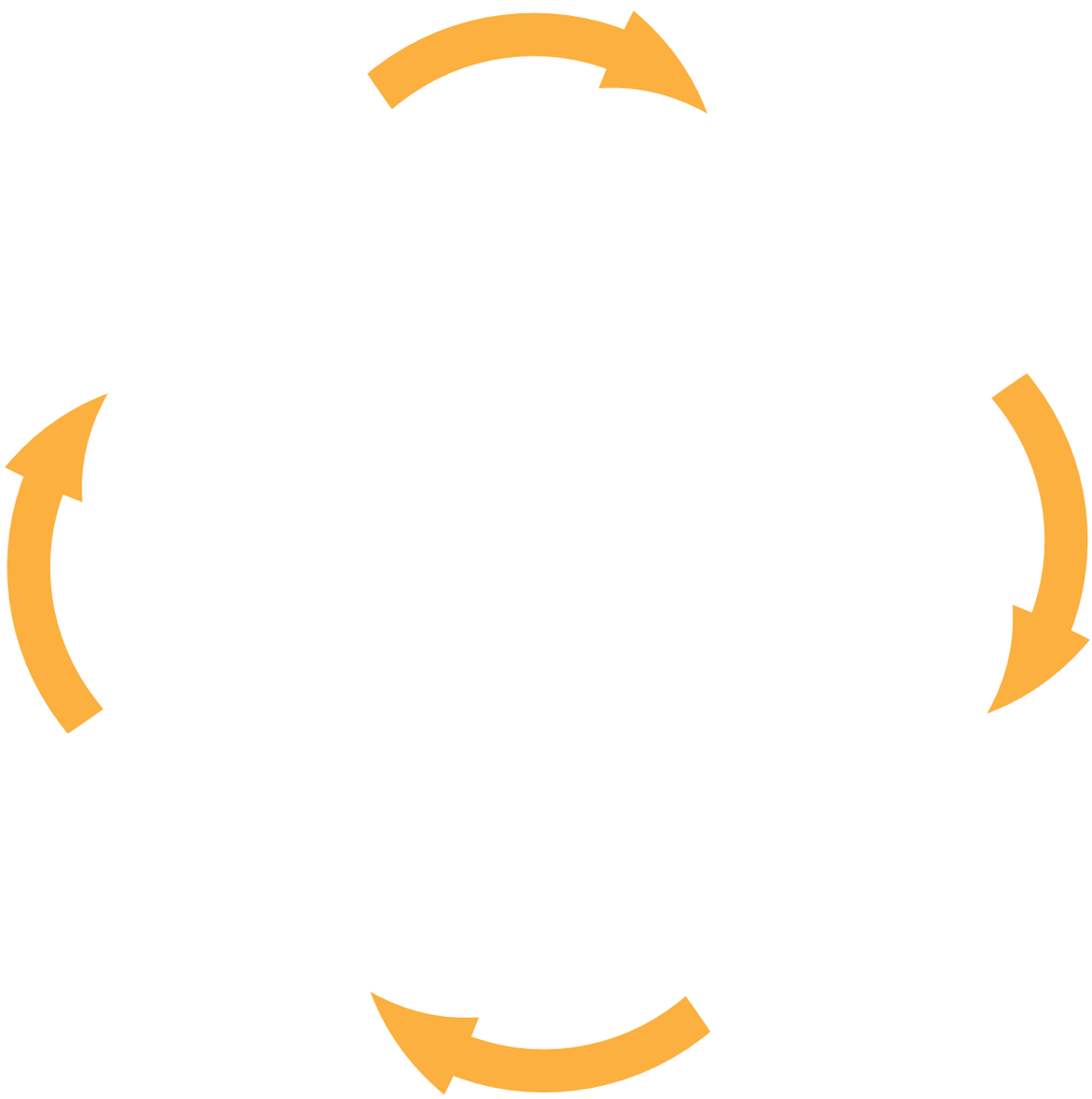
Frog life cycle

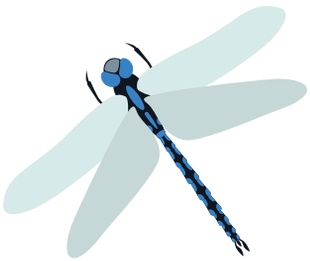
FOOD
Tadpole: algae and soft vegetable matter at first, then small water animals
Adult: insects, slugs, worms and other invertebrates

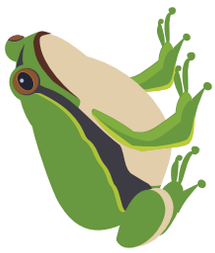
HABITAT
A wide variety of moist places on land - woodland, meadows, gardens and parks. Needs freshwater ponds and pools for breeding and hibernating

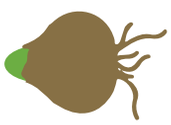


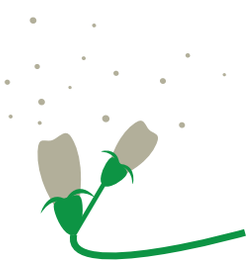
Lifecycle activity sheet











ACTIVITY 1 LIFE CYCLE WHEEL

INTRODUCTION

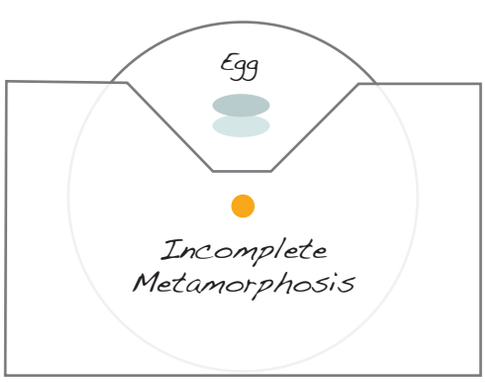
Now that we know about complete and incomplete metamorphosis, we can make a life cycle wheel. Before your visit, you can make this and bring it along to the park to complete by drawing the lifecycles you observe in the park.

MATERIALS

- Two pieces of A4 card or thick paper
- Scissors
- Something circular to draw around
- Paper fasteners

INSTRUCTIONS

1. Fold a piece of card in half.
2. Make a mark in the middle and make a small hole through the two pieces of card.
3. Take inspiration from the previous life cycle images or your observations in the park.
4. On one side of your circle draw the life cycle of the dragonfly around the edge. This will have an egg, a nymph (dragonfly) and an adult.
5. On the other side draw the life cycle of a butterfly. This will have an egg, a caterpillar, a pupa and an adult butterfly.
6. Put your life cycle circle into your folded card. The life-cycle of the dragonfly will be on the side which says Incomplete Metamorphosis. The life cycle of the butterfly will be on the side which says Complete Metamorphosis.
7. Put a paper fastener through the holes in your folded card and card circle, and your wheel is ready to turn (move it anti-clockwise).



REVIEW

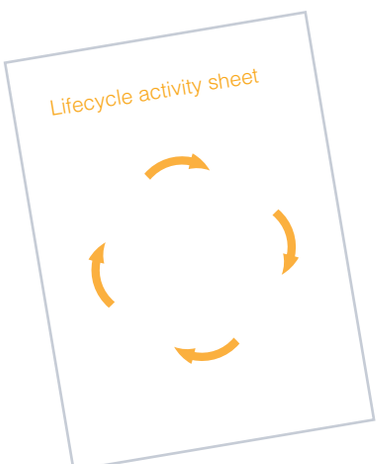
How many lifecycles has your group observed in the park?

ACTIVITY 2 LIFE CYCLES

INTRODUCTION

This activity involves a printed out layout of the life cycle of a butterfly (or your chosen animal) with photos cut out to be fitted into the life cycle in the stages the children believe they go, so they can see the transformation taking place.

To make this activity, reuse the diagrams and pictures by laminating them and use whiteboard markers to write the labels.



MATERIALS

- Laminated copy of the life cycle activity sheet and the photos of the lifecycle stages
- Whiteboard marker
- Tray

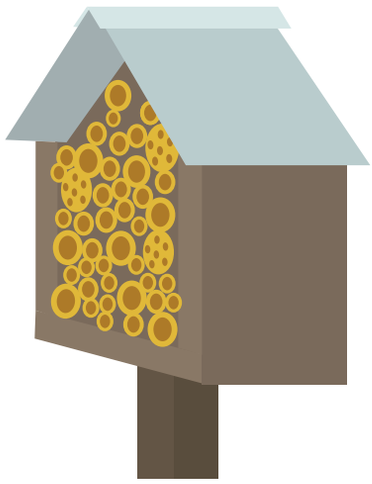
INSTRUCTIONS

1. Divide the group into pairs or threes.
2. Supply each group with a tray containing the activity sheet, photos and whiteboard marker.
3. Ask the children to match the photos to the section of the life cycle that they believe is right and label them.

REVIEW

The children can discuss the changes that are happening to the animals i.e. in a frog it would be the loss of the tadpoles tail and the growth of legs between the tadpole and froglet stages of the life cycle. You can choose whether to have the labels on the diagram already or whether to ask the children to label the diagrams themselves.

ACTIVITY 3 BUG BOXES



INTRODUCTION

Bug boxes can be an important contribution to the wildlife in your neighbourhood. The more we tidy up our gardens, the more we disturb and remove refuges for wildlife, especially pollinating insects. Bug boxes are a neat way of introducing insect-friendly habitats into our gardens - providing valuable places for these bugs to complete their life cycle. There are no limits to how many you can put in your garden and you can choose where they go!

Using easy-to-find scraps of timber, old bamboo canes and old branches, it will cost you very little and provide the perfect habitat for insects. This includes many pollinating and beneficial insects, some of which may also predate on garden pests. We can help by providing refuge for insects at multiple stages in their life cycle. Bug boxes can be as simple as a few sticks and wood fastened together or large and complex including pallets and bricks etc.

The following activity is suitable for children. It is a good design technology exercise as it is primarily woodworking with cheap yet effective methods. Measurements are given as a guideline but it is not crucial to follow them.

To make a bug box for insects and give nature a helping hand in your garden, follow the instructions below.

MATERIALS

- Untreated timber
- Hollow canes such as bamboo
- Pieces of branch or other wood
- Wood saw
- 2.5cm nails
- Hammer
- Drill and wood drill bit
- Screws
- Screwdriver and self-tapping screw
- Flashing tape
- Roof slate or roof logs

This can also be a good recycling project to teach about the different ways we can reuse waste from gardens or diy projects.

INSTRUCTIONS

1. Make a box using untreated timber approximately 2cm thick. You will need two pieces of wood of equal sizes for the sides and a smaller piece to fit as the base. If you're making a pitched roof you will need a protractor to measure 45° angles. Otherwise make a flat roof the same size as the base. It is easy to buy standard lengths but if you can find the right pieces of scrap it is good to recycle!
2. Screw the pieces of wood together, leaving the front open. For an authentic look you can use logs. To make the bug box last longer, paint the outside of the box with a weather-proof paint. If making a pitched roof, cut to size pieces of slate or similar material, and screw three holes in each one, where you want to attach it to the wood. Use clout nails to gently fix the slate to the wood. Cover the join at the top with roof flashing.
3. Cut hollow canes such as bamboo into short lengths to fit in your bug box, sanding off any rough edges. You could also drill holes in pieces of wood or branch, making your holes different sizes to suit different insects. Fit the canes and wood into your box. Once tight, hammer a few extra ones to wedge the holes tight. To make sure they are in tight, tip the bug box upside down and lightly shake it to make sure that none of the content falls out.
4. Drill a hole into the back or the base of your box and fix it on to a fence or wooden post, using a self-tapping screw. Make sure you locate in a sunny location with plenty of access for flying insects.

REVIEW

There are regular events known as ‘wildlife homes events’ where the materials are provided and children can be instructed on site.

The whole life cycle of a solitary bee will take place in the hollow stems of your bug box. The female will clean out a hole, stock it with and pollen and then after laying her eggs, seal it, leaving the young to fend for themselves. If you substitute a few pieces of bamboo for clear plastic tubes you can take them out mid life cycle to show the students.