

## Unit 4L.3: Life cycles of animals and plants



- Life cycles of animals
- Life cycles of plants

### Science Skills

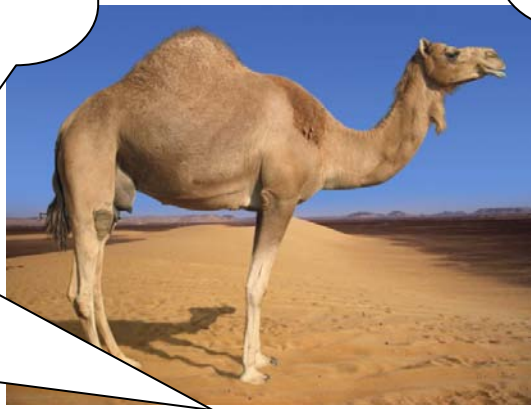
- Observing



### By the end of this unit you should:

- Know that living organisms produce young.
- Recognise the main stages in the life cycle of
  - Humans
  - Animals
- Describe the main stages in the reproduction of flowering plants.
- Illustrate ways in which seeds are dispersed.

**WHAT DO YOU KNOW ABOUT THESE ANIMALS?**  
**Write what you know around the pictures!**



Name:



Name:

4.7.1, 4.7.2, 4.7.3

## Life cycles of animals

Living organisms **produce young** that look like them but are much smaller.

These **young** will grow to become **adults** that look like their parents.

In order to become adults, the young go through many stages of life.

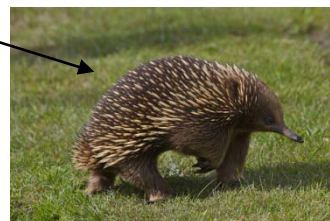
A **life cycle** describes all the stages in a living organism's development



### • Life Cycles of Mammals

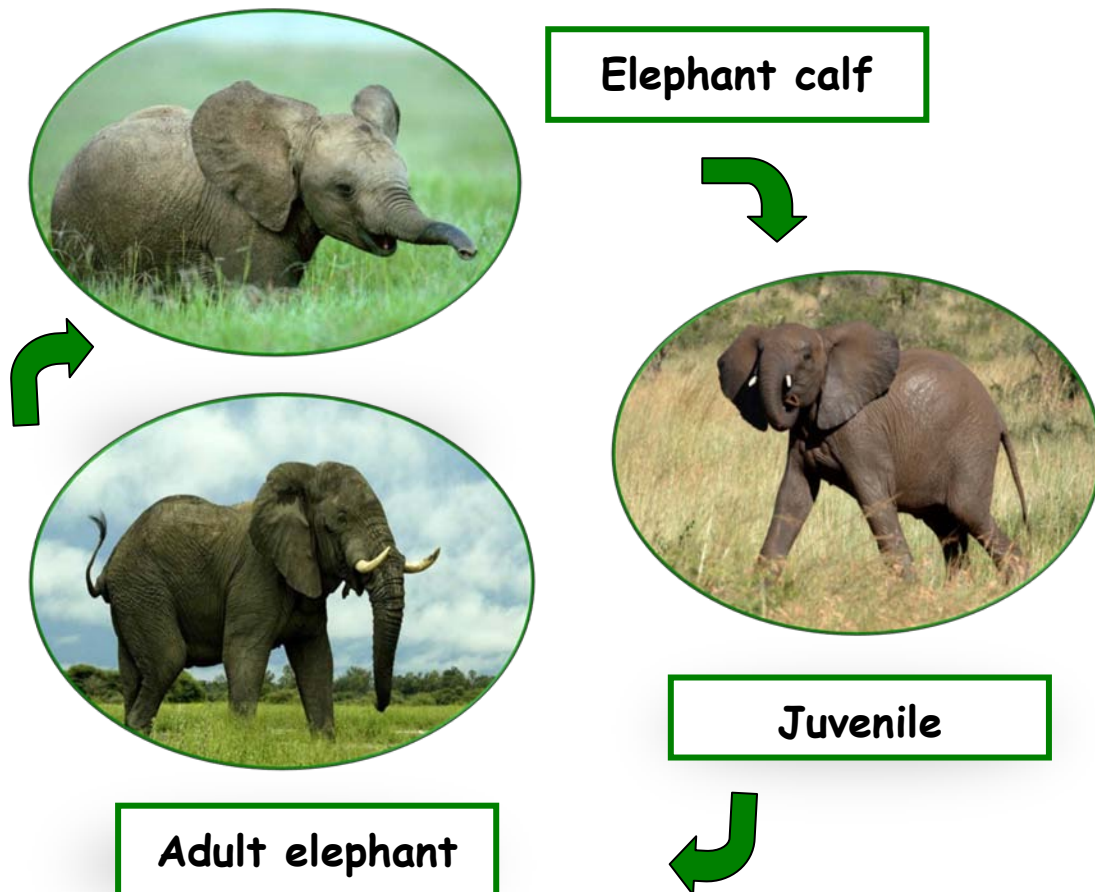
Most mammals\* do not hatch from eggs. The animal grows in a special way in the female's body. Then they are **born live**. When the young are born, the mother produces milk to feed them. The babies need a lot of care. The young mammals grow to become an adult. The adult female can produce a young animal that looks very much like itself. Here are some examples

**\*in fact all mammals that we know of, except the platypus and echidna!**



### a. The life cycle of elephant:

A female elephant gives birth to a calf about 22 months after mating. A **calf** drinks milk from its mother until it is about two years old. All the adults in the group help look after and teach the young elephants.



### b. The life cycle of horse:

A newborn horse is called a **foal**. The mother feeds the foal her milk for a year. Foals can walk, but they have wobbly legs at first. When a horse is one year old, it is called a **yearling**.

Yearling



Adult horse

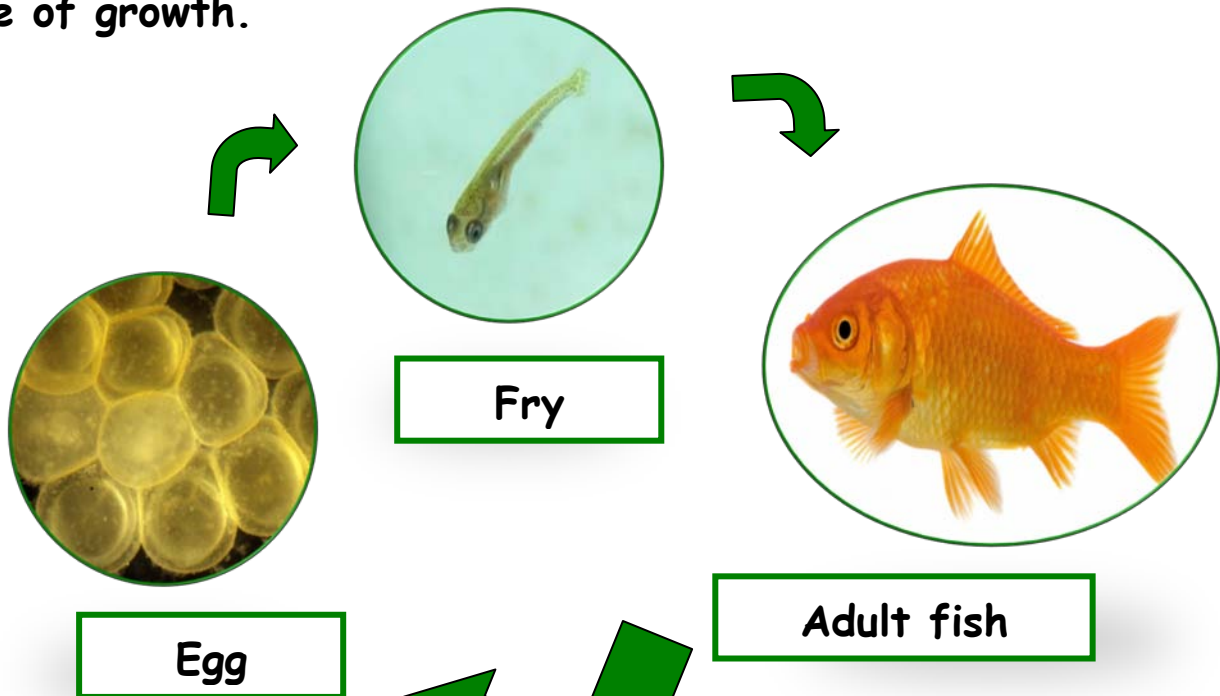


Foal



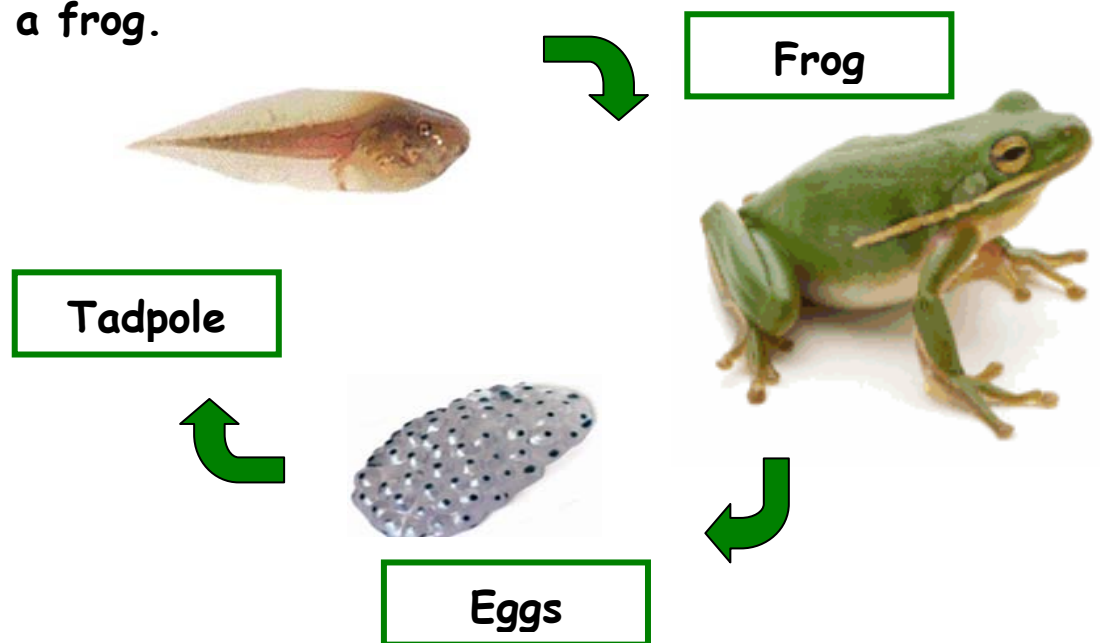
• The life cycle of fish:

Many eggs are produced so that enough young survive to continue the species. When the eggs hatch the young look very much like the adult. The adult is the final stage of growth.



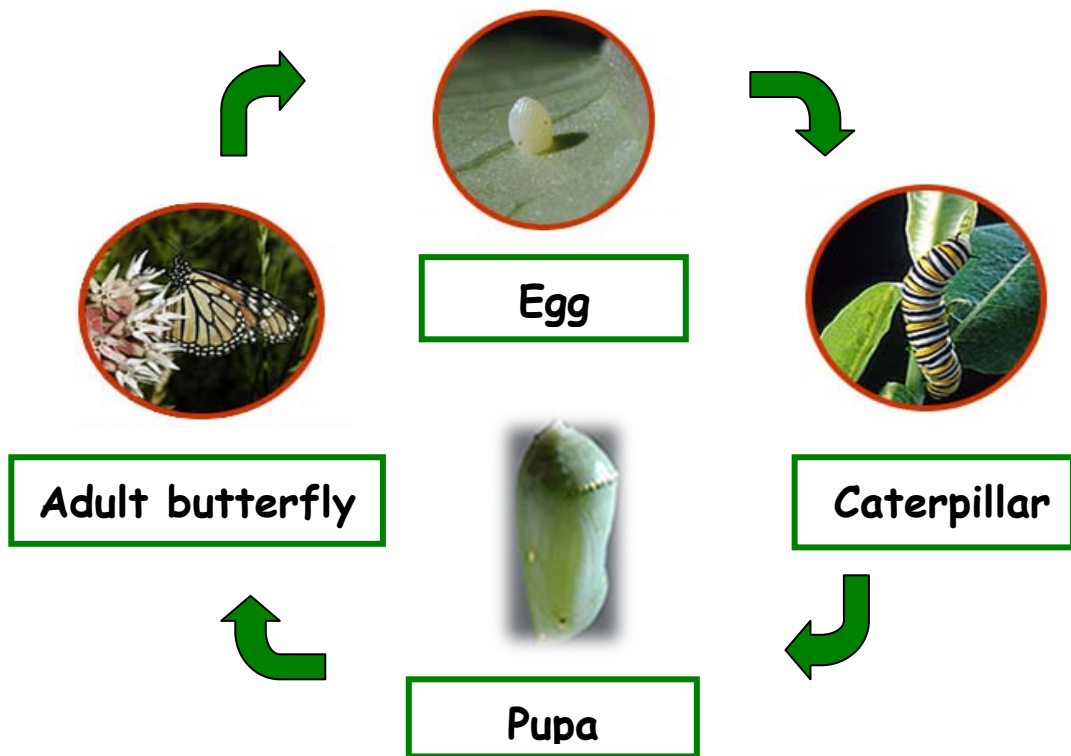
- **The life cycle of a frog (amphibians):**

Adult frogs lay hundreds of tiny eggs covered in a jelly like material. The eggs hatch into tadpoles. They have a big head and a long tail. After a few weeks the tadpoles grow arms and legs. Later, the tadpole's tail shrinks and disappears and the back legs grow. The tadpole has become a frog.



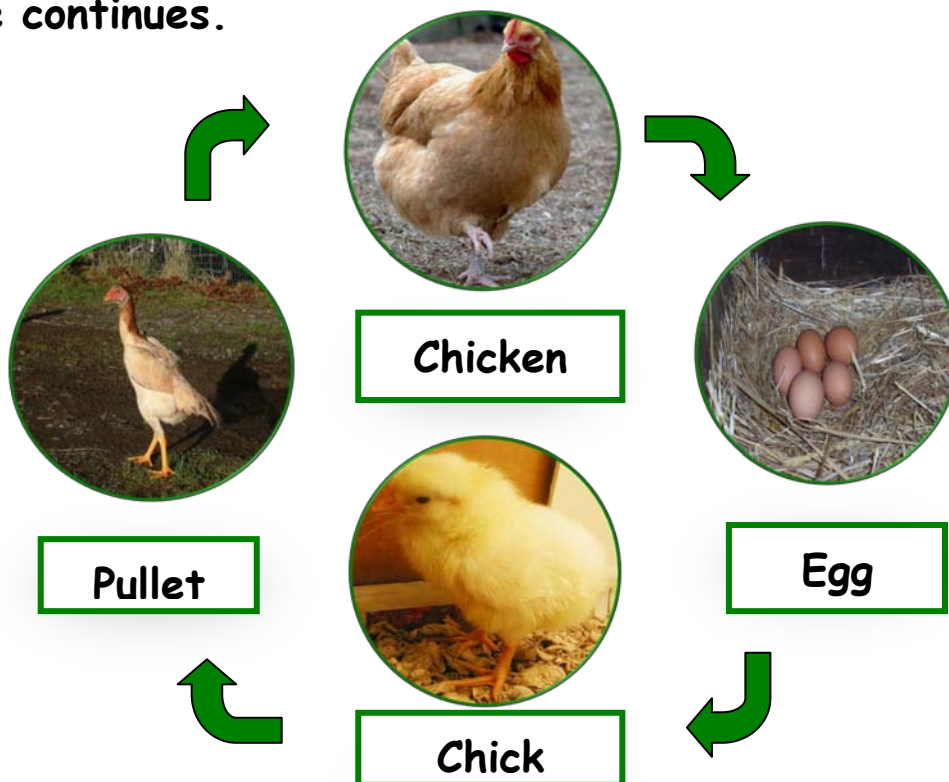
- **The life cycle of a butterfly (insects):**

The egg is the first stage of growth. After hatching, the young insect is called caterpillar. A caterpillar is the second stage of growth. After a certain time it makes a covering for itself. The covering is usually hard. Now the insect is called a pupa. A pupa is the third stage of growth. Inside the covering, the pupa slowly changes. When the changes are complete, the adult insect emerges. This is the fourth stage of growth.



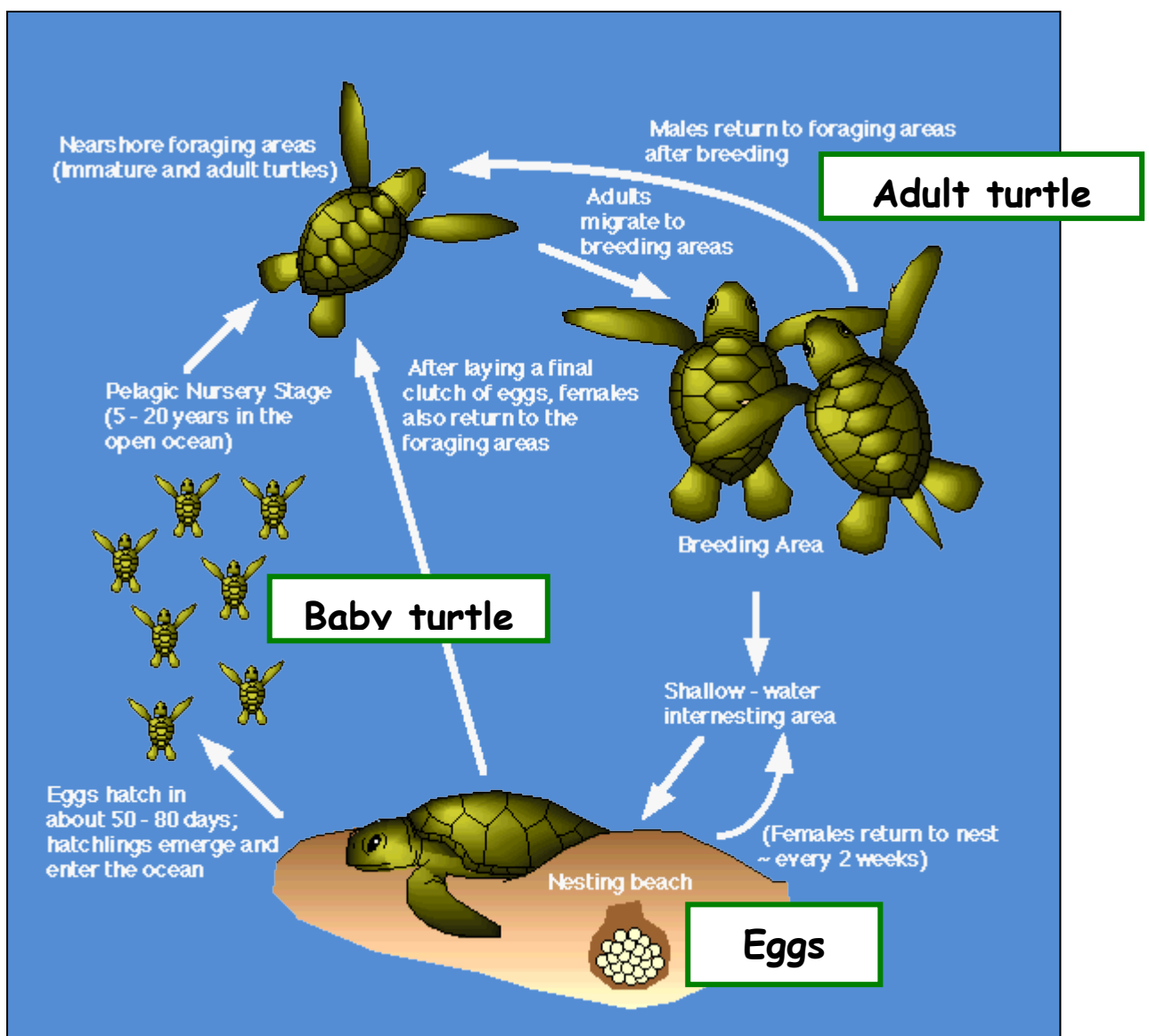
- **The life cycle of a chicken (bird):**

Bird eggs have a hard shell. When the animal has grown enough, it breaks out of the egg. This is called hatching. The new chick quickly grows into a pullet then an adult. The adult female can then lay eggs and the cycle continues.



- The life cycle of a turtle (reptile):

Turtles, like most other reptiles, lay eggs. The turtle eggs have a softer shell that feels like leather. When the baby turtle has grown enough, it hatches. Newly hatched turtles look very much like the adult. The young turtle quickly grows into an adult turtle. The adult female lays more eggs and the cycle continues.





**Activity 1:**

Name two similarities in the life cycle between camel and goat:



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**Activity 2:**

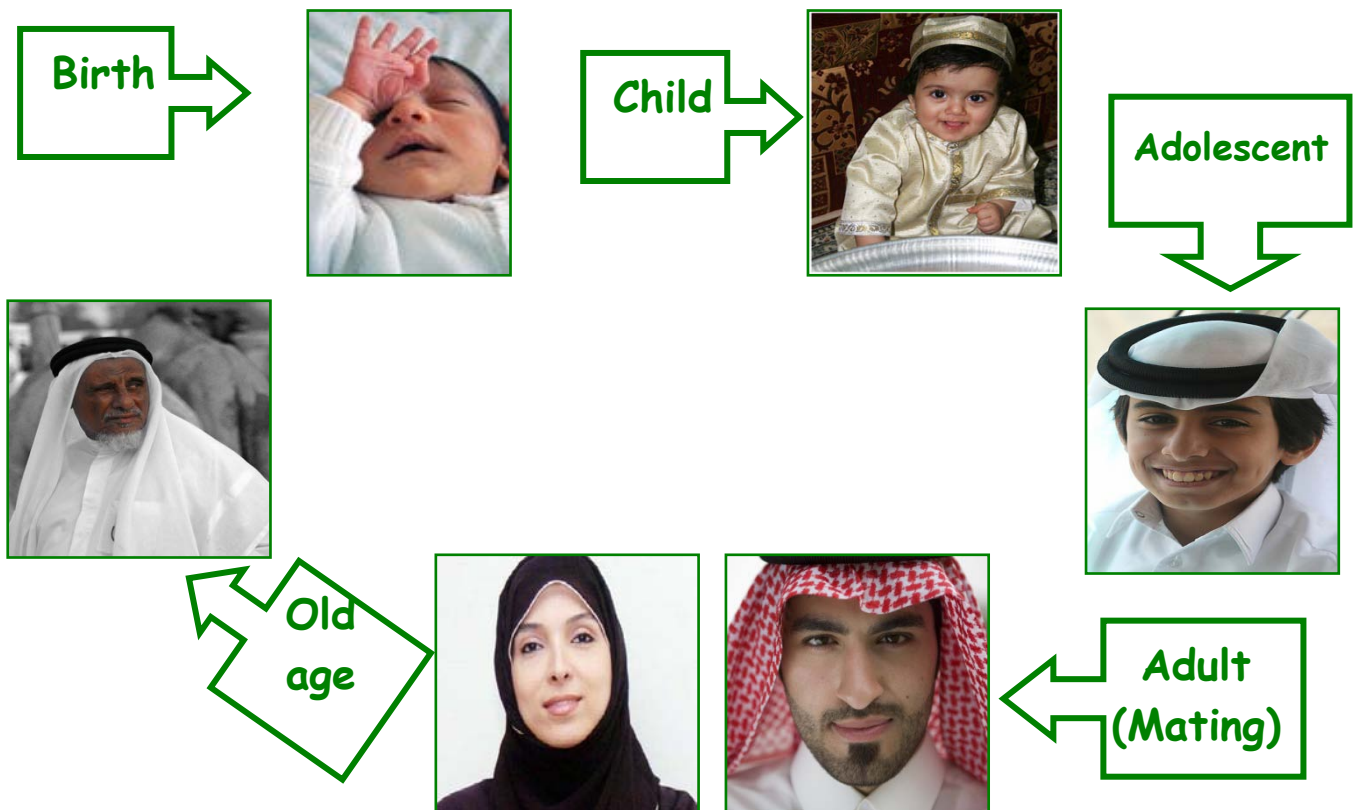
Name two differences in the life cycle between frog and turtle:



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- Life cycle of humans:



- A **new** human **life** starts when a **baby** is born.
- The **adult** father and **adult** mother mate and give **birth** to a **baby** that will then grow to become a **child**.
- The **child** then grows and becomes an **adolescent**.
- The **adolescent** grows to be an **adult** that can mate, a new life cycle starts.
- Meanwhile, the mother and father grow **old** with time and will eventually **die**.

**Activity:** How I have changed

Bring to school photographs of yourself from birth to present, together with any information you have about your weight, height, etc., from birth to the present day. Complete this chart with your parents and other members of your family.

Age	Weight	Height	Hair color	Food/feeding	Able to do
Birth					
1 year					
5 years					

• What was the biggest change from birth to one year?

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• When did you grow the most?

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• At the age of ONE what were you able to do, that you could not do at birth?

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• What would you like to do when you are old?

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**Key terms:**

- Life cycle
- Adult
- Baby
- Adolescent
- Growth
- Death
- Old
- Egg
- Caterpillar
- Pupa
- Tadpole
- Pullet
- Chick

**Project:**

Use your family album and try to construct your own life cycle

**Key ideas:**

- A life cycle describes all the stages in a living organism's development.
- The main stages in the life cycle of humans are: birth, child, juvenile, adult, and old age.
- Recognise the main stages in the life cycle of fish, bird, amphibian, reptile and a mammal.

**Key questions:**

1- Put these three stages of the life cycle of a horse in order:

**Adult Horse, Foal, Yearling**

- 1. -----
- 2. -----
- 3. -----

2- Which organism has a pullet as a stage in its life cycle?

- a) Sheep
- b) Bird
- c) Chicken
- d) Turtle

3- Write the stages of the human life cycle in order

- 1- -----
- 2- -----
- 3- -----
- 4- -----
- 5- -----

4- Write (true) or (false):

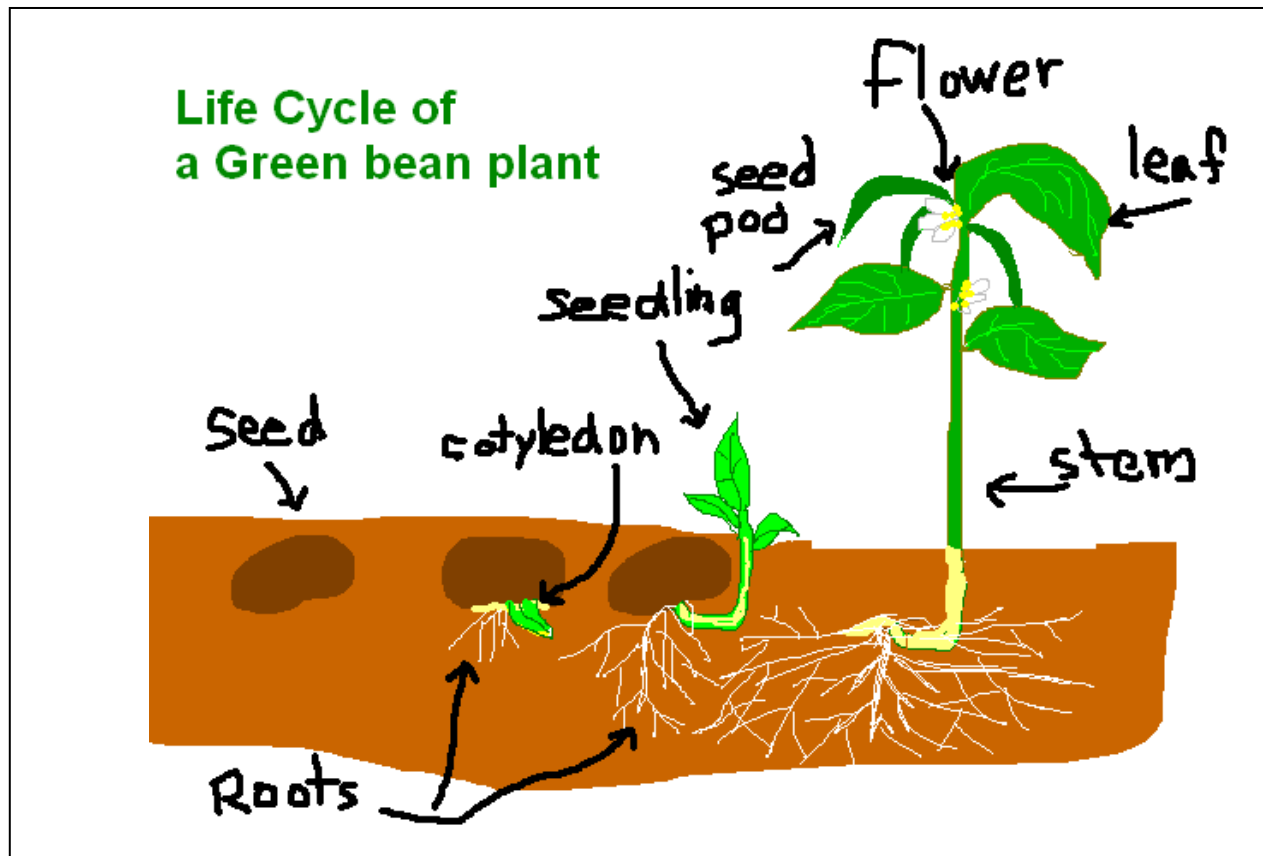
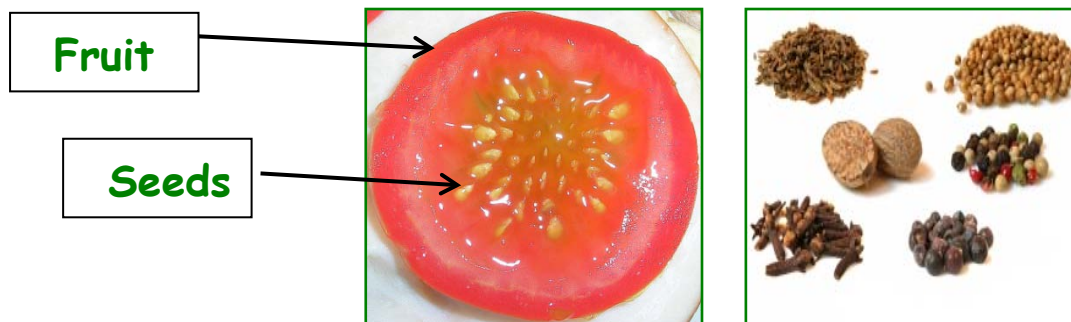
a) A butterfly has 3 stages. The stages are eggs, caterpillar, and butterfly. (       )

5- Name two differences and two similarities in the life cycle between:

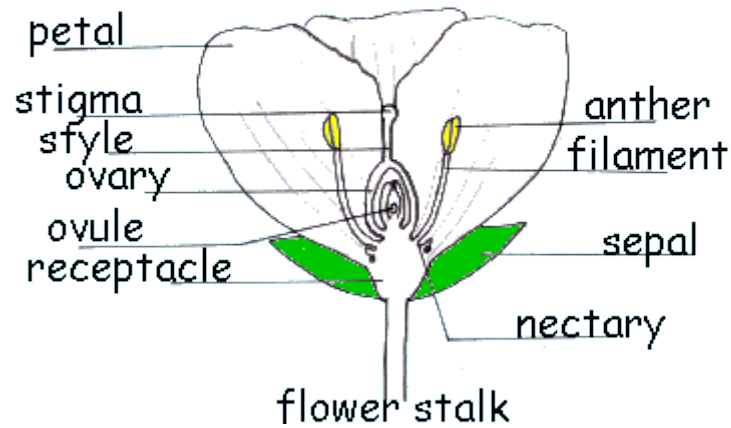
	Similarities	Differences
Fish and reptiles		
Sheep and snakes		

## Life cycle of plants:

- Just like animals, plants are living organisms that also need to **reproduce**
- Flowering plants grow from **seeds** produced by **flowers**.
- Different plants make **seeds** that are different in size, color and type.



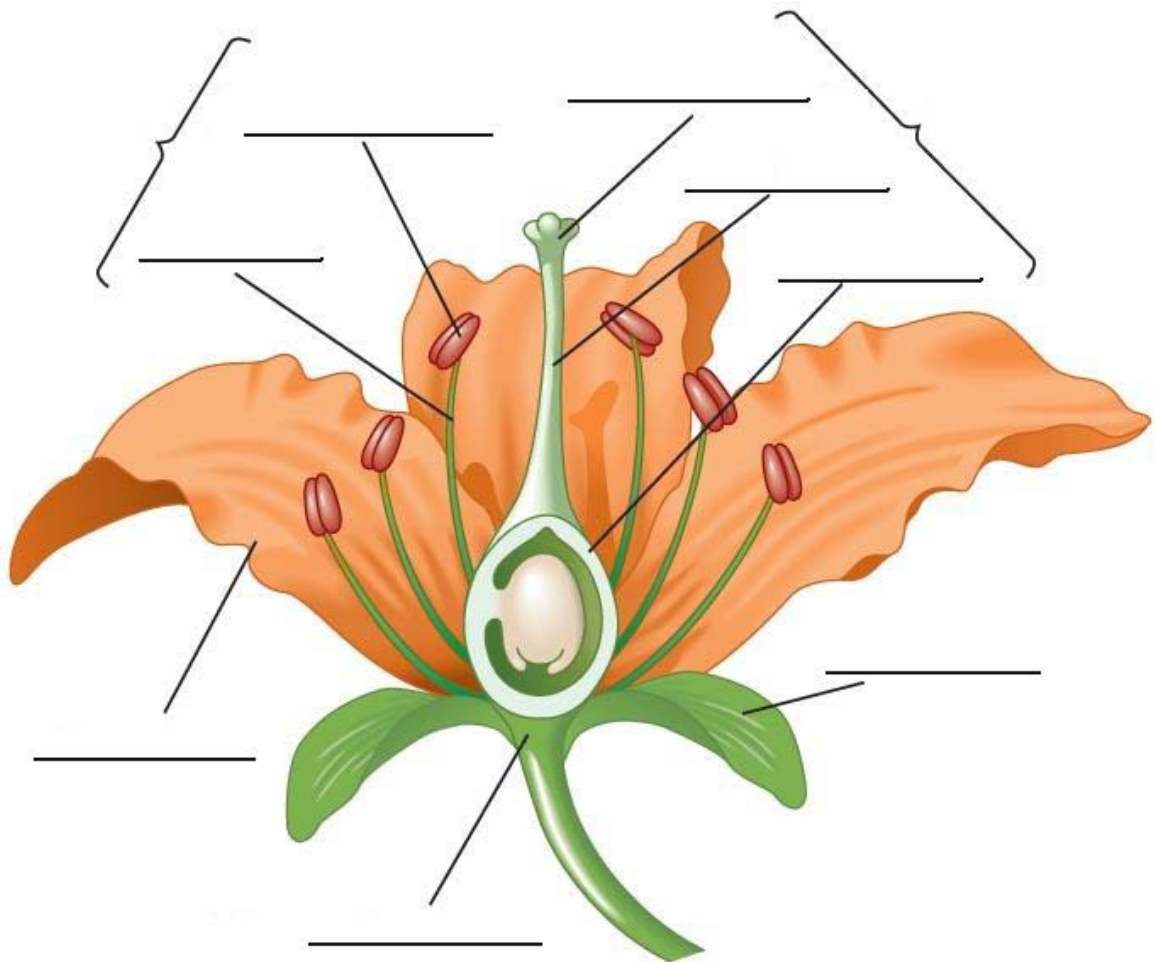
# The flower parts:



Flower part	Part function
<b>Petal</b>	Petals are used to attract insects into the flower, they may have guidelines on them and be scented.
<b>Stigma</b>	Is covered in a sticky substance that the pollen grains will adhere to.
<b>Style</b>	The style raises the stigma away from the ovary to decrease the likelihood of pollen contamination. It varies in length.
<b>Ovary</b>	This protects the ovule and once fertilisation has taken place it will become the fruit.
<b>Ovule</b>	The ovule is like the egg in animals and once fertilisation has taken place will become the seed.
<b>Receptacle</b>	This is the flower's attachment to the stalk and in some cases becomes part of the fruit after fertilisation e.g. strawberry.
<b>Flower stalk</b>	Gives support to the flower and elevates the flower for the insects.
<b>Nectary</b>	This is where a sugary solution called nectar is held to attract insects.
<b>Sepal</b>	Sepals protect the flower whilst the flower is developing from a bud.
<b>Filament</b>	This is the stalk of the anther.
<b>Anther</b>	The anthers contain pollen sacs. The sacs release pollen on to the outside of the anthers that brush against insects on entering the flowers. The pollen once deposited on the insect is transferred to the stigma of another flower or the same flower. The ovule is then able to be fertilised.



Use the table above and the help from you teacher to label the diagram below using the following words: **STIGMA, STYLE, OVARY, SEPAL, RECEPTACLE, PETAL, FILAMENT, ANTHR**



Take a flower and carefully pull it into pieces and stick the different parts on a piece of card. Label all the parts, and explain what each part does next to it.

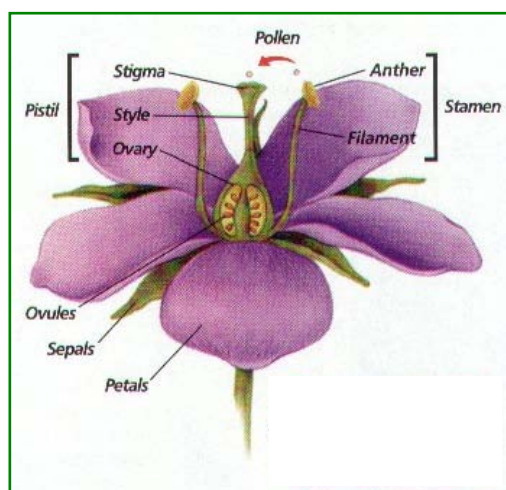
**Petal-Style-Stigma- Filament-  
Stamen-Ovary-Sepal-  
Carpel - Anther**



- When seeds have **oxygen**, **water** and **warmth**, they begin to **germinate**. The first sign of germination is a growth of roots into the soil. Following this, the growth of a stem which starts to move upwards towards the light.



- The stem continuously grows bigger and bigger and eventually, **leaves** and **flowers develop**.
- **Flowers** are the parts of plant that are used for **reproduction**.
- Flowers have male and female parts. They are either in the same flower or in different flowers.



- To make seeds, pollen grains must travel from the **anther** to the **stigma**.

The movement of pollen from the **anther** to **stigma** is called **pollination**

- Some plants use **insects** to carry the pollen, others the **wind** and some even use **water**!



Plants that are pollinated by insects usually have bright petals and a sweet smell to help attract the insects. As an insect feeds on one plant, the pollen sticks from the anther to its legs or body. When the insect moves to another plant, the **pollen** rubs off its legs and body onto the second plant's **stigma**

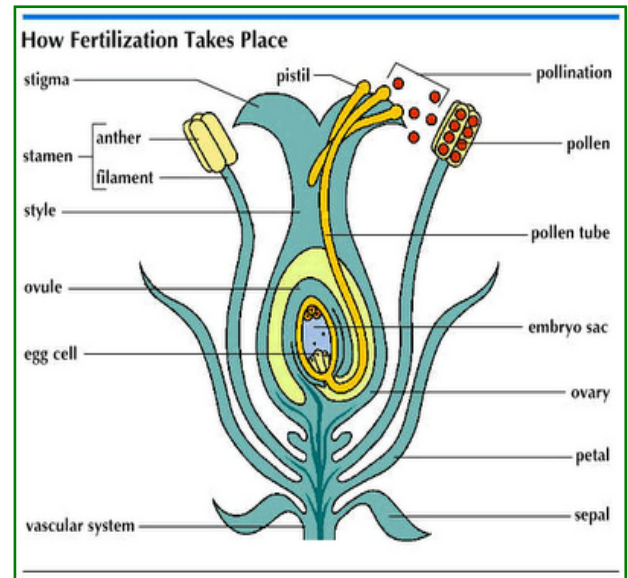
**Think about it? Agree or disagree with this statement: All plants have brightly coloured flowers. Explain?**

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- Once the pollen reaches the stigma, the pollen will meet the egg (**ovule**). The two cells will join together to form the seed.



**Fertilisation** is the fusion of the pollen and the egg to form a new seed

The **seeds can be transported from one place to another** in different ways we call it **seed dispersal**. Many seeds are made in a special way to help them travel a long way when they are dispersed. This allows plants of the same type to grow in new areas and not become too crowded near the 'mother' plant.

**Different types of seeds are dispersed in different ways:**



Some have spiny hooks to attach themselves to **animals**.



Squirrels collect nuts like acorns and bury them for winter food, but they often forget where they have buried them and these grow into new trees.



**Explosion.** The cover dries up and the seeds fall to the ground.



Seeds can travel **by wind.**






Seeds can be dispersed **by humans.**



Seeds can travel **by water.**

**Activity:**

Below are some examples. Look at the shapes of the seeds. Write down your ideas about how the design of the seed helps it to be dispersed.

Method of Dispersal	Seed Example	Seed design to help with dispersal
<p><b>Wind</b> The wind blows the seed away from the parent plant</p>	 <p><b>Dandelion</b></p>	
<p><b>Animal</b> The seeds catch in the fur of animals</p>	 <p><b>Burdock</b></p>	
<p><b>Water</b> The seeds float away in the water of ponds, rivers or oceans</p>	 <p><b>Coconut</b></p>	

**Key words:**

- Stigma
- Stamen
- Petal
- Style
- Ovary
- Ovule
- Pollination
- Fertilisation
- Seeds
- Dispersal
- Spiny hooks

**Key ideas:**

- Describe the main stages in the life cycle of plants and ways of seed dispersal.

**Project:**

- Think about desert areas where seeds wait a long time to germinate and then flower quickly and produce lots of seeds in a short time. What makes them germinate and why is their life cycle so short?

**Do you know?**

You cannot usually see a plant move. Plants do move though, they follow the light. If you grow seedlings on a windowsill, they bend towards the light. So plants are alive.



**Key questions:**

1- List two different ways that plants can disperse their seeds.

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2- Describe two ways that pollen can be carried from one plant to another.

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3- Choose the correct answer:

**Seed dispersal means:**

- a) passing pollen one to another plant
- b) scattering seeds away from the parent plant
- c) putting seeds into packets

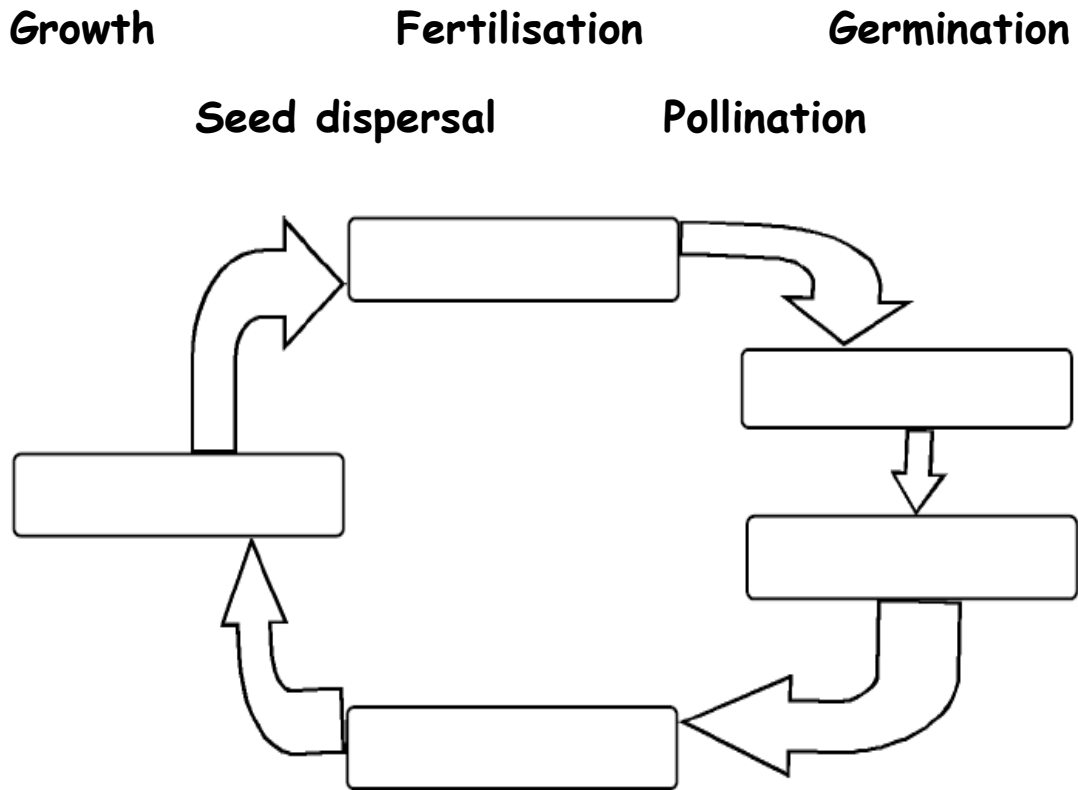
4- Two students put out two different coloured flowers - one was green, the other was yellow - to see which one a bee would visit. Which colour flower do you think most bees visited and why?

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5- Write these stages of the life cycle of a flowering plant in order on the diagram below:



6-Why is it important for plants to be able to spread their seeds out?

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