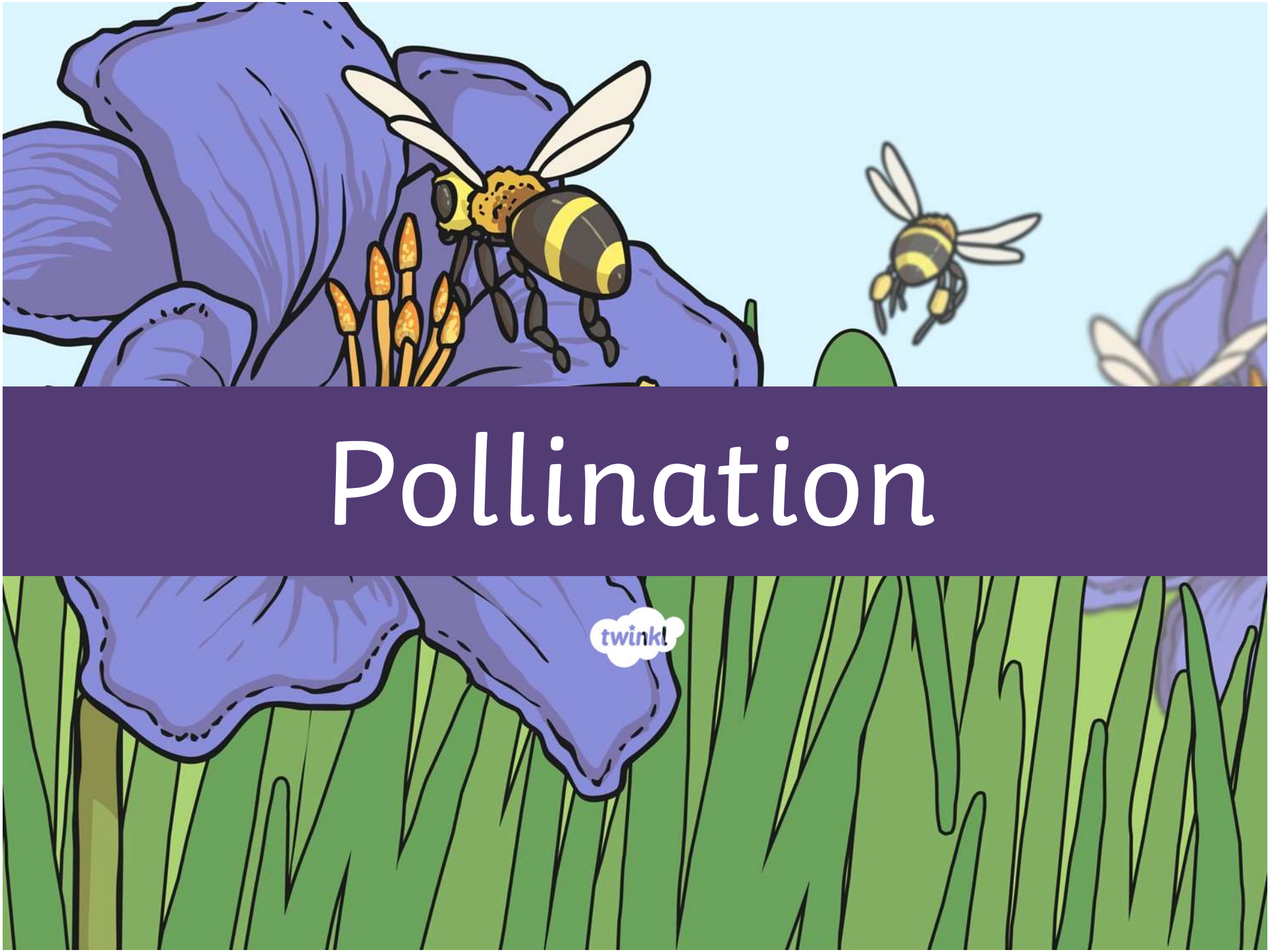
Pollination
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Next Gen Science Standards

3. Inheritance and Variation of Traits: Life Cycles and Traits

LS1.B: Growth and Development of Organisms.

Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1)

- To understand the importance of insects in pollination.
- To know that pollen is produced by flowers and is the key to pollination.
- To know the roles of parts of the flower in pollination.

Pollination

• The goal of every living organism is to create more offspring, or reproduce.

WHY?

•Plants produce seeds in order to reproduce. To make a seed, a flower must be pollinated.

• Pollen is made by the male part of the plant, which is called the stamen. The pollen needs to get to the female part of the plant, which is called the stigma. Most plants cannot pollinate themselves.

• The pollen must then travel from one plant to another plant of the same species (e.g. from a rose to a rose or from a daffodil to a daffodil). This is called cross-pollination.

Plant Parts

Just like actors in a play, each part of the flower has a role to play.

These parts are vital and pollination wouldn't be able to take place without any one of these.

Petal

It is the petal's job to attract the insects towards the flower and signal that there is nectar inside. The insect lands on the flower to collect and eat the nectar.

Interestingly, the colors that we see are not the same as the colors that the insects see. Insects see in ultraviolet, which is a type of light that is higher than what human eyes can see.

Petal

Ovary

It is the ovary's job to hold the ovules and to keep them safe until the flower gets pollinated.

The ovules will turn into seeds when they are fertilized.

Ovary

Stigma

The stigma is near the top of the flower. Its job is to collect the pollen from the insects when they land on the flower. The stigma has adapted to catch the pollen in different ways - some stigma have tiny hairs on them to collect the pollen.

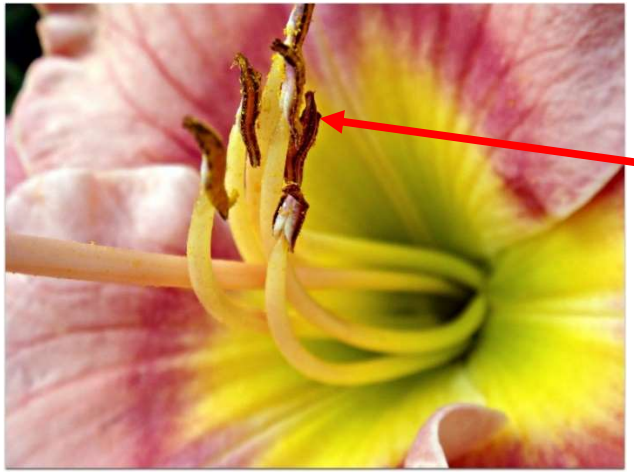
Style

The style is above the ovary and its job is to hold up the stigma. The style, stigma and ovary all make up the female part of the flower, which is called the 'pistil'.

Anther

The role of the anther is to produce the pollen. It is important that this pollen is then carried to another plant.

Which part of the plant would the pollen need to be taken to?

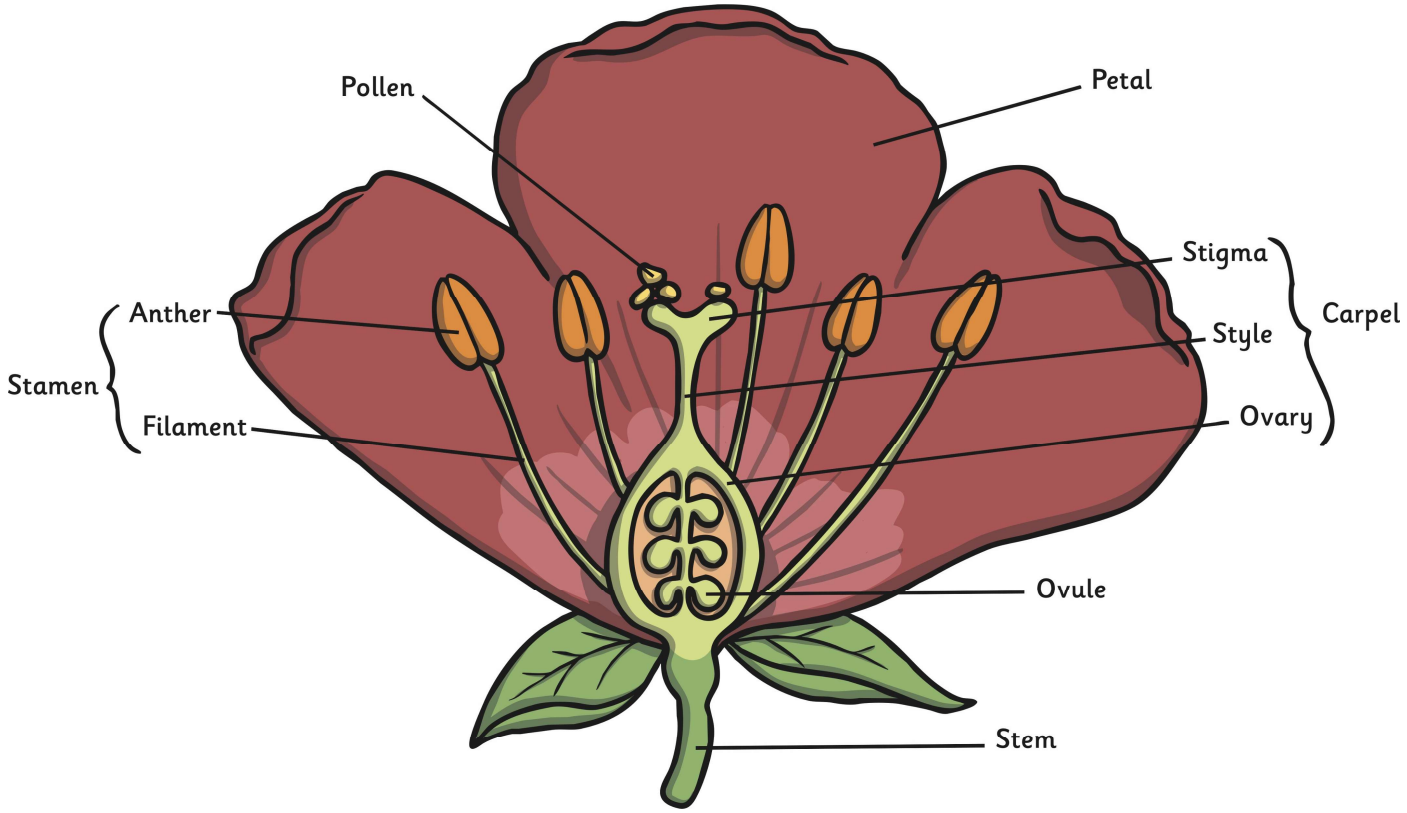


Filament

The role of filament is to hold up the anther. If the anther was too low down, then insects might not be able to collect that flower's pollen.

What would happen if pollen was harder for insects to collect?

Parts of a Flower



Insects in Pollination

• Insects don't pollinate on purpose; it's just something that happens as they collect nectar from flowers to feed on. Insects are incredibly important when it comes to pollination. Here are some facts to prove it:

• Pollinators play a significant role in the production of over 150 food crops in the US—among them apples, almonds, blueberries, cranberries, kiwis, melons, pears, plums, and squash.

DID YOU KNOW?

Honey bees account for 80% of all insect pollination.

Pollination Recap

1. The flower petal's bright colors and fragrant scents attract insects.

2. The insect arrives on the flower to collect nectar. This nectar is a sweet liquid which makes perfect insect food.

3. As the insect is gathering the nectar, it rubs against the anthers, which rub pollen onto the insect.

4. After the insect is done feeding on that flower's nectar, it goes on to collect nectar from another flower.

5. As the insect feeds on the nectar in the new flower, the pollen stuck to the insect from the first flower rubs off onto the female parts of the second flower (also called the stigma).

The Pollination Process

6. Part of this pollen travels down the style and then into the ovary.

7. The tiny piece of pollen joins onto an ovule in the ovary. The plant has now been fertilized.

8. The ovules of the flower turns into seeds which will then be dispersed so that new plants will be able to grow somewhere else.

Self Pollination

Some plants self-pollinate. They transfer the pollen grains from the anther to the stigma on the same flower. These plants do not need a pollinator, such as an insect, in order to reproduce.

Only a few plants self-pollinate. Examples include peanuts, orchids, peas and sunflowers.

Why might this be beneficial?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