Variation and Inheritance: Plant inheritance

Year 8

Week Commencing 23rd April

Title: Plant inheritance

Objective: be able to describe how sexual reproduction occurs in plants and give examples of breeding in plants

- I must be able to identify the gametes in plants
- I should be able to give examples of useful characteristics that plant breeders select for
- I should also be able to answer some questions about plant breeding

What is this a picture of and why is it like this?

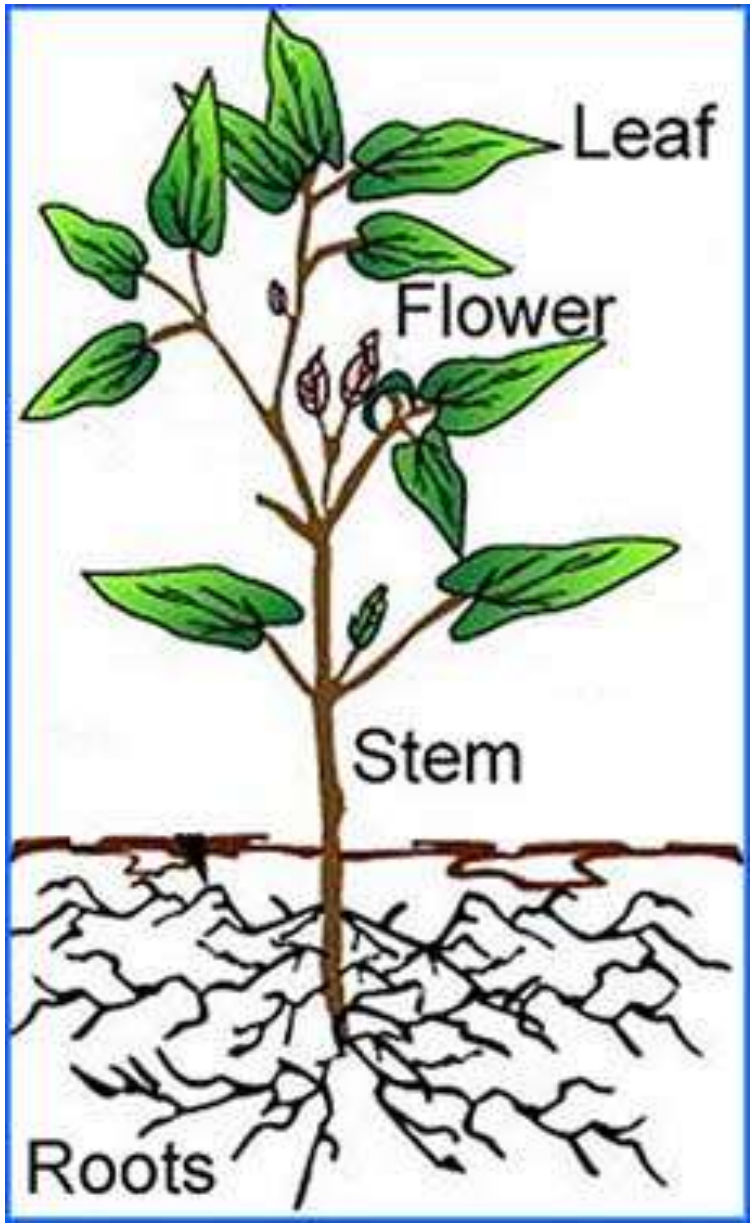
Plant Reproduction

- Plants can reproduce in **two** ways:
  - Sexually – with another plant
  - Asexually – without another plant
- For this lesson we are going to look at plants reproducing **sexually**
- This can lead to new varieties being produced

Plant Reproduction

- For sexual reproduction, plants need a **male** and a **female**
- Male and female plants have different **reproductive organs**
- The reproductive organs are found in the **flowers**
- Most plants actually have **both male and female organs** in their flowers

Plant Reproduction



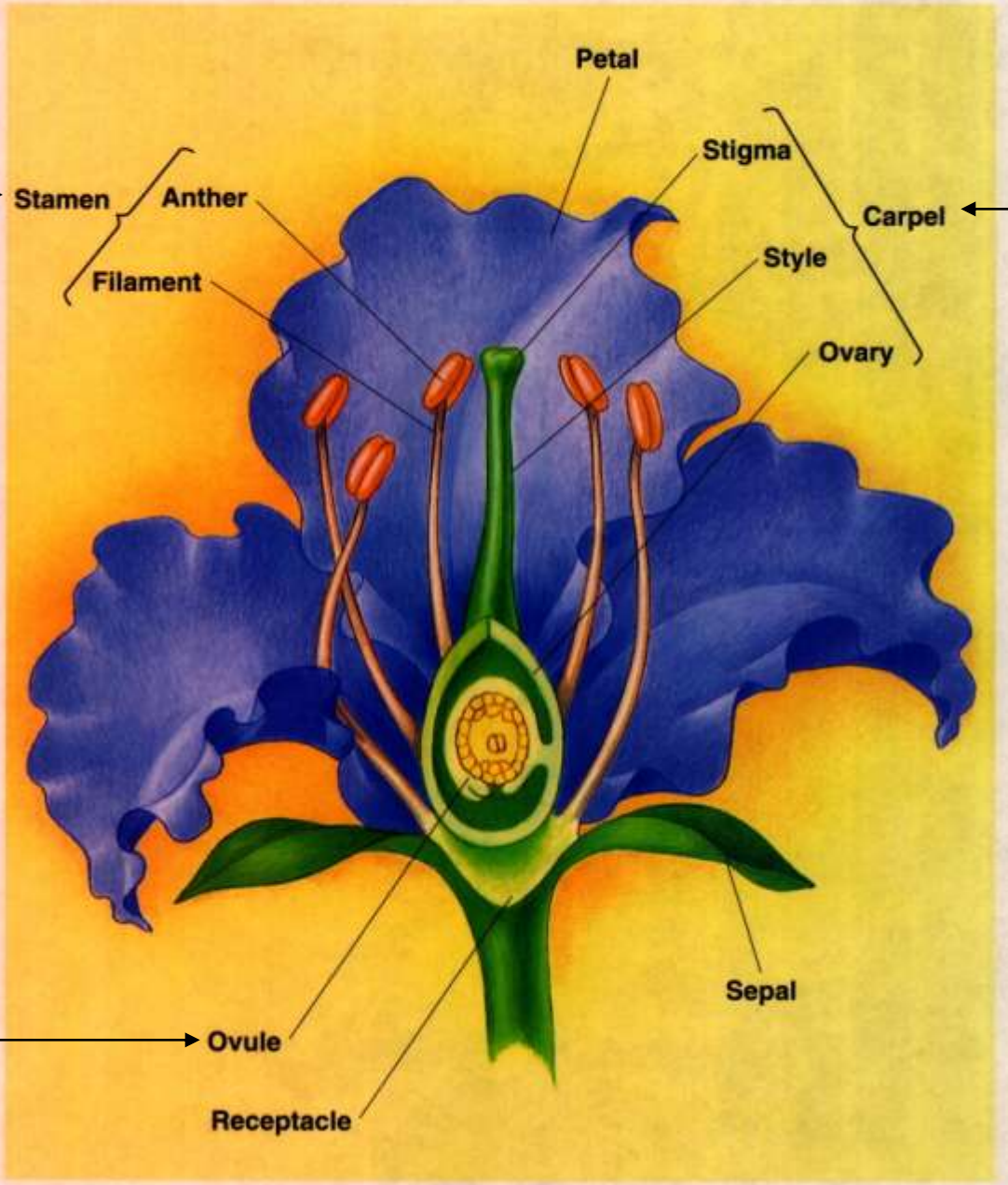
Plant Reproduction

- Male reproductive organs make **pollen grains**
- These are the **male** sex cells or **gametes**
- Female reproductive organs contain **egg cells**
- These are the **female** sex cells or **gametes**

Figure 34.2 An idealized flower

Male reproductive organ

Female reproductive organs



Female gametes are stored here

Plant Reproduction

- Sexual reproduction in plants has the same principles as in animals
- The **nucleus** from a **male** gamete must join with the **nucleus** from a **female** gamete
- The new nucleus will now contain a **full set of information** to create a new plant
- **Half** of the information is from the **'mother'** plant, and **half** from the **'father'** plant
- The new plant will contain **features from both**

Put a sub-heading

“**Examples of plant breeding**”

Plant Reproduction

- The wheat on the right is dying because it is in salty water
- The wheat on the left has been **crossed with another species**, which is able to cope with salt water better
- Sometimes, getting features from both parents is **useful** to us

Plant Reproduction

- Gardeners can use sexual reproduction to create **new varieties** of an old plant
- This can make them **more valuable**, or simply **more interesting**!

Plant Reproduction

Variation can lead to different colours, sizes or tastes of fruit.

Plant Reproduction

You can now buy corn of almost **any colour**!

Plant Reproduction

- Breeding can lead to new varieties that are higher yielding or resistant to pests
  - This is useful to ensure there is enough food for people around the world

Questions – Homework books A3 Q2:

Many people are concerned that crops need to be sprayed, whilst they are growing, to help them resist disease and pests. They say that the chemicals used are harmful to humans.
It is possible to selectively breed plants that are resistant to disease and damage by insects.

a Explain how the chemicals could be eaten by humans.

b Why would selectively bred plants be a healthier option than using chemicals?

c Farmers in poor countries have little money. Why would using selectively bred plants help them to produce enough food for their families?

d Suggest two crops, **other than** wheat, tomatoes and broccoli, that might benefit from improvement by selective breeding and, for each suggestion, say what feature you would try to improve.

ANSWERS

CORE

Question	Answer
2 a	Chemicals stick to/are absorbed by the plant and are not removed during food preparation.
b	They would not contain any chemicals.
c	The crops would survive better so they would get a bigger harvest and they would save money by not spraying.
d	Accept any two sensible suggestions e.g. maize, sugar beet, carrots, strawberries etc. together with a suggestion that **would** improve the named crop.
e	Developing new varieties takes time and money so the new plants might be more expensive.

Plenary

- Explain to your partner – a fact each about:
  - 1) How plants reproduce
  - 2) An example of how plant breeding can be useful