Chapter 8: Reproducing

Experiment 8.1: Vegetative propagation

Experiment worksheet answers (pages 140–141 and 211)

Discussion

1 Is this form of reproduction sexual or asexual? Provide a reason for your answer.

It is asexual propagation, as a new plant is formed from a single parent plant.

2 How similar is the genetic material in the parent plant to that of the new (daughter) plants?

The daughter plants have identical genetic material to the parent plant.

3 Will the daughter plants be identical in shape and size to the parent plant?

No. The daughter plants will be affected by the environment such as the amount of sunlight, water and nutrients in the soil.

4 A student claimed that they were making plant clones. What are plant clones? Was the student correct?

The new daughter plants are genetic clones of the parent plant. The appearance of the plants will not be identical.

Conclusion

What do you know about vegetative propagation?

Vegetative propagation is a form of asexual propagation.

Challenge 8.4: Working with the RSPCA

Experiment worksheet answers (pages 146–147and 211)

Discussion

1 Explain what desexing is and why it is important.

Desexing is a permanent form of contraception that involves the reproductive tubes being tied or removed entirely. Desexing is important to control inbreeding and to prevent animals overbreeding, which can create problems.

2 Based on your calculations, how many cats were produced after 4 years?

After 4 years, 65 536 cats would be born.

3 How would desexing the first mating pair change your results?

If the first mating pair were desexed, they wouldn’t have kittens and so no cats would be born.

4 Do you think this was a ‘fair test’? Explain the reasons for your answer.

This is not a ‘fair test’ because environmental influences, such as deaths and cats not having four kittens per litter, are not taken into account.

5 What other factors could affect the number of cats?

Other factors that influence the number of cats include ability to find a mate, death, number of kittens in a litter, number of kittens that survive from the litter, and whether all of the cats actually breed.

6 Why do you think the RSPCA takes in so many more cats than dogs?

The RSPCA takes in more cats than dogs because dogs are more confined to a backyard and don’t wander freely during the day. This gives dogs less opportunity to breed.

Experiment 8.5: Flower dissection

Experiment worksheet answers (pages 148–149 and 212)

Discussion

1 What colour is the filament (the stem of the stamen)? Why do you think this is?

The colour of the filament is variable and serves to attract pollinators.

2 How easy was it to clean the pollen from your fingers? Is this good for the flower?

It should be relatively easy to clean pollen from fingers. This enables pollen to fall or brush off animals as they move around so that, hopefully, it can fertilise another plant.

3 How were the male and female parts arranged to encourage pollination? Explain.

The male parts are at the top of the flower; the female parts are in the base of the flower. This is so the pollen (male sperm-like structure) can be transported via pollinators to the stigma of another plant, or the stigma of the same plant, and down to the ovum.

4 Do you think the flower is more likely to be self-pollinated or cross-pollinated? Explain.

This depends on the flower chosen for the dissection. However, anthers and ovules of the same flower tend to mature at different times, so self-pollination is relatively rare.

5 Do you think pollination is more likely to be by wind, water or animals? Explain.

Pollination is likely to be assisted by animals because they are attracted to a wide range of flowers, travel wide distances and go from one flower to another, transferring pollen as they go. Wind usually only pollinates plants that are dull coloured and lack flowers/petals, such as grasses.

Conclusion

What do you know about the parts of a flower?

Flowers contain both male and female reproductive organs, enabling them to be either self-pollinating or cross-pollinating. The male parts are located in the top of the flower; the female parts are in the base of the flower.