

The Secret Life of Ferns

The spore plant.

1. Can you describe the appearance and the parts of a fern spore plant (sporophyte)?
2. Where would you expect to find the spore cases (sporangia) in a fern? Can you describe the structure of a spore case?
3. Some ferns have a way of covering their spore cases (sporangia). Can you explain how this is done? What advantage would this have?
4. Can you describe how the fertile cells within a spore case (sporangium) give rise to spores?
5. What is a spore? Can you describe its wall and contents?

Spore release

6. Can you describe the structure of the band of cells (annulus) that encircles the fern spore case (sporangium)? What is its function?
7. Describe the changes that take place in the band of cells (annulus) that encircle the spore case (sporangium) as it dries out.
8. Why does the band of cells (annulus) rip open the spore case (sporangium) as it dries out?
9. Spores are ejected from a spore case (sporangium) with great force. Can you explain how this is accomplished?.

The gamete plant

10. Can you describe what changes take place during the germination of a fern spore? Describe the size and appearance of the fern gamete plant (gametophyte).
11. Can you think of good locations for where you would most likely find fern gamete plants in the wild?
12. Where are the reproductive organs located on the fern gamete plant (gametophyte)? What advantage does this position have?
13. How would you distinguish male from female reproductive organs in a fern gamete plant (gametophyte)?

Fertilisation

14. What is the structure of the fern sperm cell? How does it move about in search of an egg?
15. How does the female reproductive structure (archegonium) attract sperm?
16. What advantage is there in having the fern gamete plant (gametophyte) flat and close to the moist soil surface?
17. How many sets of chromosomes are there in the sperm and egg cells? How many are there in the fertilised egg (zygote) cell?

The embryo and new plant

18. Is the fertilised egg released from the female reproductive structure (archegonium)? Where does the young embryo develop and what is its source of nourishment?
19. Where would you look in order to find a young, emerging, fern plant?

