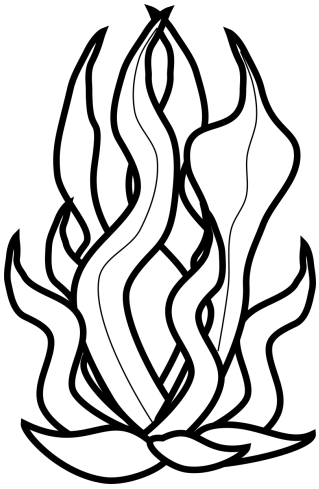
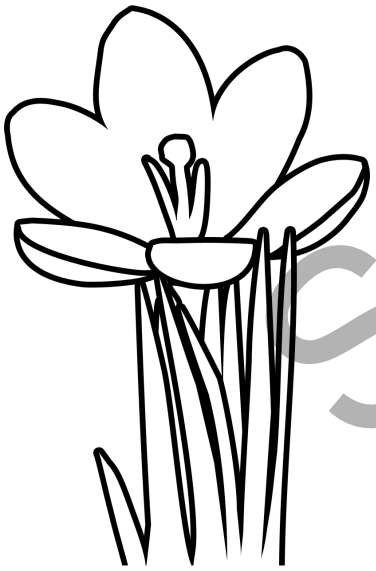
Plant Life Cycles, Pollination, and Reproduction



As you can probably guess from the name, this study is going to explore life cycles, pollination, and reproduction in plants. But that looks different for different types of plants. So first, we'll look at some ways we can classify plants. One of the simplest ways to classify plants are **green plants** and **nongreen plants**. Green plants have chlorophyll, which allows them to make their own food by photosynthesis. Nongreen plants do not have chlorophyll and have to get their food by another method.

Green plants include **vascular plants** and **simple green plants**. Vascular plants are plants that have tubes that carry liquid through the plant. These tubes are called vascular bundles. You can see these tubes if you cut a piece of celery. The tiny holes you see at the end of the stalk are the vascular bundles. Most vascular plants live on land. They have roots that hold them in the soil, their stems support them, and their leaves capture the sunlight needed for photosynthesis. There are many different types of vascular plants, but we can group them loosely as ferns, flowering seed plants, and nonflowering seed plants.



Flowering seed plants are also called **angiosperms**. Flowering plants are everywhere and include wildflowers, fruit trees, and many vegetables.

Nonflowering plants are also called **gymnosperms**. Gymnosperms produce uncovered (or naked) seeds, mostly in cones. Conifers like pine trees and redwoods are gymnosperms.

Simple green plants do not have vascular bundles and all the parts found in vascular plants. They include plants such as algae and moss. They use other means for getting the nutrition they need for photosynthesis.

Nongreen plants include lichens as well as fungi such as yeasts, molds, and mushrooms.

Now that we know the major groups of plants we'll be looking at, let's take a closer look at what we're going to learn about them.

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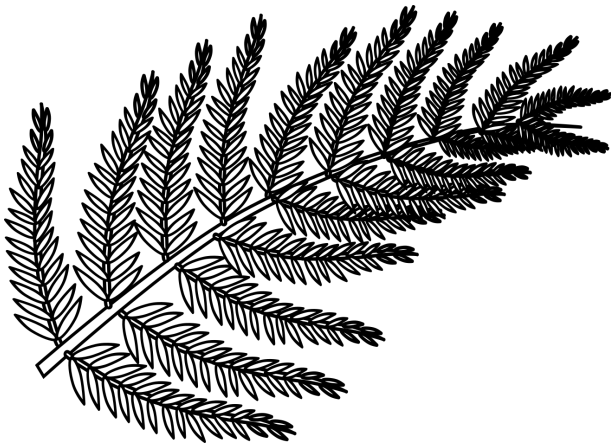
The last vascular plants we're going to study are ferns. Ferns usually grow in moist places. Their stems and root-like branches generally grow beneath or close to the ground. Their leaves, called **fronds**, are the part we see above ground.

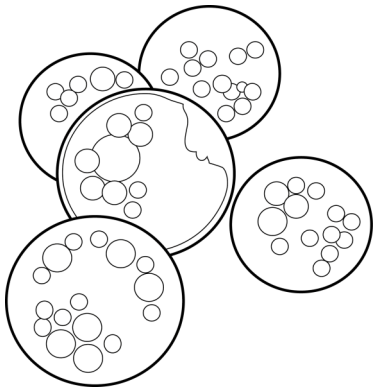


Instead of seeds, ferns use spores to reproduce. Spores are cells that contain the food and all the ingredients needed to grow a new plant. Ferns also use both sexual reproduction and asexual reproduction in a special way called **alternation of generations**. The best way to understand what that means is to think about what each term means. To "alternate" means to switch back and forth. A "generation" is a parent and a child. So when we say ferns use alternation of generations, we mean that one generation uses asexual reproduction and the next generation uses sexual reproduction.

The ferns in the cycle of asexual reproduction are the ones we usually think of when we picture a fern. The long fronds stretch out and can grow cases of spores on the underside. Each case can hold many spores, and a single fern can produce millions of spores. The wind disperses the spores, but only a few of these spores ultimately find the right conditions they need to grow.

The new plant produces male and female cells instead of spores. When these cells come together, fertilization happens and an embryo is formed. The embryo grows and develops the first leaf, root, and stem of a new fern, and the cycle begins again.

Now that we've explored green vascular plants, it's time to look at types of simple green plants. These plants don't have typical roots, stems, or even leaves. They have to get the nutrients needed for photosynthesis in other ways. Let's take a closer look at algae and moss.



There are many different species of algae. They can be extremely small or grow into underwater forests. They reproduce by sexual reproduction, asexual reproduction, or both methods. Some scientists separate algae from plants and classify them in kingdom Protista. One kind of algae, called chlorella, are single-celled organisms.

SAMPLE

Terminology

Using what you learned, define these words in the best way you can. Use the back of the page if you need more room.

Green plants: _____

Nongreen plants: _____

Vascular plants: _____

_____

Simple green plants: _____

Angiosperms: _____

Gymnosperms: _____

Reproduction: _____

Receptacle: _____

Petals: _____

Sepals: _____

Stamen: _____

Pistil: _____

Anther: _____

Filament: _____

Stigma: _____

Style: _____

Sperm: _____

Ovary: _____

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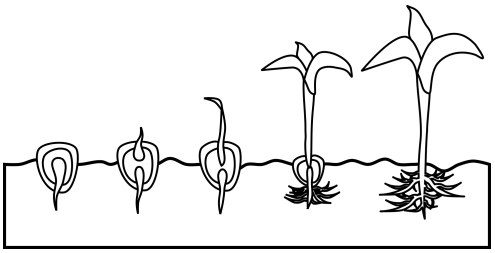
Which of the following is not a method of seed dispersal? Draw an X through it.

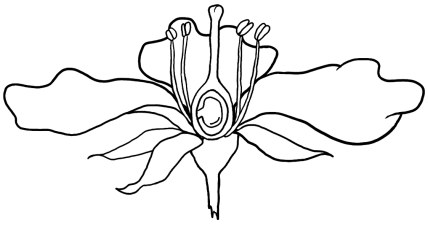
Wind



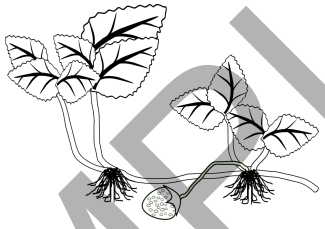
Germination

Animal Ingestion

Which is not a form of asexual reproduction? Draw an X through it.



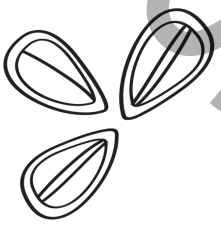
Pollination

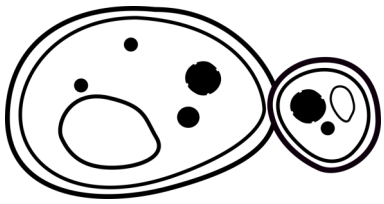


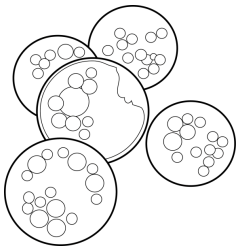
Runners

Fragmentation

Which is an example of budding? Draw a circle around it.



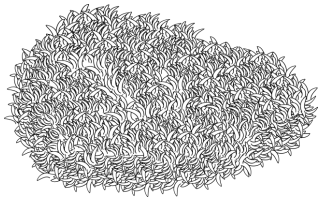




Which is not a fungus? Draw an X through it.

Mold

Mushroom



Moss

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