



LESSON SUMMARY

To give students the opportunity to collect, observe and identify different types of cones.

Activity Information

Estimated Duration:	Variable
Materials:	Bags to collect cones, ID sheets
Setting:	Indoors/Outdoors
Key Vocabulary:	Deciduous, coniferous, pollen

ACTIVITY

Step 1 Take a look at the trees in your neighbourhood this winter. Many of them have bare branches because their leaves turned colour and fell off in the autumn. They are deciduous trees. Now look at the trees that are still green. These are called evergreens, and most of them are also coniferous, or cone-bearing trees. Look closely at a coniferous tree. Try to find some cones still attached to the branches or lying on the ground beneath the tree. If there's snow on the ground, brush some away and look for cones underneath.

Step 2 Cones are the "flowers" of coniferous trees. Maples, elms, chestnuts, and other deciduous trees have true flowers that produce seeds inside a type of fruit. Conifers, on the other hand, produce their seeds inside cones. The hard brown scales of the cones close over the developing seeds to protect them from bad weather and from seed eaters. When the seeds are ripe, the scales shrink slightly and open up, releasing the light, winged seeds to the wind.

Step 3 If you look at a pine tree in the spring, you'll see two different kinds of cones. Just below the growing tips of the main branches, you'll find clusters of tiny yellowish-brown cones. These are the male cones that produce clouds of pollen in the spring. The soft, reddish-purple female cones are at the ends of the new, bright green side branches. When pollen is blown by the wind and lands on the female cones, it can fertilize the egg cells on each cone scale and produce seeds. Once the cones are pollinated, the scales harden and close up until the seeds are ripe, usually in the fall. Depending on the species, some trees drop their cones in the fall after the seeds are released, but others hold on to theirs for a year or more.

Step 4 Identifying cones is a good way of figuring out what kind of tree you are looking at. Collect a variety of different cones or have students bring them in from home, the cottage, etc. Distribute ID sheets and have students identify the types of cones they are.

Step 5 Jack pine cones are usually tightly closed when you find them clinging to the tree branches. This is because they are specially adapted to open only after they have been heated by the intense heat of a forest fire. When most other plants and seeds have been destroyed in a fire and thick ash covers the ground, the cones of jack pines open and release their seeds. These are then able to grow in the rich ash without competition or shade from other plants. This gives them a head start in colonizing a burnt-over area and helps the area recover from the fire more quickly. You can see jack pine cones in action in your kitchen. All you need are some jack pine cones, a cookie sheet and put them in the oven. Ask an adult to turn the oven on to 200 C (400 F). Watch the cones open as the oven gets hotter. The heat from your oven is like the heat of a forest fire. After the cones are fully open, turn off the oven and ask an adult to place the cones on a plate to cool. When they are cool, check the cones for seeds.

Extra Activities

Make a mini-bird feeder out of a pine cone and treat the birds in your yard this winter. Simply spread peanut butter or suet, or both, on an open cone with a knife. Be sure to push the spread in between the cone scales. Now roll the sticky cone in bird seed. Hang the cone from a branch with some twine and wait for the chickadees, nuthatches and downy woodpeckers to arrive.