



My nature connection

PINE CONE PROFESSORS

GRADES: K+
TIME: 45 min.

HOW PINE CONES WORK

Pine cones can usually be found at the bases of pine trees. Pine cones contain the seeds of the tree they come from. When the weather is warm, the scales of the pine cones expand to release their seeds. When the weather is cold, the pine cone scales contract to protect the seeds inside. In this activity, families will use changes in temperature to open and close pine cones.

WHAT YOU'LL NEED

- 1 Pine cone from your neighborhood (can be any size, but bigger is better)
- Oven
- Baking sheet
- Tin foil
- A drinking glass
- 4 Ice cubes
- Paper and pencil

PINE CONE HUNT

For this activity you'll need to find a pine cone of your very own. Go on a walk through your neighborhood or at your local park and search for pine cones. Pine trees are large coniferous trees, which means they don't drop their needles during the winter. Search for pine cones under trees that look like this:



White Pine



Red Pine



Female Cone



Male Cone

FEMALE AND MALE PINE CONES

Each pine tree has two different types of cones, male and female cones.

Male cones are smaller and produce pollen. Female cones are larger and contain the seeds.

Wind blows pollen from male cones to female cones which fertilizes the seeds.

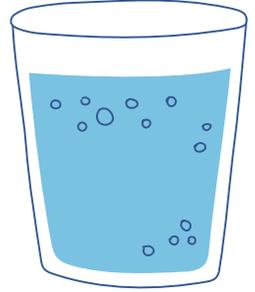
HOW DOES TEMPERATURE AFFECT PINE CONES?

We have learned that pine cones expand when the weather is warm to release their seeds and pine cones contract during cool weather to protect the seeds. In this experiment we will try to replicate that change. Before you begin, take notes about your pine cone's appearance. You may also draw a picture of your pine cone.

Cool it down:

In our first experiment, we will see how cold temperature affects pine cones.

1. Fill a drinking glass with cold tap water (and 4 ice cubes if you have them).
2. Write down your prediction of what will happen to the pine cone when it is held under cold water.
3. Use your fingers to push the pine cone beneath the surface of the cold water and hold it there for about 5 minutes.
4. After the 5 minutes observe the pinecone. Write down your observations.



Heat it up:

In this next experiment, we will see how warm temperature affects pine cones.

1. Spread out a piece of tin foil onto a baking sheet.
2. Preheat your oven 250 degrees Fahrenheit.
3. While the oven is heating, write down your prediction on what will happen to your pine cone when it is exposed to high temperatures.
4. After your oven is heated, place your pine cone on the baking sheet and place it in the oven for 10 minutes.
5. When the time is up, remove your pine cone from the oven. How has it changed? Write down your observations in your notebook.



Review:

How did your pine cone change throughout this experiment?
How accurate were your predictions?

