

## -Why Don't Frogs Freeze?-

### Materials Needed: (per project)

- 2 plastic containers
- 1 cup of water
- 1 cup maple syrup
- Freezer

### Instructions:

1. Fill container 1 with water.
2. Fill container 2 with maple syrup.
3. Freeze overnight.
4. Talk about why maple syrup doesn't freeze. See this simple explanation below.

The water container:

- What do the students notice different about this container?

The water container represents how most mammals without protection from the elements in below freezing temperatures for extended periods of time would freeze, just like the water in our container. As the water freezes, the less energy the water molecules have, so the slower they move. This loss of energy in the water molecules makes the water expand from its original liquid form.

The maple container:

- What do the students notice different about this container?

The maple container represents hibernating animals, like frogs, that produce high levels of glucose in their liver. The glucose is circulated throughout their body protecting the vital organs that are needed to keep the animal alive through the winter during hibernation.

