

Winter Waterland

In many parts of the world, the winter months can be very cold. Blankets of fluffy snow cover fields and forests. We pull out hats, mittens, and puffy coats to get ready for cold winds. Birds fly

south and animals like bears and groundhogs sleep in warm cozy dens. But what do animals that live in the water do during the winter? You may be surprised!

Frozen Frogs

Many frogs sleep for a long time during the winter. For cold-blooded animals, this is called *brumation*. Frogs like the leopard frog and American bullfrog “sleep” underwater in frozen lakes and ponds. Sometimes they lie on top of mud or hide underneath thick piles of leaves. As the weather becomes colder, their bodies also get colder. Their hearts beat more slowly, and they breathe oxygen underwater through their skin.

Some frogs, like the gray tree frog and chorus frog, turn into “frosicles.” Parts of their bodies freeze and their heart stops beating. It looks like they are dead—but they aren’t! Their bodies make a sugar to help them to stay alive, even though parts of their bodies are frozen. When the weather warms up, their bodies thaw and they hop away!

Other land frogs and toads sleep underground during the winter. They dig deep holes into the ground below the frost line, where the soil does not freeze. This means some toads dig as far as 3 to 4 feet (1 meter) underground!

Fish

Do fish sleep in the winter? No little beds or warm blankets for fish! They do not even close their eyes, because they have no eyelids. Some fish hide themselves in mud and rest during the winter, but most gather in groups called *schools* and have a nice winter rest.

Since fish are cold-blooded animals, their body temperatures become much colder as the weather changes. They rest in the deeper parts of lakes where the water is warmer. They stay very still as if asleep. Some fish—like trout and salmon—slowly swim and even look for food. Sometimes salmon swim near the top of lakes where there is more oxygen.



ILLUSTRATION BY SCOTT HOLLADAY

FUN Facts

The “magic” temperature for a lake or pond to freeze is 39.2 degrees F or 4 degrees C.

Ice crystals form when tiny parts of water called molecules move closely together.

Some lakes form ice up to **six feet** thick!

What happens when you add **ice cubes** to a glass of water? The cubes float! Ice also floats on lakes and ponds, where it acts as a thick “blanket” to keep warmer water inside.

Most lakes and ponds do **not freeze** all the way. If they did, no animals could live!

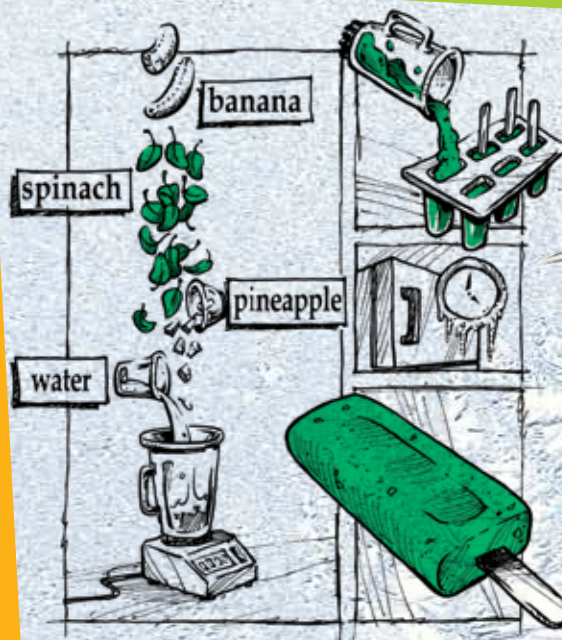
Homemade ‘Frogsicles’

Make this treat at home as you think of some of the frogs that will “freeze” this winter! Yes, these popsicles will be green!

What you need:

- Popsicle molds
- Blender
- 1 cup spinach
- 1 ½ bananas
- 1 cup pineapple chunks (or 1 cup mango chunks)
- 2/3-3/4 cup water or coconut water

Blend all the ingredients in a blender until smooth. Pour the mixture into popsicle molds. Freeze until solid. Makes 6 popsicles.



Make Your Own Frozen Pond!

Try this cool experiment at home!

Here's what you'll need:

- Clear plastic container
- 4-6 cups water
- Sand, soil, stones, twigs, leaves
- Clear plastic wrap
- Small plastic frogs, turtles, or fish (optional)

What to do:

With an adult's help, look for sand, soil, stones, leaves, and twigs in your neighborhood. Pour about 2-3 cups of the soil into a clear plastic container. Spread the soil, leaves, and stones evenly at the bottom of the container. Add a few plastic animals for fun!

Next, carefully add 4-6 cups of water to the container. Let it stand still for about 10 minutes for the soil to settle to the bottom of the dish. Cover your pond with clear plastic wrap and place in the freezer.

After about 1 hour and 15 minutes, take off the plastic wrap without moving the container. What do you see? Are ice crystals beginning to form? Draw a picture of what your pond looks like. Wait another 30-45 minutes and check your pond again. Take your pond out of the freezer and look inside. What changes do you see? Draw another picture!



Turtles

Turtles make winter homes for themselves at the bottom of lakes and ponds. They dig deep under the mud to sleep. Their body temperature becomes very cold and they do not move much. Their hearts beat only once every few minutes.

Like frogs, turtles can also breathe oxygen through their skin. Turtles are able to live in their underwater homes for a long time without oxygen—sometimes up to three or four months during the winter!

God of Winter Wonders

Isn't it cool how God made animals to live in very cold weather? Just as God keeps us safe in our warm homes, God takes care of all living things. The next time you put on a sweater or scarf, remember to thank God for keeping you warm during the winter. And thank him for keeping animals safe in their winter waterlands!

Your holiness is as great as the height of the highest mountains. You are as honest as the oceans are deep. Lord, you keep people and animals safe. Psalm 36:6, NIV



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