Name: _____ Date: _____

Why a Frozen Pond Has Fish Alive Below

Circle group

On a freezing day, a pond can have a roof of ice. Fish still swim below. How do they stay alive?

Most things get smaller when they get cold. Water does too, until it is close to freezing. Then something odd happens. When water turns to ice, it spreads out. It takes up more room. So ice is lighter than the same amount of water.

Ice is lighter, so it floats. The pond freezes from the top down. If ice sank, a pond could freeze hard from the bottom.

The ice is also like a lid. It keeps cold air off the water below. That water stays liquid. Fish, frogs and snails can live there until spring.

Questions

1. What forms on top of a pond on a freezing day?

_____

_____

2. What happens to water when it turns to ice?

_____

_____

3. Why does ice float?

_____

_____

4. Which animals live in the water under the ice?

_____

_____

5. What would happen if ice sank?

_____

_____

6. How does the ice help the water below?

_____

_____

Words to know

liquid: a wet material that flows, like water
floats: stays on top of water instead of sinking
freezes: turns into ice because it is very cold
snails: small slow animals with a shell on their backs

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Why a Frozen Pond Has Fish Alive Below

Triangle group

On a freezing winter day, a pond can have a roof of ice. Underneath, fish are swimming. How can they stay alive?

Most things get smaller and heavier when they get cold. Water does this too, but only until it is very close to freezing. Then something odd happens. As water turns to ice, it spreads out and takes up more room. This makes ice lighter than the same amount of liquid water.

Because ice is lighter, it floats. So the pond freezes from the top down, not from the bottom up. If ice sank, ponds could freeze solid from the bottom.

The ice on top also works like a lid. It keeps the cold air away from the water below. The water under the ice stays liquid, so fish, frogs and snails can live there until spring.

Ice floating on the water is a small gift for pond animals.

Questions

1. What forms on top of a pond on a freezing day?

_____

_____

2. What happens to water as it turns into ice?

_____

_____

3. Why does ice float?

_____

_____

4. Which animals can live in the water under the ice?

_____

_____

5. What would happen if ice sank instead of floating?

_____

_____

6. How does the ice on top help the water below?

_____

_____

Words to know

liquid: a wet material that flows, like water
floats: stays on top of water instead of sinking
freezes: turns into ice because it is very cold
solid: hard all the way through
snails: small slow animals with a shell on their backs

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Why a Frozen Pond Has Fish Alive Below

Square group

On a bitterly cold winter day, a pond may be covered by a roof of ice, yet fish continue to swim in the water beneath it. How is it possible for them to survive?

Most substances shrink and become heavier as they cool, and water behaves the same way until it is very close to freezing. Then something unusual happens. As water turns into ice, it spreads out and occupies more space, which makes ice lighter than an equal amount of liquid water.

Because ice is lighter, it floats, and so a pond freezes from the top down instead of from the bottom up. If ice sank, a pond might freeze solid from the bottom.

The layer of ice on top also acts like a lid that keeps the freezing air away from the water below. The water under the ice remains liquid, so fish, frogs and snails can live there until spring arrives.

Questions

1. What may cover a pond on a bitterly cold day?

_____

_____

2. What happens to water as it turns into ice?

_____

_____

3. Why does ice float on water?

_____

_____

4. Which animals can live in the water beneath the ice?

_____

_____

5. What might happen to a pond if ice sank?

_____

_____

6. How does the top layer of ice protect the water below?

_____

_____

Words to know

liquid: a wet material that flows, like water
floats: stays on top of water instead of sinking
freezes: turns into ice because it is very cold
solid: hard all the way through
snails: small slow animals with a shell on their backs

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

For the teacher: Why a Frozen Pond Has Fish Alive Below

Each student sheet carries a shape, not a level. The same topic and facts, written three ways.

Circle: Why a Frozen Pond Has Fish Alive Below

Easier · 117 words · Flesch-Kincaid grade 1.4

1. A roof of ice.
2. It spreads out and takes up more room.
3. It is lighter than the same amount of water.
4. Fish, frogs and snails.
5. A pond could freeze hard from the bottom, which would hurt the animals.
6. It is like a lid and keeps cold air off the water.

Triangle: Why a Frozen Pond Has Fish Alive Below

This passage · 150 words · Flesch-Kincaid grade 3.2

1. A roof of ice.
2. It spreads out and takes up more room.
3. It is lighter than the same amount of liquid water.
4. Fish, frogs and snails.
5. A pond could freeze solid from the bottom up, which would be bad for animals.
6. It works like a lid and keeps cold air away from the water.

Square: Why a Frozen Pond Has Fish Alive Below

Harder · 154 words · Flesch-Kincaid grade 7

1. A roof of ice.
2. It spreads out and occupies more space.
3. It is lighter than an equal amount of liquid water.
4. Fish, frogs and snails.
5. It might freeze solid from the bottom, which would be dangerous for animals.
6. It acts like a lid and keeps freezing air away.