Name: _____ Date: _____

Frozen Ground That Never Thaws

Circle group

In very cold parts of the world, the ground can stay frozen year after year. Scientists call it permafrost. It is soil, sand and rock held together by ice.

Where there is permafrost, the top layer of ground usually thaws in summer. Mud forms. Small plants can grow. Their roots stay shallow. They cannot dig into the ice below.

Permafrost is a puzzle for builders. A warm house can heat the ground under it. If the frozen soil melts, the ground turns soft. The house may sink or tilt. So people often build on posts. The floor is high above the ground. Cold air moves under the house and keeps the soil frozen. Pipes may be raised on stands too.

Permafrost is also like a freezer. It has kept old plants and animal remains in good shape for a long time. Scientists study them to learn about the past.

Researchers keep a close watch on permafrost.

Questions

1. What is permafrost?

_____

_____

2. What happens to the top layer of ground in summer?

_____

_____

3. Why do plants there have shallow roots?

_____

_____

4. How do builders keep a house from heating the ground?

_____

_____

5. What could happen to a house if the frozen soil melts?

_____

_____

6. Why do scientists study old plants and animal remains in permafrost?

_____

_____

Words to know

permafrost: ground that stays frozen all year long
thaws: melts after being frozen
shallow: not deep
researchers: people who study something to learn new things

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: _____

Frozen Ground That Never Thaws

Triangle group

In very cold parts of the world, the ground itself can stay frozen year after year. Scientists call this frozen ground permafrost. It is made of soil, sand and rock held together by ice.

Even where there is permafrost, the top layer of ground usually thaws in summer. Mud forms, and small plants have a chance to grow. Their roots stay shallow, because they cannot dig down into the ice below.

Permafrost causes a puzzle for builders. A warm house can heat the ground under it. If the frozen soil melts, the ground turns soft and the house may sink or tilt. To prevent this, people often build on posts that lift the floor above the ground. Cold air can move underneath and keep the soil frozen. Pipes may also be raised on stands for the same reason.

Permafrost is also like a freezer. It has kept old plants and animal remains in good shape for a very long time, and scientists study them to learn about the past.

Because permafrost matters to so many things, researchers keep a close watch on it.

Questions

1. What is permafrost?

_____

_____

2. What happens to the top layer of ground in summer?

_____

_____

3. Why do plants there have shallow roots?

_____

_____

4. How do builders keep a house from warming the frozen ground?

_____

_____

5. What could happen to a house if the frozen soil under it melts?

_____

_____

6. Why do scientists study old plants and animal remains in permafrost?

_____

_____

Words to know

permafrost: ground that stays frozen all year long
thaws: melts after being frozen
shallow: not deep
researchers: people who study something to learn new things

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: _____

Frozen Ground That Never Thaws

Square group

In the coldest regions of the world, the ground itself can remain frozen year after year. Scientists refer to this frozen ground as permafrost, and it consists of soil, sand and rock bound together by ice.

Even where permafrost exists, the uppermost layer of ground typically thaws during the summer. Mud forms, and small plants get an opportunity to grow. Their roots remain shallow, because they are unable to dig down into the ice beneath them.

Permafrost presents a genuine puzzle for builders. A heated house can warm the ground underneath it, and if the frozen soil melts, the ground turns soft and the house may sink or tilt. To prevent this, people frequently construct buildings on posts that lift the floor above the ground. Cold air can then circulate underneath and keep the soil frozen. Pipes are sometimes raised on stands for the same reason.

Permafrost also behaves like an enormous freezer. It has preserved ancient plants and animal remains in remarkable condition for a very long time, and scientists study them to learn about the past.

Because permafrost affects so many things, researchers monitor it closely.

Questions

1. What is permafrost?

_____

_____

2. What typically happens to the uppermost layer of ground in summer?

_____

_____

3. Why do plants in these regions have shallow roots?

_____

_____

4. How do builders keep a heated house from warming the frozen ground?

_____

_____

5. What might happen to a house if the frozen soil beneath it melts?

_____

_____

6. Why do scientists study ancient plants and animal remains found in permafrost?

_____

_____

Words to know

permafrost: ground that stays frozen all year long
thaws: melts after being frozen
shallow: not deep
researchers: people who study something to learn new things

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: Frozen Ground That Never Thaws

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

Circle: Frozen Ground That Never Thaws

Easier · 156 words · Flesch-Kincaid grade 2.6

1. Ground that stays frozen year after year.
2. It usually thaws.
3. They cannot dig into the ice below.
4. They build it on posts so cold air moves under it.
5. The ground turns soft and the house may sink or tilt.
6. The cold keeps them in good shape, so they teach about the past.

Triangle: Frozen Ground That Never Thaws

This passage · 183 words · Flesch-Kincaid grade 4.6

1. Ground that stays frozen year after year.
2. It usually thaws.
3. They cannot dig down into the ice below.
4. They build it on posts so cold air can move underneath.
5. The ground would turn soft and the house might sink or tilt.
6. The cold keeps them in good shape, so they can teach about the past.

Square: Frozen Ground That Never Thaws

Harder · 188 words · Flesch-Kincaid grade 7.8

1. Ground that remains frozen year after year.
2. It thaws.
3. They are unable to dig down into the ice beneath them.
4. They construct it on posts so cold air can circulate underneath.
5. The ground would turn soft and the house might sink or tilt.
6. The cold has preserved them in remarkable condition, so they teach about the past.