Name: _____ Date: _____

Iceland: Homes Warmed From Below the Ground

Circle group

Iceland is in the North Atlantic, close to the Arctic Circle. Winters there are long and cold. Yet many homes stay warm without burning oil or gas. They are heated with hot water that comes right out of the ground.

The reason is deep under the island. Iceland sits where two of the great plates of the Earth's crust slowly pull apart. Hot rock lies close to the top. It heats water that has soaked down into the ground. In some places the water rises as steam or as hot springs. Heat from inside the Earth is called geothermal energy.

Engineers drill wells to reach the hot water. They pump it up. It travels through insulated pipes, sometimes for many kilometers, to towns and cities. In the capital, Reykjavik, hot water runs through radiators in homes. It also runs under some sidewalks to keep them free of ice. After the water gives up its heat, it goes back into the ground or is used again.

Hot water also fills outdoor swimming pools. People like to meet friends there, even in winter. Greenhouses use the heat to grow vegetables that could not live in the cold. Geothermal energy also makes some of the electricity. That means the country needs less fuel from other places.

Questions

1. Where is Iceland located?

_____

_____

2. What is geothermal energy?

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_____

3. How does the hot water get from the wells to towns?

_____

_____

4. What do greenhouses in Iceland use the heat for?

_____

_____

5. Why is hot rock close to the top in Iceland?

_____

_____

6. Why do the pipes need to be insulated?

_____

_____

Words to know

geothermal: having to do with heat from inside the Earth
crust: the hard outer layer of the Earth
insulated: covered to keep heat from escaping
radiators: metal heaters that warm a room with hot water
greenhouses: glass buildings where plants are grown

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: _____

Iceland: Homes Warmed From Below the Ground

Triangle group

Iceland sits in the North Atlantic, close to the Arctic Circle, and winters there are long and cold. Even so, many Icelandic homes stay warm without burning oil or gas. They are heated with hot water that comes straight out of the ground.

The reason lies deep below the island. Iceland sits on a place where two of the great plates of the Earth's crust slowly pull apart. Hot rock lies close to the surface, and it heats water that has soaked down into the ground. In some places this water rises as steam or as hot springs. Heat from inside the Earth is called geothermal energy.

Engineers drill wells to reach the hot water. It is pumped to the surface, then travels through insulated pipes, sometimes for many kilometers, to towns and cities. In the capital, Reykjavik, hot water runs through radiators in homes and under some sidewalks to keep them free of ice. After the water has given up its heat, it returns to the ground or goes on to other uses.

Hot water also fills outdoor swimming pools, which are popular places to meet friends, even in winter. Greenhouses use the heat to grow vegetables that would not normally survive such cold weather. Geothermal energy produces some of the electricity as well, which makes the country less dependent on fuel from other places.

Questions

1. Where is Iceland located?

_____

_____

2. What is geothermal energy?

_____

_____

3. How does hot water get from the wells to the towns?

_____

_____

4. What do greenhouses in Iceland use the heat for?

_____

_____

5. Why is hot rock found close to the surface in Iceland?

_____

_____

6. Why do pipes need to be insulated?

_____

_____

Words to know

geothermal: having to do with heat from inside the Earth
crust: the hard outer layer of the Earth
insulated: covered to keep heat from escaping
radiators: metal heaters that warm a room with hot water
greenhouses: glass buildings where plants are grown

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: _____

Iceland: Homes Warmed From Below the Ground

Square group

Iceland lies in the North Atlantic, not far from the Arctic Circle, and its winters are long and bitterly cold. Even so, a great many Icelandic homes remain comfortably warm without burning oil or gas, because they are heated with hot water that flows directly out of the ground.

The explanation lies deep beneath the island. Iceland sits at a location where two of the enormous plates of the Earth's crust are slowly drifting apart. Hot rock lies close to the surface and warms water that has soaked down into the ground. In certain places this water rises as steam or as natural hot springs. Heat that originates from inside the Earth is called geothermal energy.

Engineers drill wells to reach the hot water and pump it to the surface, from where it travels through insulated pipes, sometimes across many kilometers, to towns and cities. In the capital, Reykjavik, the hot water circulates through radiators in homes and beneath some sidewalks to keep them free of ice. Once the water has surrendered its heat, it either returns to the ground or is put to other uses.

Hot water also fills outdoor swimming pools, which remain popular gathering places for friends even in the depths of winter. Greenhouses use the warmth to grow vegetables that could not ordinarily survive such cold weather. Geothermal energy generates some of the nation's electricity as well, making the country less dependent on fuel from other places.

Questions

1. Where is Iceland located?

_____

_____

2. What is geothermal energy?

_____

_____

3. How does hot water travel from the wells to towns and cities?

_____

_____

4. What do greenhouses in Iceland use the warmth for?

_____

_____

5. Why does hot rock lie close to the surface in Iceland?

_____

_____

6. Why do the pipes need to be insulated?

_____

_____

Words to know

geothermal: having to do with heat from inside the Earth
crust: the hard outer layer of the Earth
insulated: covered to keep heat from escaping
radiators: metal heaters that warm a room with hot water
greenhouses: glass buildings where plants are grown

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: Iceland: Homes Warmed From Below the Ground

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

Circle: Iceland: Homes Warmed From Below the Ground

Easier · 213 words · Flesch-Kincaid grade 5

1. In the North Atlantic, close to the Arctic Circle.
2. Heat from inside the Earth.
3. It travels through insulated pipes.
4. To grow vegetables that could not live in the cold.
5. The island sits where two plates of the Earth's crust slowly pull apart.
6. So the water keeps its heat on the long trip to homes.

Triangle: Iceland: Homes Warmed From Below the Ground

This passage · 226 words · Flesch-Kincaid grade 7.5

1. In the North Atlantic, close to the Arctic Circle.
2. Heat from inside the Earth.
3. It travels through insulated pipes.
4. To grow vegetables that would not survive the cold weather.
5. The island sits where two plates of the Earth's crust slowly pull apart.
6. So the water does not lose its heat on the long trip to homes.

Square: Iceland: Homes Warmed From Below the Ground

Harder · 241 words · Flesch-Kincaid grade 10.1

1. In the North Atlantic, not far from the Arctic Circle.
2. Heat that originates from inside the Earth.
3. Through insulated pipes, sometimes across many kilometers.
4. To grow vegetables that could not ordinarily survive the cold weather.
5. The island sits where two plates of the Earth's crust are slowly drifting apart.
6. So the water does not lose its heat on the long journey to homes.