Name: _____ Date: _____

Why the Beach Wind Changes Direction

Circle group

Stay at the beach all day. You may see the wind change. In the afternoon it often blows in from the sea. At night it may blow out to the water. Sand and water heat up and cool down at different speeds. That is why.

In the day, the sun heats the land fast. The sea heats slowly. Warm air over the land goes up. Cool air from the sea moves in. That is a sea breeze.

At night, it flips. The land cools fast. The sea stays warm longer. Warm air over the water goes up. Cool air from the land moves out. That is a land breeze. It blows toward the sea.

Sailors have used these winds for a long time. A boat can leave in the morning with one breeze and come home with another.

Questions

1. Which way does the wind often blow at the beach in the afternoon?

_____

_____

2. Which heats up faster in the sun, the land or the sea?

_____

_____

3. What does warm air over the land do?

_____

_____

4. What is the wind that blows toward the sea at night called?

_____

_____

5. Why is the air over the water warmer at night?

_____

_____

6. How can a sailor use both breezes in one day?

_____

_____

Words to know

breeze: a gentle wind

sailors: people who work on boats at sea

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 the Beach Wind Changes Direction

Triangle group

If you spend a whole day at the beach, you may notice that the wind does not always blow the same way. In the afternoon it often comes in from the sea. After dark it may blow out toward the water. The cause is how fast sand and water warm up and cool down.

During the day, the sun heats the land quickly. The sea warms much more slowly. Warm air over the land rises, and cooler air from over the sea slides in to take its place. People feel this as a cool sea breeze on the beach.

At night the two switch jobs. The land loses its heat quickly, but the sea stays warmer for longer. Now the warmer air is over the water, and it rises. Cooler air from the land moves out to fill the space. That gives you a land breeze that blows toward the sea.

Sailors have long used these winds. A boat can head out in the morning with one breeze and come home with another.

Questions

1. Which way does the wind often blow at the beach in the afternoon?

_____

_____

2. Which warms up faster in the sun, the land or the sea?

_____

_____

3. What happens to warm air over the land?

_____

_____

4. What is a breeze that blows toward the sea at night called?

_____

_____

5. Why is the air over the water warmer than the air over the land at night?

_____

_____

6. How could a sailor use both breezes in one day?

_____

_____

Words to know

breeze: a gentle wind
switch: to change places or trade with each other
rises: goes up
sailors: people who work on boats at sea

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 the Beach Wind Changes Direction

Square group

If you spend an entire day at the beach, you might observe that the wind does not always blow in the same direction. In the afternoon it frequently arrives from the sea, while after dark it may drift out toward the water. The explanation lies in the different rates at which sand and water warm up and cool down.

During the day, the sun heats the land rapidly, whereas the sea warms far more slowly. Warm air above the land rises, and cooler air from over the sea flows in to replace it. People experience this as a refreshing sea breeze along the shore.

At night, the two roles are reversed. The land releases its heat quickly, but the sea remains warmer for much longer. Now the warmer air sits above the water and rises, and cooler air from the land moves outward to fill the gap. The result is a land breeze that blows toward the sea.

Sailors have relied on these winds for generations. A boat can set out in the morning with one breeze and return home with the other.

Questions

1. Which way does the wind frequently blow at the beach in the afternoon?

_____

_____

2. Which warms up more rapidly in the sun, the land or the sea?

_____

_____

3. What happens to warm air above the land?

_____

_____

4. What name is given to a breeze that blows toward the sea at night?

_____

_____

5. Why is the air above the water warmer than the air above the land at night?

_____

_____

6. How might a sailor take advantage of both breezes in a single day?

_____

_____

Words to know

breeze: a gentle wind
rises: goes up
sailors: people who work on boats at sea

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 the Beach Wind Changes Direction

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

Circle: Why the Beach Wind Changes Direction

Easier · 138 words · Flesch-Kincaid grade 0.4

1. It blows in from the sea.
2. The land.
3. It goes up.
4. A land breeze.
5. The sea stays warm longer than the land.
6. Leave with the morning breeze and come home with the evening one.

Triangle: Why the Beach Wind Changes Direction

This passage · 173 words · Flesch-Kincaid grade 3

1. It blows in from the sea.
2. The land.
3. It rises.
4. A land breeze.
5. The sea cools down more slowly than the land.
6. A sailor could leave with the morning breeze and come home with the evening one.

Square: Why the Beach Wind Changes Direction

Harder · 183 words · Flesch-Kincaid grade 6.1

1. It arrives from the sea.
2. The land.
3. It rises.
4. A land breeze.
5. The sea cools down much more slowly than the land.
6. By setting out with the morning breeze and returning with the evening one.