Name: _____ Date: _____

Why Desert Nights Turn Cold

Circle group

Picture a hiker in a desert. At noon, the sun is strong. The hiker wears a hat and drinks lots of water. After dark, the hiker puts on a jacket and shivers. In many deserts, the air can be more than twenty degrees cooler at night. Why does a hot place get so cold?

The answer is water in the air. Humid places have a lot of water vapor. Vapor works like a blanket. It helps keep heat near the ground. Deserts are dry, so the air has little vapor. The sky is often clear, too, with few clouds. Clouds also keep heat in.

In the day, the sun heats the sand and rock. Plants are few, so there is little shade. When the sun sets, the ground sends its warmth back up into the sky. There is no blanket of vapor or cloud. The heat escapes fast, and the air cools quickly.

Desert animals live with these swings. Many rest in burrows or in the shade in the day. They come out to find food after dark, when the air is cooler.

Questions

1. How much cooler can desert air be at night?

_____

_____

2. What does water vapor do in humid air?

_____

_____

3. Why do clear skies make nights colder?

_____

_____

4. What happens to the ground's heat after sunset?

_____

_____

5. Why do many desert animals come out after dark?

_____

_____

6. Why is there little shade in a desert?

_____

_____

Words to know

humid: full of moisture, or damp
burrows: holes or tunnels dug in the ground by animals
shade: a cool, darker spot out of the sunlight

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 Desert Nights Turn Cold

Triangle group

Imagine a hiker in a desert. At noon the sun is fierce, and the hiker wears a hat and drinks lots of water. After dark, the same hiker pulls on a jacket and shivers. In many deserts, the air can feel more than twenty degrees cooler at night than it did during the long, bright afternoon, and that change surprises most visitors. Why does such a hot place get so chilly after the sun goes down?

The answer has to do with water in the air. Humid places hold a lot of water vapor, and vapor acts a bit like a blanket. It helps trap heat near the ground. Deserts are dry, so the air holds little vapor. The sky is often clear, too, with few clouds. Clouds also slow the loss of heat.

During the day the sun heats the sand and rock. Plants are few, so there is little shade to block the light. Once the sun sets, the ground sends its warmth back up into the sky. With no blanket of vapor or cloud, the heat escapes quickly, and the air cools off fast.

Desert animals have found ways to live with these swings. Many rest in burrows or in the shade during the heat of the day. Then they come out to hunt and look for food after the sun goes down, when the air is gentler.

Questions

1. How much cooler can desert air feel at night than in the afternoon?

_____

_____

2. What does water vapor do in humid air?

_____

_____

3. Why do clear skies make nights colder?

_____

_____

4. What happens to the ground's heat after the sun sets?

_____

_____

5. Why do many desert animals come out after dark?

_____

_____

6. Why does a desert have little shade?

_____

_____

Words to know

fierce: very strong and intense
humid: full of moisture, or damp
trap: to hold something so it cannot get away
burrows: holes or tunnels dug in the ground by animals
shade: a cool, darker spot out of the sunlight

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 Desert Nights Turn Cold

Square group

Imagine a hiker crossing a desert. At midday the sun is merciless, and the hiker wears a wide hat and drinks plenty of water. After dark, the same hiker pulls on a heavy jacket and shivers. In many deserts, the air can feel more than twenty degrees cooler at night than it did in the afternoon. How can such a scorching place become so chilly?

The explanation involves the moisture in the air. Humid regions hold a great deal of water vapor, and vapor behaves somewhat like a blanket, helping to trap heat close to the ground. Deserts are dry, so their air contains very little vapor. The sky is frequently cloudless as well, and clouds also slow the escape of heat.

During the day, the sun bakes the sand and rock. Plants are scarce, so there is hardly any shade to block the light. Once the sun sets, the ground radiates its warmth back into the sky. With no blanket of vapor or cloud to hold it in, the heat escapes rapidly, and the air cools off quickly.

Desert animals have adapted to these dramatic swings. Many shelter in burrows or in the shade during the heat of the day, and then emerge to hunt and forage after the sun goes down, when the air is gentler.

Questions

1. How much cooler can desert air feel at night than in the afternoon?

_____

_____

2. What does water vapor do in humid regions?

_____

_____

3. Why do cloudless skies lead to colder nights?

_____

_____

4. What does the ground do with its warmth after the sun sets?

_____

_____

5. Why do many desert animals emerge after dark?

_____

_____

6. Why is there hardly any shade in a desert?

_____

_____

Words to know

humid: full of moisture, or damp
trap: to hold something so it cannot get away
burrows: holes or tunnels dug in the ground by animals
shade: a cool, darker spot out of the sunlight

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 Desert Nights Turn Cold

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

Circle: Why Desert Nights Turn Cold

Easier · 183 words · Flesch-Kincaid grade 2.2

1. More than twenty degrees cooler.
2. It works like a blanket and keeps heat near the ground.
3. With no clouds, heat escapes fast.
4. It goes back up into the sky.
5. The air is cooler then.
6. Plants are few.

Triangle: Why Desert Nights Turn Cold

This passage · 231 words · Flesch-Kincaid grade 3.9

1. More than twenty degrees cooler.
2. It acts like a blanket and helps trap heat near the ground.
3. With no clouds, heat escapes quickly into the sky.
4. It rises back into the sky.
5. The air is cooler and gentler than during the heat of the day.
6. Plants are few.

Square: Why Desert Nights Turn Cold

Harder · 218 words · Flesch-Kincaid grade 6.1

1. More than twenty degrees cooler.
2. It acts like a blanket and traps heat close to the ground.
3. With no clouds to hold it in, heat escapes rapidly into the sky.
4. It radiates it back into the sky.
5. The air is cooler and gentler than in the heat of the day.
6. Plants are scarce.