Name: _____ Date: _____

A Butterscotch Sky Over Mars

Circle group

Robot rovers on Mars send home photos. The photos show a strange sky. At noon, the sky looks tan, like butterscotch. Near sunset, the sky around the sun glows blue. On Earth, it is the other way around. Our sky is blue at noon. Our sunsets are red or orange.

The air is different on each planet. Earth's air has tiny gas molecules. They scatter blue light all over the sky. That is why we see blue. At sunset, the sun's light must cross a lot more air. The blue is scattered away. The reds and oranges are left.

Mars has very thin air. But winds lift fine, rusty dust off the ground. The dust hangs in the air. It blocks much of the blue light. So the day sky looks tan and gold. A little blue light slips past the dust. It makes a small glow around the sun. At sunset, that glow stands out.

The sky on Mars is not like ours. The color of a sky depends on what is in the air.

Questions

1. What color is the sky on Mars at noon?

_____

_____

2. What color glows around the sun near sunset on Mars?

_____

_____

3. What do the winds on Mars lift into the air?

_____

_____

4. Why is Earth's sky blue in the daytime?

_____

_____

5. Why are sunsets on Earth red and orange?

_____

_____

6. What decides the color of a planet's sky?

_____

_____

Words to know

scatter: to send in many different directions
molecules: extremely small bits that make up a gas or other matter
rusty: reddish brown, like old iron

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: _____

A Butterscotch Sky Over Mars

Triangle group

Photos sent home by robot rovers show something strange about Mars. At midday the sky looks a dusty butterscotch color, a bit like weak tea with milk in it. Near sunset, the patch of sky around the sun glows a cool blue. On Earth, the colors are the other way around. We have a blue sky at noon and red or orange skies at sunset.

The difference comes from what is floating in the air. Earth's sky is filled with tiny gas molecules. They scatter blue light in every direction, so blue light reaches your eyes from all parts of the sky. At sunset, sunlight has to cross much more air before it reaches you. Most of the blue is scattered away on the long trip, and the reds and oranges are left.

Mars has a very thin atmosphere, but the winds there lift fine, rusty dust off the ground. The dust hangs in the air and changes how light behaves. It blocks much of the blue light across the sky, so the daytime sky looks tan and golden. Some blue light does slip past the dust and spreads in a small glow right around the sun. Near sunset, that glow is the part that stands out.

A visitor on Mars would see a sky unlike any on Earth. It would be a good reminder that the color of a sky depends on what the air is made of.

Questions

1. What color is the sky on Mars at midday?

_____

_____

2. What color glows around the sun near sunset on Mars?

_____

_____

3. What do the winds on Mars lift into the air?

_____

_____

4. Why does Earth's daytime sky look blue?

_____

_____

5. Why do sunsets on Earth look red and orange?

_____

_____

6. What does the passage suggest decides the color of a planet's sky?

_____

_____

Words to know

scatter: to send in many different directions
molecules: extremely small bits that make up a gas or other matter
atmosphere: the layer of gas around a planet
rusty: reddish brown, like old iron
midday: the middle of the day, around noon

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: _____

A Butterscotch Sky Over Mars

Square group

Photographs transmitted by robotic rovers reveal something peculiar about Mars. At midday the sky takes on a dusty butterscotch hue, rather like weak tea with a splash of milk. Close to sunset, however, the region surrounding the sun glows a cool, pale blue. On Earth the arrangement is reversed: we enjoy a blue sky at noon and fiery red or orange skies as the sun goes down.

The explanation lies in whatever is suspended in each planet's air. Earth's sky is full of tiny gas molecules, and they scatter blue light in every direction, so blue reaches your eyes from nearly every part of the heavens. At sunset, sunlight must travel through a far thicker stretch of air before it arrives. Most of the blue is scattered away during that long journey, which leaves the reds and oranges behind.

Mars has a remarkably thin atmosphere, yet its winds regularly lift fine, rusty dust from the ground. That dust lingers aloft and alters the way light behaves. It blocks a large share of the blue light across the sky, so the daytime sky appears tan and golden. A little blue light does slip past the dust and spreads into a small glow immediately around the sun, and near sunset that glow is the feature that stands out most.

A traveler standing on Mars would see a sky unlike any on Earth, and it would serve as a vivid reminder that a sky's color depends entirely on what the air is made of.

Questions

1. What color does the Martian sky appear at midday?

_____

_____

2. What color glows around the sun close to sunset on Mars?

_____

_____

3. What do the winds on Mars regularly lift from the ground?

_____

_____

4. Why does Earth's daytime sky look blue?

_____

_____

5. Why do sunsets on Earth turn red and orange?

_____

_____

6. What does the passage suggest determines the color of a sky?

_____

_____

Words to know

scatter: to send in many different directions
molecules: extremely small bits that make up a gas or other matter
atmosphere: the layer of gas around a planet
rusty: reddish brown, like old iron
midday: the middle of the day, around noon

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: A Butterscotch Sky Over Mars

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

Circle: A Butterscotch Sky Over Mars

Easier · 176 words · Flesch-Kincaid grade 1.3

1. Tan, like butterscotch.
2. Blue.
3. Fine, rusty dust.
4. Tiny gas molecules scatter blue light all over the sky.
5. The sun's light crosses more air, and the blue is scattered away.
6. What is in the air, such as gas or dust.

Triangle: A Butterscotch Sky Over Mars

This passage · 239 words · Flesch-Kincaid grade 4.5

1. A dusty butterscotch color.
2. A cool blue.
3. Fine, rusty dust from the ground.
4. Tiny gas molecules scatter blue light in every direction.
5. Sunlight crosses more air, and most of the blue is scattered away.
6. What the air is made of, such as gas molecules or dust.

Square: A Butterscotch Sky Over Mars

Harder · 251 words · Flesch-Kincaid grade 8.8

1. A dusty butterscotch color.
2. A cool, pale blue.
3. Fine, rusty dust.
4. Tiny gas molecules scatter blue light in every direction.
5. Sunlight travels through much more air, and most of the blue is scattered away.
6. What the air is made of, such as gas molecules or dust.