Name: _____ Date: _____

The Moon Looks Giant Near the Rooftops

Circle group

Have you ever seen the moon rise and thought it looked huge? Low over the rooftops or trees, it seems to fill a big part of the sky. A few hours later, high up, it looks much smaller. But the moon has not changed size at all.

You can test this. Hold a small coin at arm's length. Slide it until it just covers the moon when the moon is low. Do the same thing when the moon is high. The coin covers it the same way both times. A camera shows the same thing. Photos of the moon low and high show the same size.

So the big moon is a trick of the mind. It is called the moon illusion. Scientists still talk about why it happens. One idea is this. When the moon is near the horizon, we can compare it with buildings, hills, and trees. They make it seem bigger. High in an empty sky, the moon has nothing near it to compare with. So it looks smaller.

The moon also often looks yellow or orange when it is low. That color comes from the thick air its light passes through. Next time you see a giant moon, try the coin test.

Questions

1. What do many people think they see when the moon rises?

_____

_____

2. How can you test that the moon stays the same size?

_____

_____

3. What does a camera show about the moon's size?

_____

_____

4. What is the idea about buildings, hills, and trees?

_____

_____

5. Why might the moon look smaller in an empty sky?

_____

_____

6. What is this trick of the mind called?

_____

_____

Words to know

illusion: something that seems real but is a trick of the eyes or mind
horizon: the line where the sky seems to meet the ground
compare: to look at how two things are alike or different

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: _____

The Moon Looks Giant Near the Rooftops

Triangle group

Have you ever seen the moon rise on a clear evening and thought it looked enormous? Low over the rooftops or trees, it seems to fill a big part of the sky. A few hours later, high overhead, it looks much smaller. Yet the moon has not changed size at all.

You can prove this with a simple test. Hold a small coin at arm's length and slide it until it just covers the moon when the moon is low. Do the same thing when the moon is high. The coin covers it in the same way both times. A camera shows the same result, because photographs taken at both times show the moon at the same size.

So the big moon is a trick of the mind, called the moon illusion. Scientists still talk about exactly why it happens. One idea is that when the moon sits near the horizon, we can compare it with buildings, hills, and trees. Those things make it seem larger. High in an empty sky, the moon has nothing near it to compare with, so it looks smaller.

Another clue is that the moon often looks yellow or orange when it is low. This color comes from the thick layer of air that its light passes through, and it adds to the feeling that the moon is special. The next time you see a giant moon, try the coin test and let your eyes be fooled.

Questions

1. What do many people think they see when the moon rises low in the sky?

_____

_____

2. How can you prove that the moon does not change size?

_____

_____

3. What does a camera show about the moon's size?

_____

_____

4. What is the idea about buildings, hills, and trees?

_____

_____

5. Why might the moon look smaller high in an empty sky?

_____

_____

6. What is the name for this trick of the mind?

_____

_____

Words to know

enormous: very, very large
illusion: something that seems real but is a trick of the eyes or mind
horizon: the line where the sky seems to meet the ground
compare: to look at how two things are alike or different
clue: a small sign that helps you work something out

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: _____

The Moon Looks Giant Near the Rooftops

Square group

Have you ever watched the moon rise on a clear evening and marveled at how gigantic it appears? Hanging low over the rooftops or the treetops, it seems to occupy a vast portion of the sky. A few hours later, high overhead, it looks considerably smaller. Nevertheless, the moon has not changed size in the slightest.

You can demonstrate this with a simple experiment. Hold a small coin at arm's length and slide it until it just covers the moon while the moon is low. Then repeat the same step when the moon is high. The coin covers it in exactly the same way both times. A camera confirms the result, because photographs taken at both times show the moon at an identical size.

The enormous moon is therefore a trick of the mind, known as the moon illusion. Scientists continue to debate exactly why it occurs. One idea is that when the moon sits near the horizon, we are able to compare it with buildings, hills, and trees, and those familiar objects make it appear larger. High in an empty sky, the moon has nothing nearby to measure it against, so it seems smaller.

Another clue is that the moon often looks yellow or orange when it is low. This color comes from the thick layer of air through which its light must pass, and it adds to the impression that the moon is something special. The next time you notice a giant moon, perform the coin test and see how easily your eyes can be fooled.

Questions

1. What do many people notice when the moon rises low in the sky?

_____

_____

2. How can you demonstrate that the moon does not change size?

_____

_____

3. What does a camera confirm about the moon's size?

_____

_____

4. What is the idea about buildings, hills, and trees?

_____

_____

5. Why might the moon seem smaller in an empty sky?

_____

_____

6. What is this trick of the mind known as?

_____

_____

Words to know

enormous: very, very large
illusion: something that seems real but is a trick of the eyes or mind
horizon: the line where the sky seems to meet the ground
compare: to look at how two things are alike or different
clue: a small sign that helps you work something out

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: The Moon Looks Giant Near the Rooftops

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

Circle: The Moon Looks Giant Near the Rooftops

Easier · 206 words · Flesch-Kincaid grade 1.8

1. It looks huge, as if it fills a big part of the sky.
2. Hold a coin at arm's length. It covers the moon the same way when low and when high.
3. The moon is the same size low and high.
4. Near the horizon we compare the moon with them, and that makes it seem bigger.
5. It has nothing near it to compare with.
6. The moon illusion.

Triangle: The Moon Looks Giant Near the Rooftops

This passage · 242 words · Flesch-Kincaid grade 4.2

1. It looks enormous, as if it fills a big part of the sky.
2. Hold a coin at arm's length. It covers the moon the same way when the moon is low and when it is high.
3. The moon is the same size low and high in the sky.
4. Near the horizon we compare the moon with them, which makes it seem larger.
5. It has nothing near it to compare with.
6. The moon illusion.

Square: The Moon Looks Giant Near the Rooftops

Harder · 258 words · Flesch-Kincaid grade 7

1. It appears gigantic, as if it occupies a vast portion of the sky.
2. Hold a coin at arm's length. It covers the moon in the same way when the moon is low and when it is high.
3. The moon is an identical size when low and when high.
4. Near the horizon we can compare the moon with them, which makes it appear larger.
5. It has nothing nearby to measure it against.
6. The moon illusion.