

My Shadow is following me

Everyday Kayla walks to school with her mother. One day while walking to school Kayla noticed her shadow on the ground. Kayla asked her mother why her shadow followed her everywhere she went. Kayla's mother said, "Your shadow is made because your body is blocking the light from the sun." This was not enough for Kayla and she continued to wonder about her shadow.

SCIENCE FACT #1

The sun is at the center of our solar system. The sun gives us light and heat. Without the sun, our shadow would not follow us as we walked around outside.

At school the next day, Kayla's class went outside to play on the playground after lunch. It was very warm and the sun was high in the sky. Kayla noticed that her shadow was much smaller than it had been on the walk to school that morning. Kayla also noticed that a lot of the things at school had shadows as well. Kayla's friend, Ben, also had a shadow, but his was longer than hers. Kayla wondered why.

SCIENCE FACT #2

Noon is measured by our clock as 12:00 noon. This is usually around the time that we eat lunch. Midday is also a word that is used to describe this time of the day. Midday is the time of day when the sun is highest in our sky. This is usually around 12:00 noon but is not always exactly at this time. This time is different depending on where you live.

Kayla continued to watch shadows as she walked home from school with her mother that afternoon. Kayla and her mother talked about the shadows as they neared their home. Kayla's mother told her that the earth and the planets go around the sun. The sun gives us our heat and our light. Kayla's mother also explained to her that the earth spins in a circle as it goes around the sun. Just as her spinning-top toy does. Kayla's mother pointed out that in the morning the sun is very low in the sky which causes the shadow from her body to be very long. At lunch the sun is just above her head which causes her shadow to be smaller because her body is not blocking out as much of the light.

SCIENCE FACT #3

The earth gets its light from the sun and traps the its heat to keep us warm. The earth spins on its axis as it goes around the sun.

Try it! If you spin around in a circle you will be able to see how the earth spins on its axis. Now if you can get your friend to stand really still while you move around her as you continue to spin, you will see a little better how the earth moves around the sun.

Kayla's mother told her that if she watched two trees that were much different in size for a whole day, their shadows would be different size, but would move in similar ways. Kayla thought this was a great thing to try and even told her teacher about it the next day.

Name _____

Date _____

Kayla and her teacher decided to try an experiment. Kayla and her class decided to use their pencils to measure the shadows. They used one short pencil and one long pencil. They put the two pencils in the ground in a very sunny spot. The class watched the pencils during an entire day and they wrote down what they saw. The class noticed that in the morning the shadows from the pencils were long. At lunch the shadows were smaller and then right before they left to go home, the pencil shadows were longer again. They also noticed that the two pencils had different size shadows. The longer pencil had a longer shadow than the short one.

The class discussed what makes a shadow. The teacher told the class that a shadow is formed when light from the sun is blocked by the pencil and a larger item creates a bigger shadow. The teacher also explained that as the day goes by, the sun is in a different place in our sky. This is because the earth is turning and we see the sun from a different angle.

The teacher told the class that another great way to see shadows is with a light in a dark room. The class planned another experiment with a flashlight inside the classroom the next day. On the walk home that afternoon Kayla told her mother all about her adventures at school that day. Her mother told her to keep thinking about all of these things.

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Lesson Plan: My Shadow is following me
Designed for students in Grades 3 and 4

Students will learn:

- that the sun is at the center of the Solar System;
- how a shadow is created;
- how a shadow changes during a day in the northern hemisphere.

Example: Student Task #1:

- Students read the story, “My Shadow is Following Me”, and answer the questions on the worksheet provided. Students can then create a cartoon skit that shows shadows at different times of the day.

Example: Student Task #2:

- Students read the story, “My Shadow is Following Me”, and answer the questions on the worksheet provided. Students can then work in groups to create a play or a skit using shadow puppets and music to explain the basic concepts behind a shadow.

Really great websites:

#1: This website explains the movement of the Moon, the Earth and the Sun.

<http://www.schoolsobservatory.org.uk/astro/esm/esm.shtml>

#2: Great website by pbskids.org that tells about research that a school group has done and other topics about light and color.

<http://pbskids.org/dragonflytv/show/lightandcolor.html>

Name _____

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Name: _____

Date: _____

My Shadow is Following Me

Directions: Use the story, “My shadow is following me”, to answer the following reading questions. Try to answer as many questions as you can without looking back for the answers. Remember to answer in complete sentences and to watch your spelling.

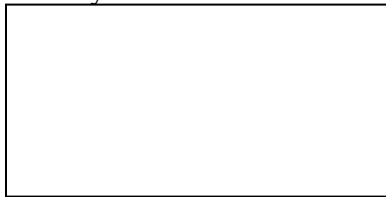
1. In the story, Kayla is thinking about shadows. What did Kayla’s mom tell her causes shadows?

2. A resource is something that people need or use. The sun is one of our resources. What did the story tell us we use the sun for?

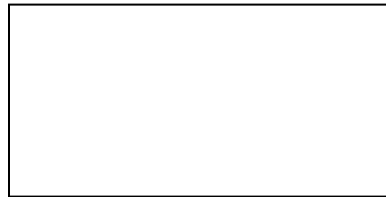
3. In the story we learned that the earth moves in a certain way even though we cannot feel it moving. Describe the way the earth and the sun move.

4. What is the difference between midday and noon? Draw a picture in each of the boxes below to describe these terms.

Midday



Noon



5. In the story, Kayla’s class set up an experiment to test what they wanted to learn about shadows. Describe another test that your class could do to test shadows.

My Shadow is Following Me!

ANSWER KEY

Directions: Use the story, “My shadow is Following Me”, to answer the following reading questions. Try to answer as many questions as you can without looking back for the answers. Remember to answer in complete sentences and to watch your spelling.

1. In the story, Kayla is thinking about shadows. What did Kayla’s mom tell her causes shadows?

Kayla’s mother told her that shadows are caused by an object blocking light.

2. A resource is something that people need or use. The sun is one of our resources. What did the story tell us that we use the sun for?

The sun gives us light and heat.

3. In the story we learned that the earth moves in a certain way even though we cannot feel it moving. Describe the way the earth and the sun move.

The Earth spins on its axis as it moves around the sun.

4. What is the difference between midday and noon? Draw a picture in each of the boxes below to describe these terms.

Midday

A picture with the sun high in the sky would answer this question. There may be other variations to this answer.

Noon

A picture with a clock showing 12:00 would answer this question. There may be other variations to this answer.

5. In the story, Kayla’s class set up an experiment to test what they wanted to learn about shadows. Describe another test that your class could do to test shadows.

This question asks the students for their opinions. Any thoughtful answer would be appropriate. An excellent answer would stretch the topic one step farther.

Ex: The class could also test the affect of weather on shadows.