Name: _____ Date: _____

Dung Beetles Follow the Milky Way

Circle group

Some dung beetles have a smelly job. They shape a ball out of animal dung and roll it away. The ball is food. It is also a home for their young.

There is a problem. Other beetles want the ball too. A beetle that walks in circles will meet a thief. So it rolls its ball in a straight line. That takes it away from the crowd fast.

How does a beetle stay on course in the dark? Many dung beetles work at night. Scientists wanted to know. On clear nights, the beetles rolled straight, even with no moon. On cloudy nights, they rolled in loops.

The scientists tried a planetarium. It shows the night sky on a dome. When the dome showed the stars, the beetles went straight. The beetles seemed to use the long, pale band of light called the Milky Way.

Next, the scientists put tiny cardboard hats on the beetles. With the sky blocked, the beetles wandered.

Questions

1. What do dung beetles do with the dung?

_____

_____

2. Why does a beetle roll its ball in a straight line?

_____

_____

3. What did scientists see on clear nights with no moon?

_____

_____

4. What did the scientists use to show the sky indoors?

_____

_____

5. What happened when the beetles wore tiny hats?

_____

6. Why did the beetles roll in loops on cloudy nights?

Words to know

dung: the waste that an animal leaves behind
planetarium: a building with a dome that shows the night sky
scientists: people who study how the world works

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: _____

Dung Beetles Follow the Milky Way

Triangle group

Some dung beetles have a smelly job and a smart way of doing it. They shape a ball out of animal dung and roll it away. The ball is food, and it is also a home for their young.

There is a problem, though. Other beetles want the ball too. A beetle that wanders in circles will soon meet a thief. So it rolls its ball in a straight line, and the straight path takes it away from the crowd quickly.

How does a beetle stay on course in the dark? Many dung beetles work at night. Scientists wanted to find out. They noticed that on clear nights the beetles rolled straight, even when there was no moon. On cloudy nights, they rolled in loops.

The scientists tested their idea in a planetarium, a room that shows the night sky on a dome. When the dome showed the stars, the beetles went straight. When it showed only a few bright stars, they did less well. The beetles seemed to use the long, pale band of light called the Milky Way.

In another test, the scientists placed tiny cardboard hats over the beetles' eyes. With their view of the sky blocked, the beetles wandered. They were the first animals known to steer by the Milky Way.

Questions

1. What do dung beetles do with the dung?

_____

_____

2. Why does a beetle roll its ball in a straight line?

_____

_____

3. What did scientists notice on clear nights without a moon?

_____

_____

4. What did the scientists use to show the sky indoors?

_____

_____

5. What happened when the beetles wore tiny cardboard hats?

_____

_____

6. Why did the beetles roll in loops on cloudy nights?

_____

_____

Words to know

dung: the waste that an animal leaves behind
planetarium: a building with a dome that shows the night sky
steer: to guide where something goes
wanders: walks around with no clear path
scientists: people who study how the world works

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: _____

Dung Beetles Follow the Milky Way

Square group

Certain dung beetles have an unpleasant job and an ingenious way of doing it. They mold a ball out of animal dung and roll it away, and the ball serves both as food and as a nursery for their young.

Unfortunately, other beetles covet the ball as well. A beetle that wanders in circles will soon encounter a thief, so it rolls its ball along a straight line, which carries it quickly away from the crowd.

How does a beetle maintain its course in the dark? Many dung beetles work at night, and scientists were determined to discover the answer. They observed that on clear nights the beetles rolled straight even when there was no moon, whereas on cloudy nights they rolled in loops.

The scientists then tested their idea in a planetarium, a room that projects the night sky onto a dome. When the dome displayed the stars, the beetles traveled straight, but when it displayed only a few bright stars, they performed less well. The beetles appeared to rely on the long, pale band of light known as the Milky Way.

In a further experiment, the scientists placed tiny cardboard hats over the beetles' eyes. With their view of the sky blocked, the beetles wandered aimlessly. They were the first animals known to steer by the Milky Way.

Questions

1. What do dung beetles do with the dung?

_____

_____

2. Why does a beetle roll its ball along a straight line?

_____

_____

3. What did scientists observe on clear nights without a moon?

_____

_____

4. What did the scientists use to project the sky indoors?

_____

_____

5. What happened when the beetles wore tiny cardboard hats?

_____

_____

6. Why did the beetles roll in loops on cloudy nights?

_____

_____

Words to know

dung: the waste that an animal leaves behind
planetarium: a building with a dome that shows the night sky
steer: to guide where something goes
wanders: walks around with no clear path
scientists: people who study how the world works

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: Dung Beetles Follow the Milky Way

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

Circle: Dung Beetles Follow the Milky Way

Easier · 161 words · Flesch-Kincaid grade 1.9

1. They shape it into a ball and roll it away.
2. It gets away from other beetles that might steal the ball.
3. The beetles still rolled straight.
4. A planetarium.
5. They wandered, because they could not see the sky.
6. Clouds hid the sky, so they could not steer by the Milky Way.

Triangle: Dung Beetles Follow the Milky Way

This passage · 215 words · Flesch-Kincaid grade 3.2

1. They shape it into a ball and roll it away.
2. A straight path takes it away from other beetles that might steal the ball.
3. The beetles still rolled their balls in a straight line.
4. A planetarium.
5. They wandered, because they could not see the sky.
6. Clouds hid the sky, so they could not use the Milky Way to steer.

Square: Dung Beetles Follow the Milky Way

Harder · 220 words · Flesch-Kincaid grade 7.1

1. They mold it into a ball and roll it away.
2. A straight path carries it quickly away from other beetles that might steal the ball.
3. The beetles still rolled their balls straight.
4. A planetarium.
5. They wandered aimlessly, because their view of the sky was blocked.
6. Clouds hid the sky, so the beetles could not rely on the Milky Way to steer.