Name: _____ Date: _____

# Dung Beetles Steer by the Milky Way

Circle group

A dung beetle has a simple job. It finds a pile of animal dung and shapes a piece into a ball. Then it rolls the ball away. The beetle will eat the ball or bury it for its young. But there is a problem. Other beetles crowd around the pile and may steal the ball.

The best plan is to roll the ball in a straight line, away from the crowd. If the beetle went in circles, it could roll right back to the other beetles.

The beetle climbs on top of its ball and turns around in a little dance. It looks at the sky to find its direction. In the day, it uses the sun. On nights with a moon, it uses the moon.

Scientists wanted to know what happens with no moon. They found that some dung beetles use the band of stars called the Milky Way. They are the first animals known to do this. The beetle cannot see single stars well. It sees the faint, bright band.

The beetle has a tiny brain, but it knows which way to go.

## Questions

**1. What does a dung beetle do with the ball it makes?**

_____

_____

**2. Why is rolling in a straight line a good plan?**

_____

_____

**3. What does the beetle use to find direction in the day?**

_____

_____

**4. What does the beetle use on nights with no moon?**

_____

_____

**5. Why does the beetle climb on its ball and turn around?**

_____

_____

**6. What is special about the beetle's use of the Milky Way?**

_____

_____

## Words to know

dung: the waste that animals leave behind
direction: the way you are heading
faint: weak and hard to see

## 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 Steer by the Milky Way

Triangle group

A dung beetle has a simple but important job. It finds a pile of animal dung, shapes a piece into a ball and rolls it away. The beetle will eat the ball or bury it for its young. But there is a problem. Other beetles crowd around the pile and may try to steal the ball.

The best plan is to roll the ball in a straight line, and away from the crowd as fast as possible. If the beetle wandered in circles, it could roll right back into the other beetles.

The beetle stands on top of its ball and turns around in a little dance. It looks at the sky to find its direction. In the day, it uses the sun. Some beetles can also use the pattern of light in the sky that we cannot see. On moonlit nights, they use the moon.

Scientists wanted to know what happens when there is no moon. They found that some dung beetles use the band of stars called the Milky Way. They are the first animals known to do this. A beetle does not see the stars as detailed points, but it sees the faint, bright band across the sky.

The beetle has a tiny brain, but it has a great sense of direction.

## Questions

**1. What does a dung beetle do with the ball it makes?**

_____

_____

**2. Why is rolling in a straight line a good plan?**

_____

_____

**3. What does the beetle use to find direction in the day?**

_____

_____

**4. What does the beetle use on nights with no moon?**

_____

_____

**5. Why does the beetle climb on top of its ball and turn around?**

_____

_____

**6. What is special about the beetle's use of the Milky Way?**

_____

_____

## Words to know

dung: the waste that animals leave behind
wandered: moved around with no clear path
direction: the way you are heading
faint: weak and hard to see
pattern: a repeating design

## 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 Steer by the Milky Way

Square group

A dung beetle has a simple but vital job. It locates a pile of animal dung, shapes a piece of it into a ball and rolls it away. The beetle will eat the ball or bury it as food for its young. Unfortunately, there is a complication. Other beetles swarm around the pile and may attempt to steal the ball.

The best strategy is to roll the ball in a straight line, and to move away from the crowd as quickly as possible. If the beetle wandered in circles, it might roll straight back into the other beetles.

The beetle stands on top of its ball and turns around in a small dance. It studies the sky to determine its direction. During the day, it relies on the sun. Some beetles can also use a pattern of light in the sky that we cannot see. On moonlit nights, they use the moon.

Scientists wondered what happens when there is no moon at all. They discovered that some dung beetles use the broad band of stars called the Milky Way. These beetles are the first animals known to do this. A beetle does not see the stars as sharp, detailed points, but it does see the faint, bright band stretching across the sky.

The beetle has a tiny brain, yet it possesses a remarkable sense of direction.

## Questions

**1. What does a dung beetle do with the ball it shapes?**

_____

_____

**2. Why is rolling in a straight line a good strategy?**

_____

_____

**3. What does the beetle rely on to find direction during the day?**

_____

_____

**4. What does the beetle use on nights when there is no moon?**

_____

_____

**5. Why does the beetle stand on top of its ball and turn around?**

_____

_____

**6. What is special about the beetle's use of the Milky Way?**

_____

_____

## Words to know

dung: the waste that animals leave behind
wandered: moved around with no clear path
direction: the way you are heading
faint: weak and hard to see
pattern: a repeating design

## 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 Steer by the Milky Way

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

### Circle: Dung Beetles Steer by the Milky Way

Easier · 185 words · Flesch-Kincaid grade 2.6

1. It rolls it away to eat or bury for its young.
2. It gets the beetle away from the crowd, so nobody steals the ball.
3. The sun.
4. The band of stars called the Milky Way.
5. To look at the sky and find its direction.
6. These beetles are the first animals known to do it.

### Triangle: Dung Beetles Steer by the Milky Way

This passage · 215 words · Flesch-Kincaid grade 3.9

1. It rolls it away to eat or bury for its young.
2. It gets the beetle away from the crowd fast, so nobody steals the ball.
3. The sun.
4. The band of stars called the Milky Way.
5. To look at the sky and find its direction.
6. Scientists found these beetles to be the first animals known to do it.

### Square: Dung Beetles Steer by the Milky Way

Harder · 226 words · Flesch-Kincaid grade 5.2

1. It rolls it away to eat or bury as food for its young.
2. It carries the beetle away from the crowd quickly, so nobody steals the ball.
3. The sun.
4. The band of stars called the Milky Way.
5. To study the sky and determine its direction.
6. These beetles are the first animals known to do it.