Name: _____ Date: _____

Scooping a Handful of Dust From Bennu

Circle group

We learn most about asteroids by looking from far away. A few missions did better. They brought home tiny pieces of an asteroid. Scientists could study them on Earth. One mission used a spacecraft named OSIRIS-REx. It went to an asteroid named Bennu.

Bennu is dark and rocky. It looks a bit like a spinning top. It is not one big boulder. It is more like a pile of rubble. Its own gravity holds it together, but the gravity is weak. A spacecraft cannot land on it like a plane on a runway. The craft had to move in very slowly. It touched the surface for just a few seconds.

Here is how it worked. The spacecraft had a long arm with a round collector on the end. In 2020, the collector touched Bennu. It let out a puff of gas. The gas stirred up dust and small pebbles. They went into the collector. Then the spacecraft backed away.

The sample was sealed in a capsule. In 2023, the capsule left the spacecraft. It fell through the sky on a parachute. It landed safely in a desert. Scientists picked it up right away.

Bennu is made of leftover material from when the planets were forming. Scientists study its grains in labs. They give clues about how the solar system began.

Questions

1. What was the name of the spacecraft that went to Bennu?

_____

_____

2. What is Bennu like?

_____

_____

3. Why could the spacecraft not land on Bennu like a plane on a runway?

_____

_____

4. How did the collector get dust and pebbles?

_____

_____

5. How did the sample get back to Earth?

_____

_____

6. Why do scientists study the grains from Bennu?

_____

_____

Words to know

asteroid: a small rocky object that circles the sun
rubble: a heap of broken rocks and pieces
capsule: a small container built to carry things
collector: a tool that gathers things
sealed: closed up tightly so nothing gets in or 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: _____

Scooping a Handful of Dust From Bennu

Triangle group

Most of what we know about asteroids comes from looking at them from far away. A few missions have done much better. They have brought home tiny pieces of an asteroid for scientists to study right here on Earth. One of them was a spacecraft named OSIRIS-REx, and its target was an asteroid called Bennu.

Bennu is a dark, rocky object shaped a bit like a spinning top. It is not one solid boulder. It is more like a pile of rubble held together by its own weak gravity. Its gravity is so weak that a spacecraft cannot land on it the way a plane lands on a runway. The craft had to move in very slowly and touch the surface for just a few seconds.

Here is how the collection worked. The spacecraft stretched out a long arm with a round collector on the end. When the collector touched Bennu in 2020, it released a puff of gas. The gas stirred up dust and small pebbles, which were swept into the collector. Then the spacecraft backed away.

The sample was sealed in a capsule. In 2023, the capsule separated from the spacecraft and fell through the sky with a parachute. It landed safely in a desert, and scientists collected it right away.

Bennu is made of material left over from the time when the planets were forming. Studying its grains in laboratories gives clues about how the solar system began.

Questions

1. What was the name of the spacecraft that visited Bennu?

_____

_____

2. What is Bennu like?

_____

_____

3. Why could the spacecraft not land on Bennu like a plane on a runway?

_____

_____

4. How did the collector gather dust and pebbles?

_____

_____

5. How did the sample come back to Earth?

_____

_____

6. Why do scientists study the grains from Bennu?

_____

_____

Words to know

asteroid: a small rocky object that circles the sun
rubble: a heap of broken rocks and pieces
capsule: a small container built to carry things
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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: _____

Scooping a Handful of Dust From Bennu

Square group

Most of what we know about asteroids has been gathered by observing them from a great distance. A handful of missions have accomplished something far more ambitious. They have carried tiny fragments of an asteroid back to Earth so that scientists can examine them in laboratories. One such mission used a spacecraft called OSIRIS-REx, and its target was an asteroid named Bennu.

Bennu is a dark, rocky object shaped somewhat like a spinning top. It is not a single solid boulder but rather a loose heap of rubble held together by its own feeble gravity. That gravity is so weak that a spacecraft cannot settle onto it the way an airplane settles onto a runway. Instead, the craft had to creep in very slowly and brush the surface for only a few seconds.

The collection worked in the following way. The spacecraft extended a long arm with a round collector at the end of it. When the collector touched Bennu in 2020, it released a puff of gas. The gas stirred up dust and small pebbles, which were swept into the collector. Then the spacecraft retreated.

The sample was sealed inside a capsule. In 2023, the capsule separated from the spacecraft and drifted down through the sky beneath a parachute. It landed safely in a desert, where scientists gathered it up without delay.

Bennu consists of material left over from the era when the planets were forming, so studying its grains in laboratories provides valuable clues about how the solar system began.

Questions

1. What was the name of the spacecraft that visited Bennu?

_____

_____

2. How does the passage describe Bennu?

_____

_____

3. Why could the spacecraft not settle onto Bennu like an airplane onto a runway?

_____

_____

4. How did the collector gather dust and pebbles?

_____

_____

5. How did the sample return to Earth?

_____

_____

6. Why do scientists study the grains from Bennu?

_____

_____

Words to know

asteroid: a small rocky object that circles the sun
rubble: a heap of broken rocks and pieces
capsule: a small container built to carry things
collector: a tool that gathers things
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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: Scooping a Handful of Dust From Bennu

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

Circle: Scooping a Handful of Dust From Bennu

Easier · 219 words · Flesch-Kincaid grade 3.7

1. OSIRIS-REx.
2. A dark, rocky pile of rubble that looks a bit like a spinning top.
3. Bennu's gravity is very weak.
4. It touched the surface and let out a puff of gas that stirred them up.
5. In a sealed capsule that fell on a parachute and landed in a desert in 2023.
6. They are left over from when planets formed, so they give clues about how the solar system began.

Triangle: Scooping a Handful of Dust From Bennu

This passage · 240 words · Flesch-Kincaid grade 5.9

1. OSIRIS-REx.
2. A dark, rocky pile of rubble shaped a bit like a spinning top.
3. Bennu's gravity is very weak.
4. It touched the surface and released a puff of gas that stirred them up.
5. In a sealed capsule that fell with a parachute and landed in a desert in 2023.
6. They are left over from when the planets formed, so they give clues about how the solar system began.

Square: Scooping a Handful of Dust From Bennu

Harder · 251 words · Flesch-Kincaid grade 8.4

1. OSIRIS-REx.
2. A dark, rocky heap of rubble shaped somewhat like a spinning top.
3. Bennu's gravity is very feeble.
4. It touched the surface and released a puff of gas that stirred them up.
5. In a sealed capsule that drifted down beneath a parachute and landed in a desert in 2023.
6. They are left over from when the planets formed, so they offer clues about how the solar system began.