

NEWS BREAK

Article: **NASA spacecraft to deliver asteroid rubble to Earth**

Section: **MAIN, A6**

Sunday's News Break selects an article from **Sunday, September 24, 2023**, of The Seattle Times print replica for an in-depth reading of the news. Read the selected article and answer the attached study questions.

You are encouraged to modify this lesson to fit the needs of your students. For example, some teachers might use this as a take-home assignment and others might read and answer the questions in a small group or larger, class discussion.

****Please be sure to preview all NIE content before using it in your classroom to ensure it is appropriate for your students.***

Standards:

CCSS.ELA-Literacy.RI.4.1

- Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

CCSS.ELA-Literacy.RI.4.2

- Determine the main idea of a text and explain how it is supported by key details; summarize the text.

Objectives:

Students will learn about the NASA project to retrieve samples from asteroid, Bennu. Scientists are trying to discover why we are here on earth. They believe Bennu contains rocks that date to the earliest part of the solar system, 4 billion years. They'll discuss whether space exploration is important and what they think the rubble testing will find. They'll also discuss whether they feel that scientists could come up with a plan to "deflect" an asteroid coming close or potentially striking the earth, in the future, and what those ideas might look like.

Pre-Reading Discussion:



- What do you think the article will be about, using this picture?
- Are there any clues? What can you infer?

Vocabulary Building:

Read this sentence, what do you think the highlighted words mean using *context clues*? A **context clue** is a word or words that are hints and refers to the sources of information outside of words that readers may use to predict the identities and meanings of unknown words.

A NASA spacecraft will fly by Earth on Sunday and drop off what is expected to be at least a cupful of **rubble** it grabbed from the asteroid Bennu, closing out a seven-year quest.

Rubble Guess:

Rubble Definition:

Comprehension Questions:

1. Planet Earth is about to receive a special delivery — the biggest sample from what?
2. A NASA spacecraft will fly by Earth on Sunday and drop off what is expected to be at least a cupful of rubble it grabbed from the asteroid _____, closing out a seven-year quest.
3. The sample capsule will _____ into the Utah desert as its mothership, the Osiris-Rex spacecraft, zooms off for an encounter with another asteroid.

4. Scientists anticipate getting about a _____ of pebbles and dust, much more than the teaspoon or so brought back by Japan from two other asteroids.
5. No other country has fetched pieces of asteroids, preserved time capsules from the dawn of our solar system that can help explain what?
6. Sunday's landing concludes a _____-_____ journey highlighted by the rendezvous with the carbon-rich Bennu.
7. The long journey Asteroid chaser _____-_____ blasted off on the \$1 billion mission in 2016.
8. Three years ago, the spacecraft swooped in and reached out with its 11-foot stick vacuum, momentarily touching the asteroid's surface and sucking up what?
9. The exact amount inside won't be known until what?
10. What do we know about the details of Bennu?
11. Scientists believe Bennu holds leftovers from the solar system's formation _____ billion years ago.
12. It may come dangerously close and strike Earth on _____, _____ — exactly 159 years after the asteroid's first pieces arrive. Osiris-Rex's up-close study can help humanity figure out how to deflect Bennu if needed, Laurretta said.
13. Game day Osiris-Rex will release the sample capsule from _____ miles out, four hours before it's due to touch down at the Defense Department's Utah Test and Training Range on Sunday morning. The release command will come from spacecraft builder Lockheed Martin's control center in Colorado. Soon afterward, the mothership will steer away and take off to explore another asteroid.
14. The capsule — nearly 3 feet wide and 1.6 feet tall — will hit the atmosphere at _____ mph for the final 13 minutes of descent remaining.
15. The main parachute will slow the last mile, allowing for a mild _____ mph touchdown.
16. After a helicopter ride to a clean lab, where will the capsule's final destination?

Discussion Questions (small/large groups), Journal Prompts or Essay Questions:

- ***What surprised (or stood out to) you in the article?***
- ***At first, I thought _____, but now I think _____?***
- ***What things did you already know from prior experience?***
- ***Do you think space exploration is important? Why or why not?***
- ***What do you think the rubble testing will find?***
- ***Do you think scientists would be able to “deflect” an asteroid coming close or potentially striking the earth? How do you think they would do that?***

News Break is posted to the Web on Tuesday. Please share this NIE News Break program with other teachers. To sign-up for the print replica for your class, please [register online](#) or call 206/652-6290 or toll-free 1-888/775-2655.
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