

Asteroid Attack!

A few years ago, astronomers discovered a mile-wide rock tumbling through space. At first, the scientists feared that the newly discovered space rock would plow into Earth on February 1, 2019.

Scientists named the space rock NT7 and clocked its speed at 7 miles per second. The scientists thought the asteroid was heading straight for Earth!

Asteroid Strike!

A mile-wide asteroid could take out an entire continent, scientists say. Fearing the worst, scientists kept their eyes on NT7. They plotted its orbit, or path, around the sun.

After watching NT7 for several weeks, scientists found out that NT7 would miss Earth on February 1, 2019.

Near-Earth Asteroids

Most asteroids orbit the sun between Mars and Jupiter. NT7, however, is a near-Earth asteroid. Near-Earth asteroids orbit the sun close to Earth. NT7 orbits the sun once every 837 days. Its orbit sometimes takes NT7 as far from the sun as Mars. At other times, it is within Earth's orbit.

Scientists know about nearly 350 near-Earth asteroids. They carefully map the orbits of those asteroids to make sure the asteroids don't come too close to our planet.

Scientists say anywhere from 500 to 1,000 near-Earth asteroids are yet to be discovered. Scientists are searching the sky for them. They want to have plenty of warning if one comes too close.

Sudden Impact

An asteroid the size of NT7 may one day come close to Earth, scientists say. "An object of this size would be expected to hit Earth every few million years, and as we get additional data I think this threat will go away," said Donald Yeoman of the National Aeronautics and Space Administration (NASA).

Yeoman and most other scientists say you shouldn't worry too much about asteroids. Most don't think a space rock will pose a threat in the near future. If an asteroid does come near Earth, scientists might be able to destroy it.

One scientist, for instance, said a large laser could be used to zap NT7 if the asteroid came too close to Earth.

What's a Comet?

Many people often confuse asteroids and comets. Asteroids are chunks of rock in space.

Comets are not made of rock. They are made mostly of ice. Comets spend most of their time far from the sun. When a comet nears the sun, heat from the sun warms it, causing the ice to melt. The melting ice forms a comet's long tail. After rounding the sun, the comet moves farther away from the sun. The comet cools and the tail slowly disappears.

Name: _____ Date: _____

1. What detail does the author use to *describe* NT7?

- A The size of NT7 is 8 miles wide.
- B The speed of NT7 is 70 miles per hour.
- C The orbit of NT7 takes 837 days.
- D The color of NT7 matches that of comets.

2. According to the passage, where do most asteroids orbit the sun?

- A between Earth and Mars
- B between Mars and Jupiter
- C between the sun and Earth
- D between Venus and Jupiter

3. Why do you think people often confuse asteroids and comets, as the author points out in paragraph 10?

- A Like asteroids, comets look like space rocks when they are far from the sun.
- B Like comets, most asteroids have long tails when they pass Earth.
- C Like comets, asteroids melt when they get close to the sun.
- D Like asteroids, comets could cause a lot of damage if they hit Earth.

4. Read the following sentence and answer the question below: "A few years ago, astronomers discovered a mile-wide rock tumbling through space."

In the sentence the word **astronomers** means

- A people who study rocks
- B people who study maps of the Earth
- C people who study the sun
- D people who study objects in space

5. The primary purpose of this passage is to

- A compare comets and asteroids
- B describe near-Earth asteroids
- C persuade the reader that NT7 will hit Earth
- D list all the steps scientists take to study asteroids

6. What is NT7?

7. Why would scientists want “plenty of warning” of an asteroid coming close to Earth?

8. The question below is an incomplete sentence. Choose the word that best completes the sentence.

Scientists were worried that NT7 would hit Earth, _____ they watched it and plotted its orbit carefully.

- A yet
- B so
- C unless
- D where

9. Answer the questions based on the sentence below.

Scientists carefully map the orbits of asteroids to make sure the asteroids don't come too close to our planet.

Who? scientists

(do) What _____

Why? _____

10. Read the vocabulary word and definition below, and complete questions 10a, 10b, and 11.

Vocabulary Word: plotted (plot · ted): to draw a line on a map.

10a. Read the five sentences below and underline the word **plotted** in each sentence.

1. The sailor wanted to make sure he was traveling to the right spot, so he plotted his course on his map.
2. The pilot asked his co-pilot to have the path of their flight plotted in order to see how close they would come to a nearby plane.
3. Since they were hiking through unfamiliar forest, the backpackers plotted their path before they left the camp so that they wouldn't get lost.
4. As they were looking for the criminal, the police used their map to plot all of the sightings of the stolen car.
5. Scientists have plotted the path of the comet, so we now know it will pass Earth every 80 years.

10b. Which image shows a path that has been plotted?



11. If you plotted your route before you went somewhere for the first time, would you be more or less likely to get lost?

Teacher Guide & Answers

Passage Reading Level: Lexile 840

Passage Text Structure: Descriptive – the writer explains, defines, or illustrates a concept or topic

Passage Summary: “Asteroid Attack!” describes near-Earth asteroids, including NT7, which scientists feared might strike Earth. The passage concludes by contrasting asteroids and comets, with which asteroids are often confused.

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- A The size of NT7 is 8 miles wide.
- B The speed of NT7 is 70 miles per hour.
- C **The orbit of NT7 takes 837 days.**
- D The color of NT7 matches that of comets.

2. According to the passage, where do most asteroids orbit the sun?

- A between Earth and Mars
- B **between Mars and Jupiter**
- C between the sun and Earth
- D between Venus and Jupiter

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5. The primary purpose of this passage is to

- A compare comets and asteroids
- B **describe near-Earth asteroids**
- C persuade the reader that NT7 will hit Earth
- D list all the steps scientists take to study asteroids

6. What is NT7?

Suggested answer: NT7 is the name of an asteroid, or space rock, that scientists feared would hit Earth on February 1, 2019, but after carefully studying it, they found that it would miss Earth. [paragraphs 1, 2, 4]

7. Why would scientists want “plenty of warning” of an asteroid coming close to Earth?

Suggested answer: Scientists might discover that the asteroid actually won’t hit Earth, but if it were coming too close, they would need lots of time to study it and come up with a plan to either try to destroy the asteroid or to move people close to where the asteroid would hit. [paragraphs 3, 4, 9]

8. The question below is an incomplete sentence. Choose the word that best completes the sentence.

Scientists were worried that NT7 would hit Earth, _____ they watched it and plotted its orbit carefully.

- A yet
- B so
- C unless
- D where

9. Answer the following questions based on the sentence below.

Scientists carefully map the orbits of asteroids to make sure the asteroids don’t come too close to our planet.

Who? scientists

(do) What? **carefully map the orbits of asteroids**

Why? **to make sure the asteroids don’t come too close to our planet**

10. ReadWorks recommends that you teach this vocabulary word to the whole class out loud using the four steps listed below.

Vocabulary Word: plotted

Step 1: Introduce the word

- a. Teacher writes the word on the board and divides it into syllables: (plot · ted)
- b. Teacher says: “This word is plotted. What is the word?” [All students reply together out loud: “plotted.”]

Step 2: Provide a child-friendly definition

- a. Teacher says: “The word plotted means to draw a line on a map.”
- b. Teacher says: “In the passage, scientists drew a line on a map of space that shows where an asteroid travels around the sun, so you could say they plotted the path of the asteroid.”
- c. Teacher says: “What is the word?” [All students reply together out loud: “plotted.”]

Step 3: Practice the word

Teacher provides examples and additional opportunities to repeat the word. Read the first sentence out loud to your students. Begin reading it again and when you come to the vocabulary word, prompt students to say the vocabulary word out loud. Then, finish reading the sentence out loud to your students.

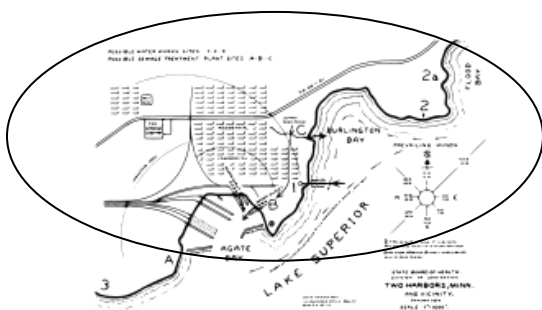
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Step 4: Check for student understanding

This step can be completed as a whole class activity or as an independent practice.

10b. Which image shows a path that has been plotted?



11. If you plotted your route before you went somewhere for the first time, would you be more or less likely to get lost?

Suggested answer: You would be less likely to get lost, because you would already have an idea of where you were going.

Suggested Additional Vocabulary: plow, expected, pose, farther