

Space Rocks! A Giant Meteorite Board Game

Children assume the roles of meteorites and play a giant board game to learn about meteors, meteoroids, and meteorites. They compete to get to Antarctica, where they have the chance to be found and studied by scientists!

What You Need:

- ❶ Copy of the Space Rocks game board (<http://www.lpi.usra.edu/education/skytellers/meteors/activities/spacerocksgame.pdf>)
- ❷ Colored markers
- ❸ Several large pieces of poster board
- ❹ Wide cellophane tape
- ❺ One die per child
- ❻ Game rules and answers for parents

What to Do:

- ❶ Transfer the contents of each game board square to a separate poster board. Decorate the posters.
- ❷ Tape the posters to the floor, in order, with space between the posters; the objective is to allow several small groups of children to play the game at the same time – space will be needed. The posters do not have to be laid out in the same shape as the printed game board; posters can be taped, in order, along a long wall, for example.
- ❸ Invite the children and parents to take a die and play the game. Parents can be responsible for the game rules and for ensuring the responses are correct.



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Game Rules

Players begin in "The Meteoroid Zone," above Earth's atmosphere. They progress to "The Meteor Zone," where particles enter Earth's atmosphere and create brilliant streaks of light (meteors) as they race toward Earth's surface. Most burn up completely. Finally, they reach the "The Meteorite Zone," those rocks from space that passed through Earth's atmosphere without being vaporized may be found as meteorites.

The children's mission is to – as meteoroids - pass through Earth's atmosphere and reach Earth as a meteorite, where they can be found and tell their story to scientists.

Have each child begin as a "Meteoroid" on the "Start" square. Each child, in turn, will roll the die and move themselves the appropriate number of spaces. They are to follow the directions on the initial square on which they land.

"Query squares" have questions for the children to answer. When he or she answers correctly, as verified by the parent, he or she may advance to the next square and wait for his or her next turn to roll the die.

If a player answers incorrectly, he or she must remain on that square until their next turn and then try again to answer that same question correctly. Once they have answered correctly, they may advance to the next square and await their next turn.

As the children complete a track, they move to the next track. To win, the child must roll — in turn — until he or she lands on the last square in "Antarctica," where they may be discovered and studied by a team of scientists, and perhaps reveal clues to the mysteries of our early solar system!

Space Rocks! A Giant Meteorite Board Game Answers

Meteoroid Zone

A meteoroid can be a piece of what?

- a. the Moon or Mars b. an asteroid c. a comet d. **all of the above**

Are meteoroids really “shooting stars”?

No. Meteoroids do not have trails of light because they are not moving through Earth’s atmosphere. Meteors, not meteoroids, are called shooting stars, but they are not really stars at all, either.

What is a meteoroid?

- a. a rock from space found on Earth b. a small minor planet c. **a tiny particle, often no bigger than a grain of sand, orbiting around the Sun**

What does a meteoroid sometimes become?

- a. a black hole b. **a meteor** c. a small planet

Meteoroids are smaller than objects scientists would call small planets. When a meteoroid moves through Earth’s atmosphere, it creates a brilliant streak of light — a meteor.

Often meteoroids are what?

- a. the size of planets b. **not much larger than a grain of sand** c. solid gold

A meteoroid can be made of what?

- a. metal (typically iron and nickel) b. rock c. metal and rock d. **all of the above**

Where do meteoroids NOT occur?

- a. throughout our solar system b. in the asteroid belt c. **on Earth**

Meteoroids are “rocks in space.” When a meteoroid lands on Earth, it is called a meteorite.

Meteor Zone

What causes an “annual” meteor shower?

- a. **Earth passing through the debris of a particular comet in its orbit** b. favorable weather conditions c. the birthdays of certain astronomers

What are meteors incorrectly called?

- a. falling stars b. shooting stars c. fireballs d. **all of the above**

Meteors are created by particles falling through our atmosphere — they have nothing to do with stars or fire!

Meteors are often seen as what?

- a. particles in space b. **streaks of light** c. stars

Meteors are the streaks of light we see in the night sky. They are caused by particles moving through our atmosphere so fast that they compress the air in front of them and the air heats up and glows.

What are the names of two famous meteor showers that occur annually?

- a. the Alphas and the Omegas b. **the Leonids and the Perseids** c. the Hatfields and the McCoys

When Earth’s orbit intersects a comet’s orbit, the particles in the comet’s trail enter Earth’s atmosphere and create meteor showers! The Perseid meteor shower peaks in August and radiates from the constellation of Perseus. It comes from particles in the trail of Comet Swift-Tuttle. The Leonid meteor shower peaks in November and appears to come from the direction of the constellation Leo.

How many meteors might you see in a meteor shower in an hour?

- a. 1 to 2 b. 1,000,000 c. **between 10 and a few hundred**

Comet trails are dusty places!

SPACE ROCKS!

a game of meteors, meteoroids, and meteorites

<p>START!</p> <p>→ Meteoroid Zone →</p> <p>QUERY: A meteoroid can be a piece of what? a. the Moon or Mars b. an asteroid c. a comet d. all of the above</p>	<p>QUERY: Are meteoroids really "shooting stars"? YES NO</p>	<p>QUERY: What is a meteoroid? a. a rock from space found on Earth b. a small minor planet c. a tiny particle, often no bigger than a grain of sand, orbiting around the Sun</p>	<p>GO BACK 2 SPACES</p> <p>QUERY: What does a meteoroid sometimes become? a. a black hole b. a meteor c. a planet</p>	<p>GO BACK 2 SPACES</p> <p>You are a meteoroid that was formed when an asteroid hit your planet. You were chipped off and launched into space!</p> <p>MOVE AHEAD 2 SPACES</p>	<p>GO BACK 2 SPACES</p> <p>You almost made it to Earth, but exploded above the ground! (hey, it happens!)</p> <p>GO BACK 1 SPACE</p> <p>QUERY: Meteors are often seen as what? a. particles from space b. fast moving streaks of light made of tiny particles of rock, dust, or ice. c. stars</p>	<p>GO BACK 1 SPACE</p> <p>You landed in the jungle and monkeys are playing with you.</p>	<p>GO BACK 1 SPACE</p> <p>OOPS! You landed in the ocean and will probably never be found.</p>	<p>GO BACK 1 SPACE</p> <p>You landed in a remote spot in the Australian desert where you are ready to be your dark coloring makes you very visible on the white ice.</p> <p>CONGRATULATIONS! You will be found and carefully studied to gain clues to the age and origin of our solar system!</p>	<p>GO BACK 2 SPACES</p> <p>You are a lucky space rock that was big enough to make it through Earth's atmosphere without being vaporized. Good Job!</p> <p>MOVE AHEAD 2 SPACES</p>	<p>GO BACK 2 SPACES</p> <p>You're a meteoroid that will travel through space forever and never land!</p>	<p>GO BACK 2 SPACES</p> <p>QUERY: Where do meteoroids NOT occur? a. throughout our solar system b. in the asteroid belt c. on Earth</p>	<p>GO BACK 2 SPACES</p> <p>QUERY: A meteoroid can be made of what? a. metal (iron and nickel) b. stone c. metal and stone d. all of the above</p>	<p>GO BACK 2 SPACES</p> <p>You just ran into a NASA Earth-observing satellite and denied its protective metal covering.</p>	<p>MOVE AHEAD 2 SPACES</p> <p>CONGRATULATIONS! Today you celebrated your 4-1/2 billionth birthday!</p>	<p>MOVE AHEAD 2 SPACES</p> <p>QUERY: Often meteoroids are what? a. the size of planets b. not much larger than a grain of sand c. solid gold</p>	<p>MOVE AHEAD 2 SPACES</p> <p>QUERY: Earth passed through the comets' trail created a meteor shower for viewers on Earth.</p>	<p>MOVE AHEAD 2 SPACES</p> <p>QUERY: What are the names of two famous meteor showers that occur annually? a. the Alphas and the Omegas b. the Leonids and the Perseids c. the Hattelds and the McCoys</p>	<p>MOVE AHEAD 2 SPACES</p> <p>QUERY: How many meteors could you see in a typical meteor shower? a. 1-2 b. 1,000,000 c. between 10 and a few hundred</p>	<p>MOVE AHEAD 1 SPACE</p> <p>You're traveling with a large cluster of other meteoroids, and you get a "group discount."</p>
			<p>GO BACK 2 SPACES</p> <p>You are one of 30,000 meteorites that reaches Earth's surface each year!</p> <p>Land on Earth, the Meteorite Zone</p> <p>Meteorite Zone →</p> <p>Where will you land? Will you be found???</p>	<p>GO BACK 1 SPACE</p> <p>You landed in Antarctica where your dark coloring makes you very visible on the white ice. CONGRATULATIONS! You will be found and carefully studied to gain clues to the age and origin of our solar system!</p>	<p>GO BACK 1 SPACE</p> <p>You landed in a remote spot in the Australian desert where you are ready to be your dark coloring makes you very visible on the white ice. CONGRATULATIONS! You will be found and carefully studied to gain clues to the age and origin of our solar system!</p>	<p>GO BACK 1 SPACE</p> <p>You landed in the jungle and monkeys are playing with you.</p>	<p>GO BACK 1 SPACE</p> <p>OOPS! You landed in the ocean and will probably never be found.</p>	<p>GO BACK 1 SPACE</p> <p>You landed in a remote spot in the Australian desert where you are ready to be your dark coloring makes you very visible on the white ice.</p> <p>CONGRATULATIONS! You will be found and carefully studied to gain clues to the age and origin of our solar system!</p>	<p>GO BACK 2 SPACES</p> <p>You are a lucky space rock that was big enough to make it through Earth's atmosphere without being vaporized. Good Job!</p>	<p>GO BACK 2 SPACES</p> <p>You're a meteoroid that will travel through space forever and never land!</p>	<p>GO BACK 2 SPACES</p> <p>QUERY: A meteoroid can be made of what? a. metal (iron and nickel) b. stone c. metal and stone d. all of the above</p>	<p>GO BACK 2 SPACES</p> <p>You just ran into a NASA Earth-observing satellite and denied its protective metal covering.</p>	<p>MOVE AHEAD 2 SPACES</p> <p>CONGRATULATIONS! Today you celebrated your 4-1/2 billionth birthday!</p>	<p>MOVE AHEAD 2 SPACES</p> <p>QUERY: Often meteoroids are what? a. the size of planets b. not much larger than a grain of sand c. solid gold</p>	<p>MOVE AHEAD 2 SPACES</p> <p>QUERY: Earth passed through the comets' trail created a meteor shower for viewers on Earth.</p>	<p>MOVE AHEAD 2 SPACES</p> <p>QUERY: What are the names of two famous meteor showers that occur annually? a. the Alphas and the Omegas b. the Leonids and the Perseids c. the Hattelds and the McCoys</p>	<p>MOVE AHEAD 2 SPACES</p> <p>QUERY: How many meteors could you see in a typical meteor shower? a. 1-2 b. 1,000,000 c. between 10 and a few hundred</p>	<p>MOVE AHEAD 1 SPACE</p> <p>You're traveling with a large cluster of other meteoroids, and you get a "group discount."</p>	