



**Title**  
***Space Rocks! A Giant Meteorite Board Game***

**DESCRIPTION**

This is a 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!

**OBJECTIVES**

Students will:

- Investigate the difference between a meteoroid, meteor, meteorite, asteroid and comet.
- Compare and contrast the characteristics of meteorites and Earth rocks.
- Explore what happens to a meteoroid as it moves from outer space to Earth's surface.

**NASA SUMMER OF INNOVATION**

**UNIT**

*Earth and Space Science-Year of the Solar System*

**GRADE LEVELS**

4<sup>th</sup> – 6<sup>th</sup>

**CONNECTION TO CURRICULUM**

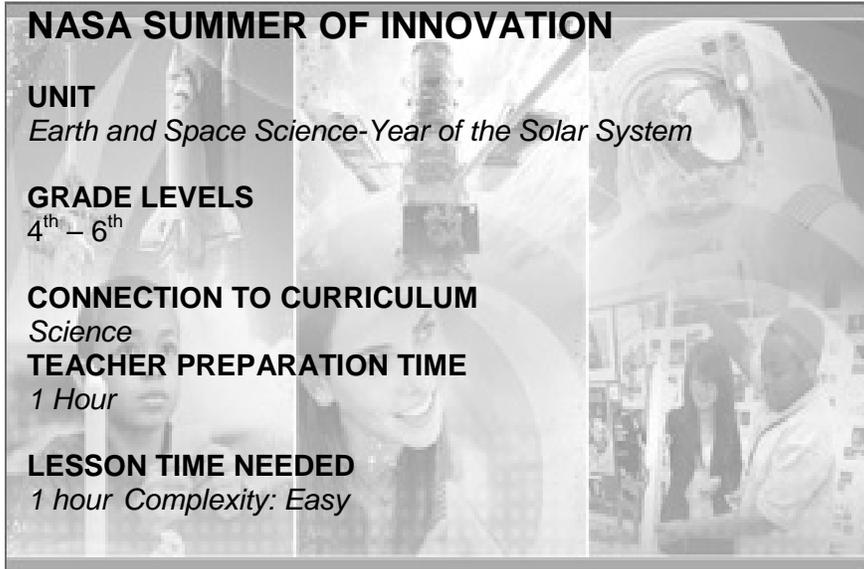
*Science*

**TEACHER PREPARATION TIME**

*1 Hour*

**LESSON TIME NEEDED**

*1 hour Complexity: Easy*



**NATIONAL STANDARDS**

**National Science Education Standards (NSTA)**

*Earth and Space Science*

- *Properties of Earth materials*
- *Objects in the Sky*
- *Changes in the Earth and sky*

*Science as Inquiry*

- *An appreciation of 'how we know' what we know of science*
- *Understanding of scientific concepts*

**MANAGEMENT**

- Make enlarged copies of the game board by using the largest paper possible in your copy machine (11in.X14in. works well).
- Parents, Camp Counselors, or older children can assist and act as game leaders.

## CONTENT RESEARCH

- A **meteor** is the flash of light that we see in the night sky when a small chunk of interplanetary debris burns up as it passes through our atmosphere. "Meteor" refers to the flash of light caused by the debris, not the debris itself.
- The debris is called a **meteoroid**. A meteoroid is a piece of interplanetary matter that is smaller than a kilometer and frequently only millimeters in size. Most meteoroids that enter the Earth's atmosphere are so small that they vaporize completely and never reach the planet's surface.
- If any part of a meteoroid survives the fall through the atmosphere and lands on Earth, it is called a **meteorite**. Although the vast majority of meteorites are very small, their size can range from about a fraction of a gram (the size of a pebble) to 100 kilograms (220 lbs) or more (the size of a huge, life-destroying boulder).
- **Asteroids** are generally larger chunks of rock that come from the asteroid belt located between the orbits of Mars and Jupiter.
- **Comets** are asteroid-like objects covered with ice, methane, ammonia, and other compounds that develop a fuzzy, cloud-like shell called a coma and sometimes a visible tail whenever they orbit close to the Sun.

## MATERIALS

- Copy of the Space Rocks game board(<http://www.lpi.usra.edu/education/skytellers/meteors/activities/spacerocksgame.pdf>)
- Colored markers
- Several large pieces of poster board
- Wide cellophane tape
- One die per child
- Game rules and answers for parents
- One copy of the answers(answer sheet)/team
- 1 token/player

## LESSON ACTIVITIES

- Space Rocks! A Meteorite Game:  
[http://www.lpi.usra.edu/education/space\\_days/activities/spaceRocks/boardGame.pdf](http://www.lpi.usra.edu/education/space_days/activities/spaceRocks/boardGame.pdf)

## ADDITIONAL DISCUSSION QUESTIONS

- **Where can I find a meteorite?** *Meteorites fall all over the planet, but they are best preserved and most easily found in deserts, whether they are hot (like Arizona) or cold (like Antarctica) deserts. The dry climate of a desert slows rusting of the metal within many meteorites and the lack of vegetation in deserts makes meteorites easier to find.*
- **When can I see meteor showers?** *There are several major meteor showers to enjoy every year at various times, with some more active than others.*  
<http://www.jpl.nasa.gov/news/news.cfm?release=2010-119>

## ASSESSMENT ACTIVITIES

- “**Query Squares**” are questions for the children to answer throughout the game. In order to ADVANCE throughout the game, the **query square** questions must be answered correctly.

## ENRICHMENT

- **Explore The Solar System Game:** Web-based game dealing with various parts of our solar system, including comets and asteroids.  
<http://spaceplace.nasa.gov/en/kids/solar-system/#>
- **Find The Comet Words:** A comet word find. Web-based, or can be printed for 3 different levels of difficulty.  
[http://spaceplace.nasa.gov/en/kids/cnsr\\_wordfind.shtml#](http://spaceplace.nasa.gov/en/kids/cnsr_wordfind.shtml#)
- **Asteroid Potato:** Students can make edible asteroids  
[http://spaceplace.nasa.gov/en/kids/ds1\\_ast.shtml](http://spaceplace.nasa.gov/en/kids/ds1_ast.shtml)