Family Space Day Overview

Family Space Day is a three hour event. The activities are set up so that children and parents select the order in which they undertake activities. Parents and children are encouraged to learn, play, and explore *together*.

Objectives of the Day

Children will:

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

Activities

- Station 1: Storytelling or Reading Room
  This day begins with storytelling about space rocks – meteoroids (e.g., Coyote and the Dancing Stars from the SkyTellers Program, or other tales). Alternatively, children and their parents browse and read books about meteoroids to prepare for the activities. Refer to book list for suggested reading.

- Station 2: Space Rocks: A Giant Meteorite Board Game – Children learn about meteoroids, meteors, meteorites, asteroids, and comets as they move from outer space to Earth's surface.

- Station 3: Meteorite Investigators: Children examine several rock samples to determine which are meteorites and which are not.

- Station 4: Life Cycle of a Space Rock – Children create a mural of a meteoroid passing through Earth's atmosphere and reaching Earth as a meteorite.

- Station 5: Coloring Sheets and Games
  Children relax and color and play simple games related to space rocks.

- Station 6: Reading Room
  Children and their parents browse and read a selection of books about space rocks (refer to book list for suggested reading).

Other Materials

- *Facilitator Information* – Meteoroids, Meteors, Meteorites, Asteroids and more
- *Explore Space Rocks* – Book and Website References

- *All About Space Rocks* – A Meteoroid Fact Sheet
- *Do at Home: Meteor Shower Viewing!* – Invite families to night sky viewings during meteor showers
- *Do at Home: Make Edible Asteroids!* – Whip up your own asteroids with mashed potatoes.

Facilitator Information

(All you need to know about rocks from space to survive the day)

Meteoroids, Meteors, Meteorites . . . What's the Difference?

Meteoroids are small particles — often no bigger than a grain of sand, but reaching up to between 10 and 50 meters (32 to 165 feet) across — that orbit our Sun. When meteoroids enter Earth's atmosphere, they produce brilliant streaks of light that can be seen in our sky. These brief streaks of light — and the particles that are moving through our atmosphere — are meteors. Meteorites are rocks from space that actually have *landed* on Earth's — or another planet's — surface.

What's the difference between asteroids and comets?

Asteroids are *rocky* bodies, bigger than meteoroids but less than 1000 kilometers across, that orbit our Sun. Asteroids occur in the asteroid belt between Mars and Jupiter. Comets are masses of *ice and dust*, less than 10 kilometers (6 miles) across, that usually stay in the cold outer reaches of our solar system.

Where Do Meteorites Come From?

Most meteorites appear to come from asteroids. This is based on a comparison of the composition of meteorites with our understanding of the composition of asteroids, based on remote sensing. It also is based on a comparison of the orbits of asteroids and the orbits of meteoroids, calculated from photographs of the meteoroids as they approached Earth. A few meteorites are from the Moon and Mars. These are pieces of the planets that were broken off and knocked into orbit when asteroids struck the planets. Meteorites from the Moon are similar to the samples collected by the Apollo astronauts. The Mars meteorites include sealed pockets of gas that scientists discovered contain the same gases as occur in the atmosphere of Mars.

What Happens to a Meteoroid On Its Way to Earth?

Not much when it is in space. When the meteoroid enters Earth's atmosphere, things begin to heat up! Actually, it is the air in front of the meteoroid that heats up. The particle is traveling at speeds between 20 and 30 kilometers (12 to 18 miles) per second. It compresses the air in front, causing the air to get hot. The air is so hot it begins to glow — creating a meteor - the streak of light observed from Earth. The intense heat also melts the outside of the meteoroid. The trip through Earth's atmosphere is fast enough that the inside of a meteoroid often is not heated at all. However, for most rocks from space, even the short trip is sufficient to melt away much of it; a meter-sized meteoroid can be reduced to the size of a baseball. Small meteoroids are vaporized completely. The atmosphere becomes thicker as the meteoroid gets closer to Earth's surface, causing the rock to slow and cool. The outer melted part of the meteoroid solidifies, leaving a fusion crust — a thin dark glassy rind. Some meteoroids break up just before they reach Earth's surface, creating a fireball accompanied by an explosion that can be heard kilometers away.

What Happens When a Meteoroid Hits the Earth?

For small meteoroids, not much! They make small holes in the ground. The impact from a large meteoroid striking the surface may leave a crater — a large, circular depression. Large meteoroids leave craters about 10 times their size, although the size depends on how fast the meteoroid is moving, its angle of approach, and other factors. Meteor Crater

was formed about 50,000 years ago when the 30-meter-wide (100-foot-wide) Canyon Diablo meteorite struck the ground, creating a kilometer-wide depression in Arizona.

Large impacts are rare now, but were much more common during the early history of our solar system when the space debris was being swept up. The surfaces of Mercury, the Moon, and Mars are covered with impact craters, most of which scientists believe formed during the first half billion years of solar system formation. Earth also has several impact craters on its surface, some quite large. One of the most famous — and destructive — impacts believed to have occurred took place about 65 million years ago. A meteroid, 10–16 kilometers in diameter (6 to 7 miles), struck Earth near what is now the Yucatán Peninsula of Mexico. This impact is thought to have triggered global fires and tsunamis and created a cloud of dust and water vapor that enveloped the Earth in a matter of days, resulting in fluctuating global climate changes. The extreme environmental shifts are believed to have caused a mass extinction of 75% of Earth's species, including the dinosaurs.

For more information about Meteoroids, Meteors, and Meteorites, visit:
http://www.lpi.usra.edu/education/skytellers/meteors/about.shtml

Space Rocks! Images for the Day

Images of asteroids (and comets) can be found at:

Planetary Photojournal – Small Bodies
http://photojournal.jpl.nasa.gov/target/Other

Near Earth Object Program: Monitoring space for inbound asteroids!
http://neo.jpl.nasa.gov/images/

NEAR – Near Earth Asteroid Rendezvous: Images and touch-down on Asteroid Eros
http://near.jhuapl.edu/

DAWN: Mission to Ceres and Vesta
http://dawn.jpl.nasa.gov/

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:

- 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

What to Do:

- Transfer the contents of each game board square to a separate poster board. Decorate the posters.
- 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.
- 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.

Space Rocks! A Giant Meteorite Board Game
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 meteroid 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?

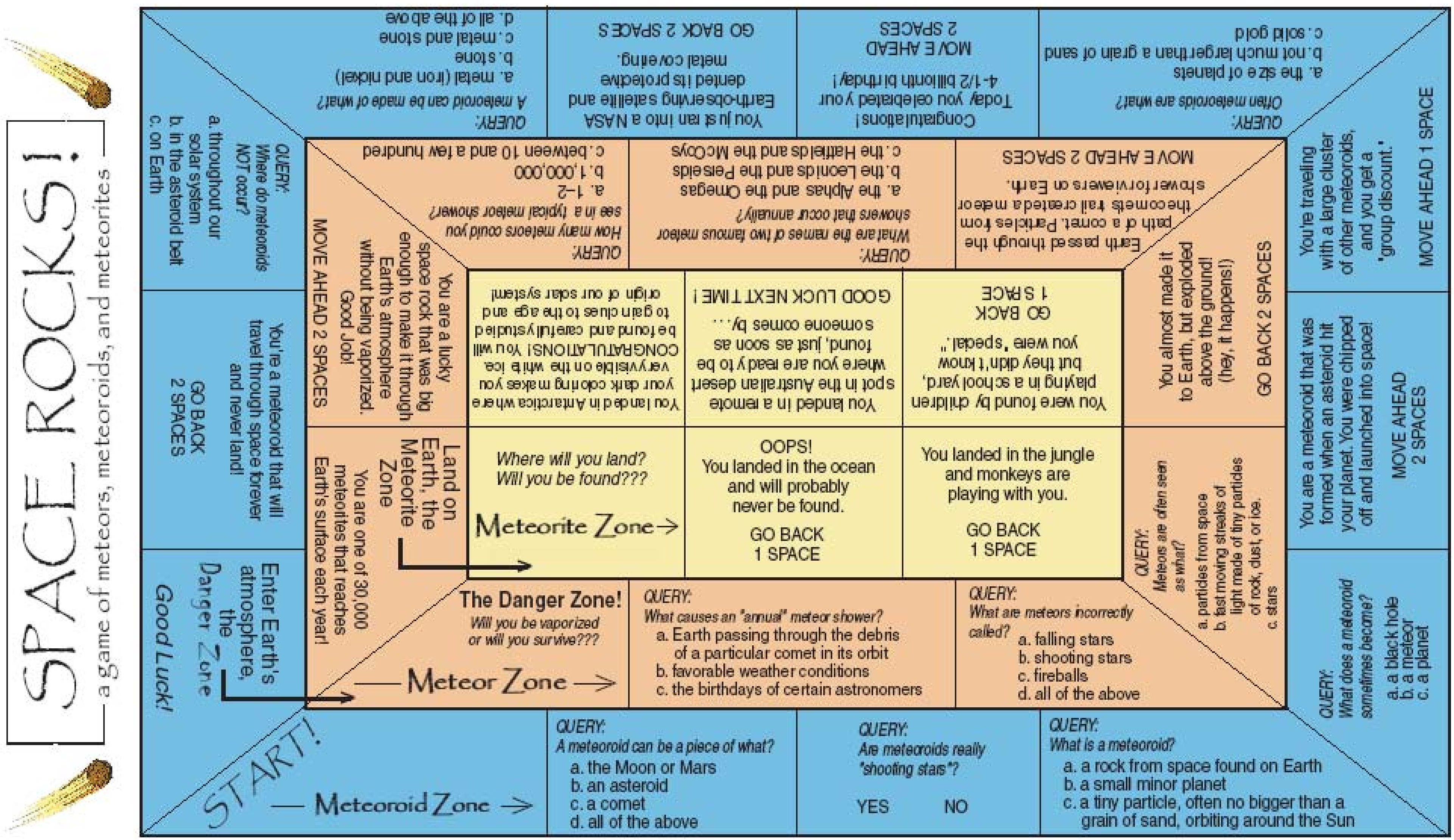
a. the Alphas and the Omegas **b. the Leonids and the Perseids** **c.** the Hatfields and the McCoys

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!



LUNAR AND PLANETARY INSTITUTE

Meteorite Investigators

Meteorites have very specific characteristics that distinguish them from rocks on Earth.

Meteorite!	**Not a Meteorite**
Dark on the outside. Meteorites have black or rusty brown outer layer – a fusion crust - formed when the meteoroid was heated as it fell through Earth's atmosphere.	Bubbly or with holes. If the rock outside looks bubbly or frothy, or if there are holes inside, it's not a meteorite. Round. Most meteorites are very irregular in shape. They rarely are round or shaped like a projectile (bullet).
Finger pokes on the outside. Got regmaglypts? Great word, yes? Meteorite surfaces usually are smooth and don't have features. But some have regmaglypts; this just means deep circular pits in the surface of the meteorite. They look like someone has poked their finger in soft playdoh.	Quartz crystals. Quartz only occurs on Earth, because of our unique geologic processes. If you see quartz – or fossils – it is not a meteorite. If you see lots of other bright crystals, it also is probably not a meteorite.
HEAVY! Many meteorites have iron or nickel in them, so they are *relatively* much heavier (actually, more dense) than Earth rocks.	Color. If you can make a colored streak of black or red on a piece of unglazed tile, it probably is not a meteorite. Unless the meteorite is very weathered, it will not leave a streak.
Shiny inside! Some meteorites are nearly all iron and they have a silvery inside. Others have small flecks of shiny metal on their insides.	
Magnetic! Most meteorites have some iron or nickel in them, so they attract a magnet easily.	Some Earth rocks are magnetic, too.
Little stoney balls inside. Most meteorites are chondrites . They contain small balls of stony material called chondrules that are about a millimeter (1/25 inch) across	

Characteristics modified from: http://epswww.unm.edu/iom/ident/index.html

If your rock has most or all of the characteristics of a meteorite, it is a good candidate to be a meteorite. Sometimes laboratory tests are necessary to determine if it is a meteorite once all of the characteristics are demonstrated.

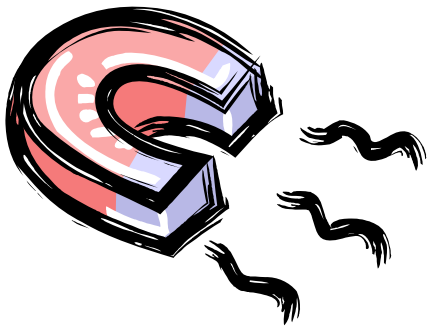
In this activity, you and your child will investigate several different samples of meteorites and Earth rocks to determine which are likely meteorite candidates.

What You Need:

- Samples of meteorites (can be bought online; but consider requesting touchable samples from your local museum, planetarium, university, or astronomy club)
- Samples of Earth rocks and minerals (quartz, basalt, gabbro, magnetite, others that look like meteorites)
- Meteorite Investigator sheets
- Pencil or makers
- For each sample:
    - One piece of bright card-stock
    - 1 magnifying glass or hand lens
    - 1 magnet
    - 1 unglazed ceramic tile (backside of glazed tile)

What to Do:

- Create a station for each meteorite and for each rock; mix the samples so that the children do not view all of one group before the other. Label the stations with unique numbers.
- Invite your child to share what they think the differences are between a meteorite from space and a rock or mineral made on Earth. Share with them the list of meteorite characteristics.
- Prompt your child make observations of the samples and use the table of meteorite characteristics to determine which samples most likely are meteorites, based on their characteristics.



Meteorite or Not?

Make observations about each sample. Interpret your observations to make a conclusion about which samples are meteorites and which are Earth rocks or minerals.

Sample Number:

Yes	No	Characteristic
		Does it have a dark outside crust?
		Is the surface smooth?
		Is the surface bubbly or frothy?
		Does the surface have pits like finger pokes?
		Is it relatively heavy (dense)?
		Is it shiny on the inside or does it have shiny metal pieces?
		Is it magnetic?
		Does the inside have tiny round balls of stone?
		Is it irregular in shape?
		Are there holes on the inside?
		Does it make a streak? What color? _____
		Are there quartz crystals?

My Conclusion (circle): Meteorite Not a Meteorite

Sample Number:

Yes	No	Characteristic
		Does it have a dark outside crust?
		Is the surface smooth?
		Is the surface bubbly or frothy?
		Does the surface have pits like finger pokes?
		Is it relatively heavy (dense)?
		Is it shiny on the inside or does it have shiny metal pieces?
		Is it magnetic?
		Does the inside have tiny round balls of stone?
		Is it irregular in shape?
		Are there holes on the inside?
		Does it make a streak? What color? _____
		Are there quartz crystals?

My Conclusion (circle): Meteorite Not a Meteorite

Sample Number:

Yes	No	Characteristic
		Does it have a dark outside crust?
		Is the surface smooth?
		Is the surface bubbly or frothy?
		Does the surface have pits like finger pokes?
		Is it relatively heavy (dense)?
		Is it shiny on the inside or does it have shiny metal pieces?
		Is it magnetic?
		Does the inside have tiny round balls of stone?
		Is it irregular in shape?
		Are there holes on the inside?
		Does it make a streak? What color? _____
		Are there quartz crystals?

My Conclusion (circle): Meteorite Not a Meteorite

Life Cycle of a Space Rock

Meteoroids are small particles — often no bigger than a grain of sand — that orbit our Sun. When meteoroids enter Earth's atmosphere, they compress the air in front of them, causing the air to get hot - so hot that the air begins to glow! This creates the brilliant streak of light we see in the sky. These *streaks of light* are meteors. The heat also melts or vaporizes some or all of the particle. *Meteorites* are rocks from space that have survived their trip through Earth's atmosphere and landed on Earth's surface.

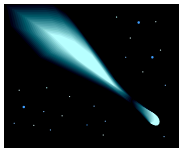
In this activity, your child will illustrate the events in the life of a space rock!

What You Need:

- One sheet of craft paper
- Finger paint
- Glitter
- Crayons
- Other various craft items such as cotton balls, fluff, tissue paper, yarn, ribbon, aluminum foil, gold or silver mylar strips, etc.
- Tiny rocks, such as colored aquarium gravel, to represent the rocks from space (parents should attach these with a glue gun)

What to Do:

- Invite your child to paint and decorate a mural illustrating their meteoroid in space, passing through Earth's atmosphere (meteor), and reaching Earth as a meteorite, where it is found and studied by scientists.
- Invite them to explain the story of their rock from space as they are illustrating it.



Parent Prompts:

Ask your child to imagine a "Meteoroid Zone" above Earth's atmosphere. Invite him or her to tell you how a meteoroid creates a streak of light - a meteor. (When meteoroids enter Earth's atmosphere they create brilliant streaks of light – meteors - as they race toward Earth's surface).

Invite your child to tell you what a meteorite is. (Those rocks from space have passed through Earth's atmosphere without being vaporized and have landed on Earth.)

Where did their meteorite land? Will it be found for study? Will they be the scientist who studies it? What will they name it?

Coloring Sheets

The following are links to different coloring sheets.

NASA – Deep Impact
http://www.nasa.gov/audience/forkids/artsstories/AR_Comet_prt.htm

Enchanted Learning - Comets
http://www.enchantedlearning.com/subjects/astronomy/activities/coloring/Comet.shtml

Enchanted Learning - Asteroids
http://www.enchantedlearning.com/subjects/astronomy/activities/coloring/Asteroid.shtml

Windows to the Universe - Asteroid, Gaspra
http://www.windows.ucar.edu/tour/link=/coloring_book/cb_asteroids_int_edu.html

Windows to the Universe - Comets
http://www.windows.ucar.edu/tour/link=/coloring_book/cb_comets_int_edu.html

Explore Space Rocks!

Websites

http://www.lpi.usra.edu/education/skytellers/intro.shtml - The SkyTellers Program uses Native American stories, coupled with science stories, to introduce children to science concepts. Many meteoroid activities can be found at: http://www.lpi.usra.edu/education/skytellers/meteors/.

http://starchild.gsfc.nasa.gov/docs/StarChild/teachers/asteroids.html - Comets, asteroids and meteoroids – this activity website may be used to test students understanding and learning about space science topics after the activity sections have been completed. This is a good site for teachers and 'homeschoolers'. Comes with all of the printable materials needed.

http://www.windows.ucar.edu/tour/link=/our_solar_system/solar_system.html - Good site for interactive comet animation and comet coloring book material. Information on comet news and comet missions. Also, general information on the solar system, general astronomy, space missions, and space weather.

http://www.adlerplanetarium.org/education/activities/read/sbsg/sky1.shtml - Something fell from the sky! – A read only interactive site for children. Utilizing simple characters the site reveals information about comets and meteors via a story line. The site also contains family activities to help introduce basic science concepts to children ages 2-4.

http://www.thursdaysclassroom.com/31jul01/teacher4.html - A series of comet and meteor related activities aimed at children 5-8. Lesson plans, activity (worksheets for the most part) sheets, answer keys, stories, coloring books, 'main idea' activities are all provided for downloading. This site is very detailed and of good quality but not really hands-on in nature.

Check out some asteroid missions:

NEAR – Near Earth Asteroid Rendezvous: Images and touch-down on Asteroid Eros
http://near.jhuapl.edu/

DAWN: Mission to Ceres and Vesta
http://dawn.jpl.nasa.gov/

Near Earth Object Program: Monitoring space for inbound asteroids!
http://neo.jpl.nasa.gov/

Explore Space Rocks!

Books

Asteroids, Comets, and Meteors. Gregory Vogt, Millbrook Press, 1996, ISBN 1562946013.
Vogt offers children ages 4–8 a thorough introduction to the origins and composition of asteroids, comets, and meteors and their "impact" on our planet's history.

The Magic School Bus Out of This World: A Book About Space Rocks. Joanna Cole, Scholastic, Inc, 1996, ISBN 0590921568.
In this fictional account, a teacher and her students travel through space in search of "space rocks." They encounter comets, meteors, asteroids and more! Fun and instructional for children ages 5–10.

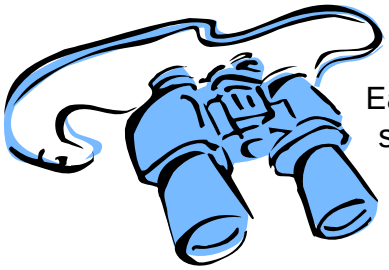
Meteor! Patricia Polacco, Puffin, 1996, ISBN 0698114108.
A humorous, factual account of a meteorite landing "smack-dab in the middle of a yard" in Union City, Michigan. Even though it is written for children, Polacco's personal style make it an enjoyable read for all ages.

Comets, Meteors, and Asteroids. Seymour Simon, Harper Trophy, 1998, ISBN 0688158439.
Targeted to ages 8–10, Simon's book presents basic information about meteors, including the difference between meteoroids, meteors, and meteorites. Written in a plain language with large print, the book uses numerous supportive illustrations.

All About Space Rocks

- Space rocks – the meteoroids and large asteroids - are 'leftovers' from the formation of our solar system around 4.6 billion years ago and hold important clues about the composition and processes of our early solar system.
- Meteoroids are rocks in space, often no bigger than a grain of sand, orbiting around the Sun.
- When a meteroid moves through Earth's atmosphere, it creates a brilliant streak of light — a meteor. Meteors are called shooting stars, but they are not really stars.
- A meteor shower occurs when Earth passes through the debris left behind by the passage of a comet.
- Asteroids are large meteoroids. Most exist in a belt between the orbits of Mars and Jupiter, but sometimes they move out of this belt, and occasionally hit a planet.
- When a rock from space is found on Earth, it is called a meteorite.
- When a comet, meteorite, or asteroid strikes a planet, it makes a big, bowl-shaped hole on the planet surface – an impact crater.
- NASA's Near Earth Object Program searches for, and tracks, objects like asteroids that may collide with Earth. This information is helping scientists and engineers plan how to protect our planet from an impact.
- Comets are sometimes called 'dirty snowballs' or 'icy dirt balls'.
- Comets can be found in the outer reaches of our Solar System. Some comets, like Hale-Bopp, have been bumped into orbits that we can observe from Earth periodically.
- NASA has several missions that have – or will be - investigating space rocks. These include Dawn, New Horizons, and Near Earth Asteroid Rendezvous.

Do At Home: Meteor Shower Viewing!

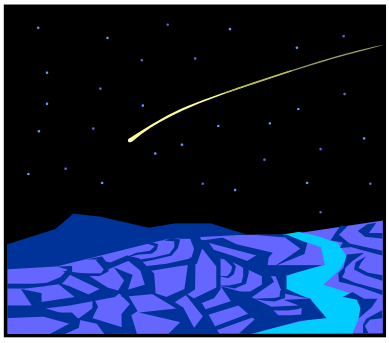


Meteor showers occur when Earth passes through the dusty trail of a comet. As the dust passes through Earth's atmosphere, it heats up and glows – making a streak across the sky. Meteor showers are predictable because Earth moves around our Sun once a year – so it passes through dust trails regularly.

For viewing events – check out Sky and Telescope's Web site:

http://www.skyandtelescope.com/observing/objects/meteors

Start with a clear, dark viewing sky, grab a blanket, mosquito repellent, flashlight, and some snacks and enjoy the show!



Make at Home! Edible Asteroids

(From: http://www.space-explorers.com/internal/events/spacefun/edibleasteroids.html)

Asteroids are rocky, metallic objects that orbit our Sun. Asteroids are the remains of collisions that occurred during the formation of planets and moons in our solar system. In some cases, asteroids might have grown into planets themselves, but their interactions with other planets, like Jupiter, kept them from clumping together. Asteroids range in sizes from 1000 km in diameter to the size of giant boulders. They are irregular in shape and are bigger than meteoroids. The larger asteroids have big, circular, holes – craters – on their surfaces that mark where other asteroids have run into them! Here is your opportunity to make your own edible asteroid!

What You Need:

- 4 to 8 cups of smashed potatoes (from a box is fine!)
- ½ stick of butter
- A few tablespoons of milk and flour (if needed)
- Salt and pepper
- Mixing bowl and spoon
- Electric mixer or a strong arm to mix the potatoes
- Cookie sheet
- Oven mitt

What to Do:

- Share the images of asteroids with them. What do the asteroids look like? Invite your child to make their own model of an asteroid – though smaller!
- Preheat the oven to 375 degrees.
- Take a small slice of butter and rub onto cookie sheet.
- Make the mashed potatoes, add butter and salt and pepper to taste. Mix well. The mixture should stick together. If it is too dry, add a little milk. If it is too moist, add a little flour (start with 2 tablespoons).
- Take a handful of mashed potatoes and shape into an asteroid. Be sure to poke holes in the asteroids to model craters. Set the asteroids on the greased cookie sheet. Put them into the oven and bake for 20-25 minutes or until brown around the edges. Remove the asteroids from the oven and place on a serving plate. Let sit for 5 minutes to cool down.
- Enjoy the asteroids!

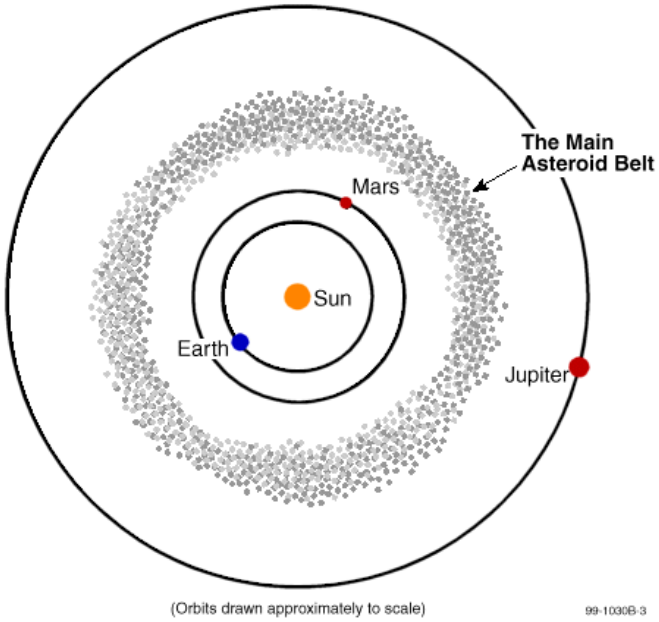
Parent Prompts:

Ask your child how an asteroid is different from a meteoroid. (Both are rocks in space, but an asteroid is bigger!)

How is an asteroid different from a planet? (It is smaller and irregular in shape.)

What made the deep circular holes on the surface of the asteroids?)Other asteroids or comets hitting the asteroid.)

Asteroid images from NASA.



Most asteroids are in the asteroid belt between Mars and Jupiter. In this image, it looks like there are lots and lots of big asteroids and very little space between them - and movies often make it look like asteroids are all over the place in the asteroid belt. But there is actually much, much, much more space between individual asteroids. If you saw one asteroid, you probably would not be able to even see another one without traveling further! Image from NASA.