

Explore! Mars – Inside and Out!

Materials List

Activity 1: Next Stop: Mars!

For the group:

- ___ Chalkboard and chalk, or white board or poster paper and markers to record the children's ideas
- ___ Books about Mars (refer to Resources for recommendations)
- ___ Optional: A variety of craft materials that may be used to draw or make a model of Mars (for example, clay or Play-Doh, colored or plain paper, markers, crayons, glitter, pipe cleaners, foil, pom-poms, tape, glue, etc.)

For the facilitator:

- ___ Background information

Activity 2: Setting the Scene

For each child:

- ___ One *GSI: Mars* journal
- ___ One pencil

For each Earth Team of 3 to 4 children:

- ___ Images of Earth's geologic features
- ___ Sheet protectors (optional)

For each Mars Team of 3 to 4 children:

- ___ Images of Mars' geologic features
- ___ Sheet protectors (optional)

For the group:

- ___ Chalkboard and chalk, or white board or poster paper and markers to record the children's ideas
- ___ Several sheets of poster paper and markers for the teams to record their observations

For the facilitator:

- ___ Background information

Activity 3: Carving Channels

For each team of 3 to 5 children:

- ___ About 5 pounds. of clean playground sand
- ___ 5 pounds of pesticide-free diatomaceous earth (from a home improvement or pool supply store), Cool tip: Sand and diatomaceous earth can be dried out and reused!
- ___ 4 to 5 rocks of different sizes
- ___ 4 to 6 bottles (2 liter), without lids, filled with water.
- ___ Access to water to refill the bottles as needed
- ___ 2 plastic wallpaper trays (from home improvement or hardware stores)
- ___ 4 standard bricks
- ___ 2 trash cans ((5 gallon or larger) or buckets (rectangular shaped is best)
- ___ 2 large trash bags to line the buckets or trash cans
- ___ Images of channels on Mars and Earth from Activity 2: *Setting the Scene*

For the facilitator:

- ___ Background information
- ___ Ice pick or large nail (to poke holes in the trays)

Activity 4: Volcanos - Go with the Flow

For each team of 3 to 5 children:

- ___ A large sheet (about ½ meter or 2 foot square) of poster board or cardboard, or a tray on which to build the volcano
- ___ 3 balls of Play-Doh (each about the size of a lemon) in different colors
- ___ Small paper cups (4 ounce or smaller)
- ___ Scotch tape
- ___ 1 clear straw, cut in three 5 centimeter (2 inch) sections
- ___ Several paper towels
- ___ 1/4 cup vinegar
- ___ 2 tablespoons of baking soda
- ___ A pencil
- ___ Graph paper for mapping by older children
- ___ Colored pencils or markers
- ___ Images of volcanos on Mars and Earth from Activity 2: *Setting the Scene*

For the facilitator:

- ___ Background information
- ___ Ruler

Activity 5: Crater Creations

For each team of 4-8 children:

- ___ A large pan or box such as a shallow tub, aluminum baking pan, or copy paper box lid
- ___ Enough sand, kitty litter, sugar, rice, or oatmeal to fill the pan 10 centimeters (4 inches)
- ___ Enough flour to make a 3 to 5 centimeter (1 to 2 inch) deep layer
- ___ 1 heaping cup of powdered cocoa
- ___ A sifter
- ___ A large trash bag or piece of cloth or plastic to place under the crater box
- ___ Several objects that can be used as impactors, such as large and small marbles, golf balls, rocks, bouncy balls, and ball bearings
- ___ Ruler
- ___ Paper and pencil
- ___ Images of craters from the *Setting the Scene* activity
- ___ Safety glasses

Activity 6: Mars: The Feature Story

For the group:

- ___ Mars Orbiter Laser Altimeter (MOLA) map

For the facilitator:

- ___ Scotch tape
- ___ Scissors
- ___ Background information
- ___ Access to an overhead or LCD projector

Activity 7: Mind Over Mars

For each team of 4-8 children:

___ 1 copy of *Mind Over Mars Questions* Template, preferably color

Select the version based on whether the game is played after Part 1, Part 2, or parts 1 and 2 of *Geologic Scene Investigator*.

- o *Geologic Scene Investigator: Part 1 Questions*
- o *Geologic Scene Investigator: Part 2 Questions*
- o *Geologic Scene Investigator: Parts 1 and 2 Questions*

___ 1 copy of *Mind Over Mars Answers* Template, preferably color

Select the version based on if the game is played after Part 1, Part 2, or parts 1 and 2 of *Geologic Scene Investigator*.

- o *Geologic Scene Investigator: Part 1 Answers*
- o *Geologic Scene Investigator: Part 2 Answers*
- o *Geologic Scene Investigator: Parts 1 and 2 Answers*

___ Game pieces for each player (suggestions: different colored Hershey's kisses, gumdrops, coins, beads, or beans)

___ Scissors

___ Three or four pencils, pens, or markers

___ Small prizes for the winners (optional)

For the facilitator:

___ 1 copy of the *Mind Over Mars Facilitator Questions*

Activity 8: Summit Up - Comparing Volcanos on Mars and Earth

For each child:

- ___ Olympus Mons & Mauna Kea Templates
- ___ Scissors
- ___ Scotch tape
- ___ A blue crayon or colored pencil
- ___ 11" x 17" paper (optional)

Activity 9: Puzzling Patterns - Where Does Volcanism Occur?

For each team of 3 to 4 children:

- ___ Maps of Earth and Mars with and without volcanos
- ___ Small colored sticky dots
- ___ A large tipped, brightly colored marker or highlighter
- ___ Poster paper

Activity 10: The Icing on the Plate - Why are the Volcanos on Mars so Tall?

For each team of 3 to 4 children:

- ___ 1 gallon size baggie
- ___ Scissors
- ___ 2 large, heavy, oval shaped cardboard plates or large, rectangular meat trays (for example, a 12S meat tray)
- ___ 1 16 ounce container of cake icing (not in a squirt can) or instant mashed potatoes made to the same consistency as icing
- ___ A spatula or large spoon
- ___ Several wet wipes
- ___ Glue stick
- ___ Images of Olympus Mons and the Hawaiian Islands, as seen from space

Activity 11: Recipe for a Planet - Delving Deep into Earth and Mars

For each team of 3 to 4 children:

- ___ 1 piece of saltwater taffy (or half a donut hole)
- ___ 10-12 mini chocolate chips and 3-4 regular size chocolate chips
- ___ 2 teaspoons of green sugar sprinkles or "jimmies"
- ___ 2 tablespoons of blue sugar sprinkles or "jimmies"
- ___ 1 tablespoon red sugar sprinkles or "jimmies"
- ___ 2 tablespoons of red icing
- ___ 1 small paper cup
- ___ 1 donut hole
- ___ 6 pre-packaged Rice Krispies Treats
- ___ 3 zip-lock baggies
- ___ 2 cardboard plates
- ___ 1 ruler
- ___ 1 pair of scissors
- ___ 1 sturdy plastic knife
- ___ Several wet wipes or damp paper towels

For the group:

- ___ Butcher paper, newspapers, or disposable table cloths to cover the activity area (optional)

For the facilitator:

- ___ Background information

Activity 12: Cooling Planets - A Discussion

For the group(or for small groups of children):

- ___ Two objects of different sizes or volumes, such as 1/2 and 2 liter soda bottles, or quart and 1/2 gallon milk containers. The containers need to be made of the same material and be the same shape. There needs to be at least a 50% difference in volume between the large and small container.
- ___ Access to warm water

For the facilitator:

- ___ Background information

Activity 13: Differentiation Demonstration

For the group:

- ___ 1 clear plastic 2-liter soda or water bottle with a cap and with the label removed
- ___ 3 1/2 cups (a little over 3 pounds) *small* aquarium gravel, preferably metallic colored
- ___ 3 ounces (1/2 cup) of pony beads
- ___ 6 1/4 cups (50 ounces) of corn syrup, such as Karo
- ___ 4 ounces of water
- ___ A funnel
- ___ Measuring cups

For the facilitator:

- ___ Background information