

Explore! Jupiter's Family Secrets!

Shopping List

The following is an abbreviated list of the materials required for the *Jupiter's Family Secrets* module of activities. Refer to the materials section of each activity for links to supplemental pages to print or suggestions for books and websites.

Activity 1: Jump Start: Jupiter

For each group of 20 to 30 children:

- _ Chalk or white board, or poster paper and markers to record the children's ideas
- _ 11 (22" x 28") brightly-colored, standard-sized poster boards
- _ 11 paper plates
- _ Coloring supplies
- _ Optional: craft items such as foil, yarn, ribbon, tissue paper, glitter, glue, etc.
- _ Books (refer to resources section of website for recommendations)
- _ Optional: 1 set of *Our Solar System* lithographs (NASA educational product number LS-2001-08-002-HQ), preferably double-sided and in color

For each child:

- _ His/her *My Trip to Jupiter* Journal or just the relevant "Jump Start: Jupiter" pages
- _ 1 pencil or pen

For the facilitator:

- _ Background information
- _ Optional: *Family Portrait...in Numbers*

Activity 2: Jump to Jupiter

For each group of 20 to 30 children:

- _ Measuring tape
- _ 1 softball or grapefruit
- _ 3 pepper flakes, each attached to a (3"x5") card
- _ 2 poppy seeds, each attached to a (3"x5") card
- _ 2 (1/2" or so) marbles, one slightly smaller than the other, each attached to a (3"x5") cards
- _ 2 peppercorns, each attached to a (3"x5") card
- _ 1 meter- or yard-stick
- _ Optional: 1 set of *Our Solar System* lithographs preferably double-sided and in color
- _ Optional: 1 set of children's posters about solar system objects from the activity Jump Start: Jupiter!
- _ 12 (3') stakes to attach to the planet lithographs or children's posters
- _ Mallet or heavy object (for placing stakes in the ground)
- _ Tape
- _ A large outdoor area

For each child:

- _ His/her *My Trip to Jupiter* Journal or just the relevant "Jump to Jupiter" page
- _ 1 pencil or pen

For the facilitator:

- _ Background information
- _ Optional: *Family Portrait...in Numbers*

Activity 3: Planet Party

For each group of approximately 20 visitors:

- _ 1 telescope manned by an amateur astronomer
- _ 1 small step-stool for children to stand on to reach tall telescope eyepieces
- _ Tables set up indoors or outside, in a well-lit area and out of the path of traffic
- _ Pencils or crayons

For each child:

- _ 1 *My Trip to Jupiter* Journal or just the relevant "Planet Party" pages
- _ Sky map for the current night (monthly sky charts or simple sky wheels are available free from a variety of websites, including the links offered here; note that the sky wheels require assembly but work year-round)

For the facilitator:

- _ Background information
- _ *Throw a Star Party*

Activity 4: Jiggly Jupiter

For each group of 20 to 30 children:

- _ Optional: butcher paper, newspapers, or disposable table cloths for the activity area
- _ Additional plates for eating the treats, if desired

For each team of 2 to 4 children (or for each individual child if you prefer that they make their own planets):

- _ 1 (8" diameter) paper plate
- _ 1 pitted cherry, cut in half
- _ 1 (2 ¼ ounce) strawberry Go-GURT® package or other yogurt
- OR
- _ 1 (5.5" to 6" diameter) strawberry-flavored gelatin jiggler (directions below)
- _ Strawberry syrup (several teaspoons)
- _ Chocolate syrup (pea-sized amount)
- _ 6 small cinnamon candies (e.g. Red Hots)
- _ ¼ cup whipped cream
- _ 1 ruler
- _ 1 plastic knife
- _ Several wet wipes or damp paper towels
- _ *A Peek into Jupiter's Interior*, preferably printed in color

For each child:

- _ 1 *My Trip to Jupiter Journal* or just the relevant "Jiggly Jupiter" page
- _ 1 pencil or pen
- _ 1 spoon

For the facilitator:

- _ Background Information

To prepare about 12 gelatin jigglers (if used in place of yogurt):

- _ 2 (11" x 17") cookie sheets
- _ 4 large packs of strawberry-flavored gelatin (or 8 small packs)
- _ 5 cups boiling water
- _ 1 large mixing bowl
- _ 1 knife for cutting jigglers

Activity 5: Weather Stations: Temperature and Pressure

For the station:

- _ Banner or poster with station name

For one set; six sets are recommended for a station:

- _ 1 clear 2L plastic beverage bottle with cap (clean, with label removed)
- _ 1 liquid crystal temperature strip with markings for at least every two degrees Fahrenheit (available in most pet stores or stores that sell aquarium fish)
- _ 1 Fizz-Keeper® Pump (available online from retailers such as Steve Spangler Science and usually in the soda aisles of large supermarkets)
- _ Tape
- _ *Can You Take the (Low) Pressure?*, printed preferably in color

For each child:

- _ His/her *My Trip to Jupiter* Journal or just the relevant "Temperature and Pressure" pages
- _ 1 pencil or pen

Activity 5: Weather Stations: Phase Change

For the station:

- _ Banner or poster with station name

For one set; three sets are recommended for a station:

- _ 2 identical clear containers (1 filled with ice, 1 filled with water)
- _ 1 clear plastic tumbler for holding hot water
- _ Small sheet of aluminum foil (enough to cover the top of the tumbler)
- _ Water
- _ Electric tea kettle or carafe of boiling hot water
- _ Ice cubes (enough to use 3-4 during each demonstration)
- _ 1 spoon
- _ 1 large bowl for periodically emptying tumblers
- _ Towel for drying and cleaning spills
- _ Hot pads
- _ *The Earth's Water Cycle* poster (adapted from Introduction to Clouds)

Or

- _ Water cycle song, such as http://www.proteacher.org/a/12048_Water_Cycle_Song.html

For each child:

- _ His/her *My Trip to Jupiter* Journal or just the relevant "Weather Stations: Phase Change" pages
- _ 1 pencil or pen

Activity 5: Weather Stations: Clouds

For the station:

- _ Banner or poster with station name

For one set; three sets are recommended for a station:

- _ *Cloud Levels on Jupiter*, printed preferably in color
- _ Optional: Computer and access to online images of clouds
- _ Optional: Books (refer to resources section of website for recommendations)

For each child:

- _ *Cloud Viewer*
- _ *Cloud Identification Guide: A Dichotomous Key*
- _ His/her *My Trip to Jupiter* Journal or just the relevant "Clouds" page
- _ 1 pencil or pen

Activity 5: Weather Stations: Storms

For the station:

- _ Banner or poster with station name

For one set; three sets are recommended for a station:

- _ Glass jar filled nearly to the top with water
- _ 1 tablespoon glitter, any color
- _ Long pencil or straw
- _ Large pan filled with water to about 2" deep
- _ Corn starch (enough to make 1/8" layer to the pan or bowl of water)
- _ 1 teaspoon brightly colored drink powder, such as Crystal Light
- _ Spoon
- _ *Super-sized Storms on Jupiter*, printed preferably in color
- _ Optional: Online video of Jupiter's atmosphere in color
- _ Optional: Online video of Jupiter's atmosphere in black and white
- _ Optional: Online video of Earth's atmosphere
- _ Optional: Online video of Jupiter and Earth spinning

For each child:

- _ His/her *My Trip to Jupiter* Journal or just the relevant "Weather Stations: Storms" pages
- _ 1 pencil or pen

Activity 5: Weather Stations: Winds

For the station:

- _ Banner or poster with station name

For one set; three sets are recommended for a station:

- _ Toaster
- _ Wide tape or cord cover for cord safety
- _ 1 "kite," constructed from
 - _ 1 (12") dowel
 - _ 1 (3.5x3.5") piece of aluminum foil (not "heavy duty")
 - _ 1 paperclip
- _ Tape
- _ *Winds Seen from Space*

For each child:

- _ His/her *My Trip to Jupiter* Journal or just the relevant "Weather Stations: Winds" page
- _ 1 pencil or pen

Activity 5: Weather Stations: Jovan Poetry

For the station:

- _ Banner or poster with station name

For one set; three sets are recommended for a station:

- _ Selections of poems about clouds and weather from Internet (or book) resources
- _ Selections of Internet and book resources that offer animations, photographs, and artists' depictions of Jupiter's atmosphere (see the resources section for more suggestions)

For each child:

- _ His/her *My Trip to Jupiter* Journal or just the relevant "Weather Stations: Jovan Poetry" page
- _ 1 pencil or pen

Activity 5: How's the Weather on Jupiter?

For the station:

- _ Banner or poster with station name

For one set; three sets are recommended for a station:

Craft supplies and tools, such as:

- | | |
|--|---------------------------|
| _ Clear cups | ___ Pipe cleaners |
| _ Ribbon | ___ Coloring supplies |
| _ Crepe paper | ___ Tape |
| _ Dowels | ___ Glue |
| _ Rulers | ___ Staplers |
| _ Brads | ___ Fishing line |
| _ Cardboard | ___ String |
| _ Construction paper | ___ Play-Doh™ |
| _ Paper plates | ___ Drinking Straws |
| _ Thermometers, preferably plastic | ___ Plastic sandwich bags |
| _ Sponges | ___ Tissue paper |
| _ Popsicle sticks | ___ Clear cellophane |
| _ Gift Shred | |
| _ Various metal objects, such as nuts, bolts, washers, screws, nails, jar lids | |
| _ Straight-sided glass containers (such as clean olive jars) | |
| _ Plastic bottles (such as clean water bottles) | |

For each child:

- _ His/her *My Trip to Jupiter* Journal or just the relevant "Weather Stations: How's the Weather on Jupiter" page
- _ 1 pencil or pen

Activity 6: Investigating the Insides

For each group of 20 to 30 children:

- _ 5-7 extra-large, dark balloons, filled with air and other assorted materials (below)
- _ 2 compasses or magnets
- _ Paperclips
- _ 1-3 strong magnets, such as a cow magnets (available from pet/farm supply stores or science education product retailers)
- _ Scraps of paper
- _ 10-20 beads
- _ 5-10 marbles
- _ Optional: Whipped cream from a bottle with a nozzle
- _ Optional: Water
- _ 2 small scales (such as postage scales)
- _ 2 liquid crystal temperature strips (available in most pet stores or stores that sell aquarium fish)
- _ 2 magnifying glasses
- _ Optional: 2 laser pointers
- _ Optional: 2 ear thermometers

For each child:

- _ His/her *My Trip to Jupiter* Journal or just the relevant "Investigating the Insides" page
- _ 1 pencil or pen

For the facilitator:

- _ Background information

Activity 7: Neato-Magneto Planets

For each group of 10 to 15 children:

- _ 1 set of signs printed on card stock and noting the following:
 - _ "Magnetic Fields All Around" (for station 1)
 - _ "Mapping Magnetic Fields" (for stations 2)
 - _ "Modeling Neato-Magneto Planets" (for station 3)
 - _ "Polar Halos" (for station 4)
 - _ Tape
 - _ 3 flat compasses with transparent faces, which can be purchased from Wal-Mart or Arbor Scientific
- Or
- _ 3 Magnaprobos, which can be purchased from Arbor Scientific or Educational Innovations, Inc.
 - _ 2 (3" long) strong magnets such as a cow magnet (available from pet/farm supply stores or science education product retailers, including Edmund Scientific's and Amazon)
 - _ 2 flat Alnico bar magnets
 - _ A variety of magnetic household materials, such as paper clips, nails, staples, refrigerator magnets, metal spoons, tin-can lids, etc.
 - _ A variety of non-magnetic household materials, such as a wooden or plastic top, rocks (not lodestone), aluminum foil, copper wire, paper, wood, soda straws, copper pennies, corks, etc.
 - _ 1 cup containing about 100 "clamped" staples (that have been stapled but not to paper)
 - _ 1 (8-9" diameter) paper plate
 - _ 1 (3") Styrofoam ball
 - _ Optional: Computer, speakers, and access to the video of Jupiter's aurora and sounds of Jupiter's magnetosphere and sounds of Earth's aurora
 - _ Images of Jupiter's aurora, printed preferably in color
 - _ *Earth's and Jupiter's Magnetic Fields*

For each child:

- _ His/her *My Trip to Jupiter* Journal or just the relevant "Neato-Magneto Planets" pages
- _ 1 pencil or pen

For the facilitator:

- _ Background information
- _ *Facilitator's Guide to Magnetism*
- _ Optional: 1 bell
- _ Tape
- _ If available, four assistants (parents or older children)

Activity 8: From Your Birthday to Jupiter's

For each group of 20 to 30 children:

Part 1: Your Origins Story

- _ Tape

Part 2: A Cultural Origins Story

- _ Cultural origins narration, such as the SkyTellers audio file, "The Creation of the Earth" as told by Joseph Bruchac (Abenaki)
- And
- _ Equipment for playing the cultural origins audio, such as a computer and speakers

Or

- _ A live storyteller reading the "The Creation of the Earth" transcript
- _ Silly props to go along with the cultural origins story, such as
 - _ 1 seed packet (empty is fine)
 - _ 1 strawberry or strawberry plant (real or synthetic)
 - _ 1 white flower (real or synthetic) or a flashlight
 - _ 1 watering can
 - _ 1 pillow
 - _ 1 oversized T-shirt and belt
 - _ 1 rattle or can of dried beans
 - _ 1 chair
 - _ 3 snorkel masks, swim goggles, or flippers
 - _ 1 cup of dirt
- _ 11 name tags labeled "Tree," "Sky Man," "Sky Woman," "Musician," "Goose," "Swan," "Turtle," "Duck," "Beaver," "Loon," and "Muskrat"

Part 3: Jupiter's Origins Story

- _ 1 timeline, prepared as described under "Preparation" using:
 - _ 1 (185') roll of butcher's twine
 - _ Measuring tape (preferably 50')
 - _ 3 signs, made from sheets of colorful paper marked with the following terms:
 - _ Today
 - _ Jupiter's Birthday
 - _ Big Bang
 - _ Tape
 - _ Science origins animation, such as the *SkyTellers: Solar System science story* or the Exploring Earth Visualization of the solar system's origin
 - _ Computer, projector and screen, and speakers
 - _ Optional: 1 birthday hat
 - _ Optional: chalk or white board, or poster paper and markers to record the children's ideas

For each child:

- _ His/her *My Trip to Jupiter* Journal or just the relevant "From Your Birthday to Jupiter's" page for each child
- _ 1 pencil or pen
- _ 1 (approximately 10") length of yarn

For the facilitator:

- _ Background Information

Activity 9: Solar System in My Neighborhood

For each group of 20 to 30 children:

One of each of the following fruits and other foods* (listed from largest to smallest):

- (55"-wide) giant pumpkin or Halloween orange pumpkin garbage bag
 - (5 ½"-wide) large mango or potato
 - (4 ½"-wide) large orange or cantaloupe or coconut
 - (2"-wide) plum
 - (2"-wide) kiwi or lime
 - (1/2"-wide) small grape
 - (1/2"-wide) large blueberry
 - (1/4"-wide) pea or navy bean
 - (1/5"-long) uncooked orzo pasta
 - (3/32"-wide) grain of uncooked rice
 - (1/16"-wide) grain of uncooked rice
 - (1/64"-wide) poppy seed
 - Measuring tape (to measure a distance of 190 ft.)
 - Coloring supplies, including markers and colored pencils
 - Optional: 1 set of *Our Solar System* lithographs preferably double-sided and in color
 - 1 (22" x 32" or larger) neighborhood map, extending to 6 miles from your geographic location, prepared as described under "Preparation" using either a photocopier and a detailed local map or mapping software and a printer
 - 11 (20") strings
 - Ruler
 - Tape
 - 11 coffee stirrers
 - *Planet Labels*
- Optional: Access to the online song "11 Planets" by Lisa Loeb
- A large area where the children can model the orbit of Mercury around the Sun (perhaps outdoors for this portion of the activity), investigate the fruit, and gather around the map to plot their team's planet
 - A large wall, table, or floor space for posting or laying the map down
 - *These foods may be used again in the activity [Dunking the Planets](#).

For each child:

- His/her *My Trip to Jupiter* Journal or just the relevant "Solar System in My Neighborhood" page
- 1 pencil or pen

For the facilitator:

- Background information
- *Solar System in My Neighborhood: Planet Sizes and Distances*
- Optional: *Family Portrait...in Numbers*

Activity 10: Dunking the Planets

For each group of 10 children:

- One of each of the following fresh fruits and other foods (listed from largest to smallest):
 - (5 ½"-wide) large mango or potato
 - (4 ½"-wide) large unpeeled orange, coconut, or cantaloupe
 - (2"-wide) plum
 - (2"-wide) kiwi or lime (not a lemon)
 - (1/2"-wide) small grape
 - (1/2"-wide) large blueberry
 - (1/4"-wide) pea or navy bean
 - (1/5"-long) uncooked orzo pasta
- 1 (18" wide x 8" deep or larger) bowl, tub, or small wading pool
- A sink or other access to water
- Optional: 1 golf ball or ball bearing
- Optional: 1 ping-pong ball or a marble that is similar in size to the ball bearing

For each child:

- His/her *My Trip to Jupiter* Journal or just the relevant "Dunking the Planets" page
- 1 pencil or pen

For the facilitator:

- Background information
- *Dunking the Planets: Selecting Appropriate Foods*

Activity 11: Heavyweight Champion: Jupiter!

For each group of 10 to 20:

- Computer and projector to show a brief movie of an astronaut walking on the Moon, such as Moon Walk
- 3-9 “solar system scales,” prepared as described under “Preparation” using:
 - 3-9 bathroom scales with dials (not digital)
 - Wite-Out®
 - Thin black marker
 - [Solar System Scales Guide](#)
- 3-9 posters (one for each “solar system scale”), prepared as described under “Preparation” using:
 - Brightly colored poster board
 - Thick marker
 - [Family Portrait...in Numbers](#)
- Optional: 1 set of *Our Solar System* lithographs (NASA educational product number LS-2001-08-002-HQ), preferably double-sided and in color
- Optional: Books (refer to resources section of website for recommendations)

For each child:

- His/her *My Trip to Jupiter* Journal or just the relevant “Heavyweight Champion: Jupiter!” page
- 1 pencil or pen

For the facilitator:

- Background Information
- *Facilitator’s Guide to Gravity*

Activity 12: The Pull of the Planets

For each group of up to 30:

- Computer and projector to show an animation of Juno orbiting Jupiter or an artist’s rendering of Juno in orbit, printed preferably in color.

For each group of four children:

- 1 (20” by 12” or larger) embroidery hoop
- Something to support the edges of the embroidery hoop, such as foam bricks or books
- 1 thin stretchable plastic sheet, like a plastic garbage bag or sheets of plastic-wrap
- 2-4 (½”-wide) small marbles
- 1 (2”) Styrofoam™ ball
- Half a can of Play-Doh®

For each child:

- His/her *My Trip to Jupiter* Journal or just the relevant “The Pull of the Planets” page
- 1 pencil or pen

For the facilitator:

- Background information
- *Facilitator’s Guide to Gravity*

Activity 13: My Trip to Jupiter

For each group of 10 to 20 children:

- Miscellaneous craft items such as:
 - Colored pencils or markers
 - Cotton balls or cotton batting
 - Small bubble wrap
 - Plastic wrap in different colors
- Sand or sandpaper
- Glitter
- Aluminum foil
- Metallic pens
- Tissue paper
- Sequins
- Glow-in-the-dark stickers or paints
- Stickers
- Felt
- Construction paper
- Yarn, string, ribbon
- Scissors
- Glue
- Tape
- Optional: scrapbook scissors, embossers, punches, etc.
- Optional: 5-10 (22” x 28”) brightly-colored, standard-sized poster boards
- Optional: Books (refer to resources section of website for recommendations)

For each child:

- His/her *My Trip to Jupiter* Journal
- 1 pencil or pen

For the facilitator:

- Background information