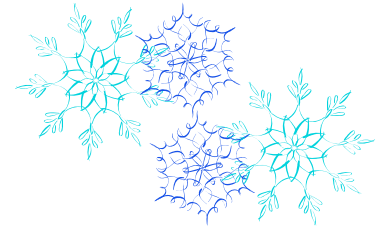


# Explore! Ice Worlds! Shopping List



## Activity 1: Icebreaker Bingo

For each child:

- \_\_\_ Icebreaker Bingo card
- \_\_\_ Pen or pencil
- \_\_\_ Ice Investigator Journal
- \_\_\_ Sheet of cardstock

For the facilitator:

- \_\_\_ Background Information

## Activity 2: States of Water

For each child:

- \_\_\_ Snow mobile pieces
- \_\_\_ Thin marker/colored pencil
- \_\_\_ Craft items: crayons, colored pencils, glitter, yarn, foil, tissue paper, stickers
- \_\_\_ Scissors
- \_\_\_ Glue
- \_\_\_ Envelope

For the facilitator:

- \_\_\_ Background Information

## Activity 3: An Ice Magic Show!

For each child:

- \_\_\_ Ice Investigator Journal
- \_\_\_ His/her envelope of mobile pieces

For the group:

- \_\_\_ A container such as a box, large enough to conceal two containers of ice and water
- \_\_\_ Two identical containers, one filled with ice, one filled with water
- \_\_\_ Magician supplies, like a small cloth to cover the bowls, a wand, cape, hat, etc. (all of these are optional to make it more fun)

For the facilitator:

- \_\_\_ Background Information

## Activity 4: Around the Block: An Ice Tour

For each child:

- \_\_\_ Ice Investigator Journal
- \_\_\_ His/her envelope of mobile pieces
- \_\_\_ A pen or pencil

For each group of 4 to 6 children:

- \_\_\_ 1 5-10lb. block of ice. To make your own you will need:
  - A 2-3 gallon plastic container
  - 2 to 3 gallons of water; distilled or filtered water is best
  - Access to a freezer
- \_\_\_ A shallow rectangular pan, like a pie or cake pan, to hold the block of ice
- \_\_\_ Investigative tools, such as flashlights, magnifying glasses, magnets, and plastic spoons or knives to scrape the ice
- \_\_\_ Paper towels
- \_\_\_ Around the Block: An Ice Tour Instruction Sheet

For the facilitator:

- \_\_\_ Background Information

## Activity 5: That's a N (ice) Temperature

For the group:

- \_\_\_ A Styrofoam ice chest to hold crushed ice and ice cubes

For each child:

- \_\_\_ Ice Investigator Journal
- \_\_\_ His/her envelope of mobile pieces
- \_\_\_ A pen or pencil

For each group of 4 to 6 children:

- \_\_\_ 1 thermometer that is easy to read and safe, preferably with both Celsius and Fahrenheit scales
- \_\_\_ 1 seven cup or larger plastic container *with lid*
- \_\_\_ Enough foil to cover the top - but not the sides - of the cup
- \_\_\_ ~5 cups of loose ice cubes (**not** crushed ice). As much as possible, make sure the ice cubes are loose and not stuck together.
- \_\_\_ ~2 cups of rock salt (the kind used to make ice cream)
- \_\_\_ A timer, stopwatch, watch, or clock with a second hand

For the facilitator:

- \_\_\_ Background Information

## Activity 6: The Melting Point

For the group:

- \_\_\_ A Styrofoam ice chest to hold ice cubes

For each child:

- \_\_\_ Ice Investigator Journal
- \_\_\_ His/her envelope of mobile pieces
- \_\_\_ A pen or pencil
- \_\_\_ 1 quart Ziplock baggie
- \_\_\_ 1 tablespoon sugar
- \_\_\_ 1/4 teaspoon vanilla
- \_\_\_ 1 plastic spoon
- \_\_\_ 1 gallon Ziplock baggie
- \_\_\_ 1/2 cup milk
- \_\_\_ 2 tablespoons rock salt

For each group of 4 to 6 children:

- \_\_\_ 1 Styrofoam plate
- \_\_\_ 1/4 teaspoon salt
- \_\_\_ Magnifying glass (optional)
- \_\_\_ Food coloring (optional)
- \_\_\_ 2 ice cubes
- \_\_\_ Small cup for the salt
- \_\_\_ A plastic spoon
- \_\_\_ A paper towel

For the facilitator:

- \_\_\_ Background Information

### Activity 8: Amazing Expanding Ice

*For the group:*

- \_\_\_ Several pitchers of water
- \_\_\_ Food coloring
- \_\_\_ Access to a freezer
- \_\_\_ Trays to carry cups of water
- \_\_\_ Paper towels in case of spills
- \_\_\_ Access to a kitchen scale or postal scale (optional)

*For each child:*

- \_\_\_ *Ice Investigator Journal*
- \_\_\_ His/her envelope of mobile pieces
- \_\_\_ A pen or pencil

*For each child or group of children:*

- \_\_\_ 2 small (4 or 6 ounce) paper cups
- \_\_\_ Foil to cover the cups
- \_\_\_ Marker to write on the cups
- \_\_\_ Ruler

*For the facilitator:*

- \_\_\_ Background information

### Activity 9: The Tip of the Iceberg

*For each child:*

- \_\_\_ A pencil, colored pencils, markers or crayons
- \_\_\_ *Ice Investigator Journal*
- \_\_\_ His/her envelope of mobile pieces

*For each group of 3-4 children:*

- \_\_\_ 1 clear or slightly opaque pitcher (or other container) that is taller than the ice the children created in the *Amazing Expanding Ice* activity
- \_\_\_ Water to fill 3/4 of the pitcher
- \_\_\_ Ice from the *Amazing Expanding Ice* activity
- \_\_\_ A non-permanent marker
- \_\_\_ Paper towels

*For the facilitator:*

- \_\_\_ Background information

### Activity 10: Flubber Flows

*For each child:*

- \_\_\_ *Ice Investigator Journal*
- \_\_\_ His/her envelope of mobile pieces

*For each group of 4-5 children:*

- \_\_\_ 2 softball size blobs of Flubber, one white and one colored.
- To make the Flubber you will need:

- Measuring cups and spoons
- Two mixing bowls
- 1 cup of white glue
- 5 drops of green or blue food coloring
- 1 and 1/4 cup *warm* water
- 2 teaspoons of Borax

- \_\_\_ 20" x 30" or larger piece of foam core or heavy cardboard
- \_\_\_ 1 pint sized Ziplock baggie
- \_\_\_ 1 pair of scissors
- \_\_\_ Pencil or pen
- \_\_\_ A chalkboard or poster paper
- \_\_\_ Images of glaciers and Amundsen Scott South Pole Station
- \_\_\_ 1 permanent marker
- \_\_\_ Ruler
- \_\_\_ A timer

*For the facilitator:*

- \_\_\_ Background information

### Activity 11: States of Water: Wrapping Up

*For each child:*

- \_\_\_ *Ice Investigator Journal*
- \_\_\_ His/her envelope of mobile pieces
- \_\_\_ Tape
- \_\_\_ 1 (4') piece of string or yarn
- \_\_\_ 18 (4-6") pieces of string or yarn
- \_\_\_ 3 paper plates
- \_\_\_ Any additional decorations
- \_\_\_ Scissors
- \_\_\_ Pen or pencil
- \_\_\_ Hole punch (optional)

*For the facilitator:*

- \_\_\_ Background Information

### Activity 12: Ice and Seek

For each group of 3-4 children:

- \_\_\_ 3 (6-8-ounce) clear plastic cups
- \_\_\_ 9 ounces water
- \_\_\_ Small (2" x 4" and 2" high) piece of dry ice
- \_\_\_ 3 ounces isopropyl alcohol
- \_\_\_ 1 metal spoon
- \_\_\_ 1 thermometer
- \_\_\_ Access to a freezer
- \_\_\_ 1 magnifying glass
- \_\_\_ 1 cardboard plate
- \_\_\_ 1 set of small gloves (cotton - not rubber or latex)
- \_\_\_ 1 set of *Ice and Seek Characteristics Packet*
- \_\_\_ Images of *Ice on Earth and Other Planets*

For the group:

- \_\_\_ 5-10 colorful poster board sheets
- \_\_\_ *Planetary Ice Data Set*
- \_\_\_ Glue or tape
- \_\_\_ Scissors
- \_\_\_ Additional images of planets and moons (optional)

For each child:

- \_\_\_ *Ice Across the Solar System?* sheet
- \_\_\_ A pen or pencil

For the facilitator:

- \_\_\_ Background Information

### Activity 13: Reflections on Ice: How We Look for Ice

For each child:

- \_\_\_ Ice Investigation Sheets: *Shine a Light on Ice, Color Coded Ice, and Visible or Invisible?*
- \_\_\_ Pencil

For each group of 2 to 3 children:

- \_\_\_ 1 *Amazing Electromagnetic Spectrum* cartoon

For the group (of 24 to 36 children):

- \_\_\_ 1 small spoon
- \_\_\_ 12 flashlights
- \_\_\_ Bottle of tonic water or 2 sheets of white copier paper
- \_\_\_ 12 (6" wide and 2" deep or larger) containers
- \_\_\_ 1 box of food coloring (red, yellow, green, and blue)
- \_\_\_ 2 UV lights (black light) These may be purchased for under \$20. UV light *bulbs* do not work as well.
- \_\_\_ 1 sheet each of red, blue, and green colored gel (colored filters)
- \_\_\_ 6 sheets of cardstock
- \_\_\_ Marker
- \_\_\_ Tape

For the facilitator:

- \_\_\_ Access to water
- \_\_\_ Access to a dark room for the group activity
- \_\_\_ Access to freezer
- \_\_\_ Background Information

### Activity 14: Ice Zones: Where We Look for Ice

For each group of 3 to 4 children:

- \_\_\_ 1 heat lamp or work lamp with a 100 watt or greater light bulb
- \_\_\_ 1 6" or larger clay ball (or Styrofoam ball covered with clay)
- \_\_\_ 1 paper plate
- \_\_\_ 16 toothpicks
- \_\_\_ 2 ice cubes of similar size
- \_\_\_ Small Styrofoam or insulated cup or container to keep the ice cubes frozen (optional)
- \_\_\_ *Planetary Thermometer*
- \_\_\_ *Moon's Surface Images*

For the facilitator:

- \_\_\_ Background Information

### Activity 15: Ice Quest

For each team of 4-6 children:

- \_\_\_ 12 pieces of brightly-colored poster board
- \_\_\_ 1 set of poster content
- \_\_\_ 6 (6" - 12" wide) square boxes
- \_\_\_ Butcher paper to cover the boxes
- \_\_\_ Colored markers
- \_\_\_ Tape
- \_\_\_ Glue (optional)

For the group:

- \_\_\_ Writing utensil
- \_\_\_ 1 set of *Scientist Sheets* and *Ice Quest* pages

For the facilitator:

- \_\_\_ Background information

### Activity 16: Know Your Poles?

For each team of 4-10 children:

- \_\_\_ Access to books and/or articles on the polar region
- \_\_\_ Poster paper
- \_\_\_ Marker(s)
- \_\_\_ Tape

For the facilitator:

- \_\_\_ Poster paper
- \_\_\_ Marker(s)
- \_\_\_ Tape
- \_\_\_ Background information

### Activity 17: Polar Bears or Penguins?

For each child:

- \_\_\_ 1 green colored pencil or crayon
- \_\_\_ Tape
- \_\_\_ 1 blue colored pencil or crayon
- \_\_\_ 1 color copy of the map of the Arctic without Ice
- \_\_\_ 1 copy of Arctic ice on a transparency
- \_\_\_ 1 color copy of the map of Antarctica
- \_\_\_ 1 copy of Antarctic ice on a transparency

For the group:

- \_\_\_ At least 2 sets of *Polar Cards* on different colors of card stock; one for each team, with a minimum of two teams

For the facilitator:

- \_\_\_ 3 poster boards
- \_\_\_ Marker(s)
- \_\_\_ Tape
- \_\_\_ 1 *Polar Cards Facilitator's Guide*
- \_\_\_ "Know" / "Want To Know" posters from *Know Your Poles* activity
- \_\_\_ Background Information

### Activity 18: Flip-flops or Boots?

For each team:

- \_\_\_ Internet, book, and multimedia resources about the regions of the U.S.
- \_\_\_ 1 set of *Flip-flops or Boots?* journals
- \_\_\_ 1 set of *What If... Cards*, preferably printed in color

For the group:

- \_\_\_ Wall space (4' and 5' wide)
- \_\_\_ Scissors
- \_\_\_ Tape
- \_\_\_ 1 set of regional maps of the United States
- \_\_\_ 1 set of regional legends
- \_\_\_ Coloring supplies
- \_\_\_ Texturing supplies (optional)
- \_\_\_ 1 map of the Arctic

For the facilitator:

- \_\_\_ *Facilitator's Regional Guide*
- \_\_\_ Background information

### Activity 19: On the Rise

For the group:

- \_\_\_ 1 (10-gallon) rectangular fish tank
- \_\_\_ 3 (~9" x 3" x 3") bricks of green floral *wet foam* (*wet foam*, not Styrofoam); other non-floating, non-porous, non-water soluble materials may be used, like bricks (but be careful with the glass!)
- \_\_\_ Access to water to partially fill the tank and the container
- \_\_\_ 1 heat lamp with 250-watt bulb
- \_\_\_ Access to an electrical outlet
- \_\_\_ Duct tape
- \_\_\_ Access to a freezer
- \_\_\_ Permanent dark marker
- \_\_\_ 1 (5" x 8" x 3" or larger) plastic container
- \_\_\_ Materials for the interim activity, either *Catching a Heat Wave* or *Balancing Act*

For the facilitator:

- \_\_\_ Background information

### Activity 20: *Catching a Heat Wave*

For a group of 30:

- \_\_\_ 3 softball mitts or similar types of gloves
- \_\_\_ 12 oven mitts or similar types of mitts
- \_\_\_ 15 embroidery hoops
- \_\_\_ 15 soft balls, preferably of the same type (one ball for every two players); foam or Styrofoam balls are recommended
- \_\_\_ Gas tags, preferably printed in color
- \_\_\_ 30 (6") pieces of string
- \_\_\_ Scissors
- \_\_\_ *Global Temperature Change* chart
- \_\_\_ *Carbon Dioxide in Earth's Atmosphere* chart

For the facilitator:

- \_\_\_ Background information

### Activity 21: *Balancing Act*

For each child:

- \_\_\_ 2 (12" x ¼") rigid rods, such as aluminum tubes or wooden dowels from a craft store
- \_\_\_ 2 (15") lengths of yarn
- \_\_\_ 1 (1 ¼") low-density Styrofoam ball
- \_\_\_ 2 (¾" diameter or smaller) jingle bells
- \_\_\_ 2 pencil erasers
- \_\_\_ 5 red pipe cleaners, cut into thirds (13 pieces needed)
- \_\_\_ 2 blue pipe cleaners, cut into thirds (5 pieces needed)
- \_\_\_ "Sun," "Too hot!," and "Too cold!" cards, preferably printed in color
- \_\_\_ "Warmer" cards printed front to back
- \_\_\_ "Cooler" cards printed front to back
- \_\_\_ Hole-punch (optional)

For the group:

- \_\_\_ Craft supplies
- \_\_\_ Scissors
- \_\_\_ Old magazines for the children to cut pictures out of (optional)

For the facilitator:

- \_\_\_ Background information

### Activity 22: *Polar Bears Go With The Floes*

For each group of 3–4 children:

- \_\_\_ 1 *Polar Bears Go With the Floes* game board
- \_\_\_ 1 set of *Ice Floe Puzzle Pieces* on cardstock or white craft foam
- \_\_\_ 1 set of game pieces on card stock
- \_\_\_ 1 deck of game cards on card stock
- \_\_\_ *Rules of the Game* sheet
- \_\_\_ 1 die

For the facilitator:

- \_\_\_ Template for *Ice Floe Puzzle Pieces*
- \_\_\_ Scissors
- \_\_\_ Tape
- \_\_\_ Marker
- \_\_\_ Background Information