

# “In Outer Space”



## Module 9, Adventure 2

### Prompt:

The farther away from the Sun, the less heat - and the more ice! It is important for space explorers to conduct their own scientific experiments on ice. Get ready to explore ice!

### Materials:

#### Notes for Grown-Up's About Adventure Preparation:

- Please give yourself time to make different forms of ice for your explorer(s) to explore. We recommend preparing at least a day in advance:
  - **Regular ice cubes.** Using ice cube trays or an ice maker, make a bunch of ice cubes!
  - **Big ice cubes.** Instead of freezing water in a tray, use Tupperware or mixing bowls to make large ice cubes. Different shaped containers make interesting ice creations! Larger pieces of ice are ideal for a longer session of ice exploration, as it will take longer for them to melt. They also lend themselves well to working in groups or pairs.
  - **Ice cups.** If you want small ice chunks to explore, you can freeze water in plastic Dixie or Solo cups.
  - **Funky shapes.** You can freeze water into balloons, gloves, and silly shaped ice cube trays.
- You can find more information by visiting Boston Children's Museum's instructables to see more ways to prepare and interact with ice:  
<https://www.instructables.com/id/Exploring-Ice/>
- This activity can get messy! We recommend having your explorer work on a tray, a plastic tablecloth, large garbage bag, or outside.

### Materials for icy explorations:

- Water, warm or cold or both!
- Assorted tools, such as brushes (paint or oil brushes), scoops, tongs, turkey baster, eye dropper, screwdrivers, small hammers, etc.
- Salt
- Sugar
- Magnifying glasses OR camera/phone with zoom
- *Optional: Kool Aid or drink mix, food coloring, chalk, washable paint*
- *Optional: Explorer Notebook*

### **Instructions:**

1. Find a tray or surface to contain the potential mess!
2. Gather all the various materials you will use to experiment with ice.
3. First, experiment with ways that don't break the ice - this may include using a camera or phone with zoom or a magnifying glass to examine it, as well as adding food coloring or paint to the ice.
4. Then, test the ways in which you can keep the ice cool so it melts slowly, or ways to make it melt faster.
  - a. How does salt or sugar change the ice?
  - b. How does cold, warm, or hot water (please check with your grown-up before using hot water!) change the ice?
5. Test the ways in which you can use tools on the ice. Please check with your grown-up before using the tools! Tools include brushes, screwdrivers, small hammers, or something heavy to break it into smaller pieces!

*For explorers using an Explorer Notebook:*

1. Did you notice anything about ice that you didn't know before? Write it down in your explorer notebook!

### **Resources:**

1. Please visit Boston Children's Museum's instructables to see more ways to prepare and interact with ice: <https://www.instructables.com/id/Exploring-Ice/>

### **Extensions:**

The following are optional steps you can take if you want to extend this adventure:

1. Make an ice sculpture by arranging and stacking ice.
2. Go to the "In Outer Space" topic on Flipgrid and share your creation!

## Explorer Notebook

You can use this to help you set up your Explorer Notebook!

### Exploring Ice Module 9, Adventure 2

What happened when I used _____ on the ice:	What happened when I used _____ on the ice:
What happened when I used _____ on the ice:	What happened when I used _____ on the ice:

Some cool things I learned about ice:

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