

## Ice is Nice

Ice is the frozen form of a liquid. We usually call frozen water "ice."

On Earth, we have an abundance of water – and that water exists in 3 forms – solid, liquid, and gas. Some planets and moons and comets have water ice, and some have an abundance of different materials. If the object is cold enough, these materials are frozen.

Many planets and moons and comets have frozen water. Several of Saturn's and Jupiter's moons have icy water-rich shells, and some are almost completely water ice. Comets have lots of water ice, but other kinds of ices, too – like ammonia ice, alcohol ice, methane ice, and carbon dioxide ice.

Jupiter is so cold that it has great clouds of frozen ammonia. Frozen methane is what makes the clouds around Neptune blue. Some planets have carbon dioxide in their atmospheres, and sometimes they are so cold that the carbon dioxide freezes. Much of the ice caps of Mars are made of frozen carbon dioxide – dry ice!

In this activity your child will investigate different substances that occur as ices on other objects in our solar system.

### What You Need:

- Two plastic containers in which to make ice blocks
- Water to fill one container; cover and freeze over night
- A mix of half water and half isopropyl alcohol to fill the second container; cover and freeze over night
- Block of dry ice (can be stored overnight in the freezer, wrapped in newspaper)
- A bowl of water
- Investigation tools, such as a magnifying glass, thermometer, spoon, magnet, flash light
- An investigation sheet and pencil or marker

### What To Do:

Prompt your child's exploration with the questions on the investigation sheet. Assist them in noting their observations.

*What are some of the differences between the different types of ice?*

*Why do we have different types of ice in different places in our Solar System?*



## Investigation Sheet

Name of Ice		
Frozen Water	Dry Ice (Frozen Carbon Dioxide)	Alcohol Ice
Freezing Temperature		
32°F / 0°C	-110°F / -78°C	-108°F / -78°C
What Does It Look Like?		
What Does It Smell Like?		
Where Might We Find it in Our Solar System?		
	Mars!	