

# Rainbow Ice Orbs

Create colorful ice orbs and play with them outside!

## Materials Needed:

Balloons, food coloring, water, scissors,  
access to outside (with freezing temperatures).

**Caution:** Food coloring can stain clothes and skin.



## Instructions (for adults):

**Step 1:** Ask your child(ren) to choose colors for the ice orbs. You can mix food coloring together to create a wider range of colors.

**Step 2:** Blow up your balloons, stretch them out a few times, then deflate them. Put a few drops of food coloring into each balloon.

**Step 3:** Fill the balloon with water. Attach the mouth of the balloon securely to the faucet and hold in place. Carefully remove by pinching the neck of the balloon.

**Step 4:** Tie a knot in each balloon and carefully place outside in freezing temperatures (or in a freezer). Leave overnight, or until completely frozen.

**Step 5:** When the ice orbs are completely frozen, carefully cut away the balloons with scissors. Keep the ice orbs outside and away from surfaces which they could stain.

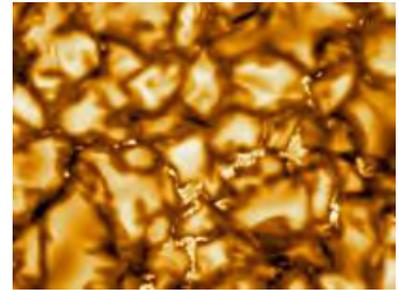
**Step 6:** Play with your rainbow ice orbs! Go on a color scavenger hunt in the snow, arrange the ice orbs to model the Solar System, carefully stack them together to create a rainbow tower, or decorate a snowy yard with colors. Be creative!





# Ice in the Solar System

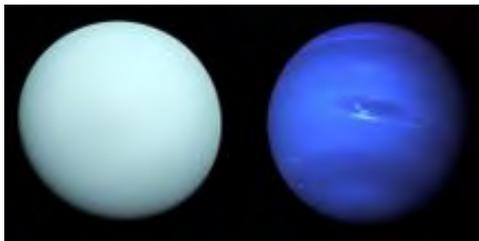
Our Sun produces a huge amount of heat. Temperatures inside the Sun can reach 15 million degrees Celsius (27 million degrees Fahrenheit)! The closest planets, Mercury and Venus, are too hot for ice to form. But as we move away from the Sun, the heat decreases, and water and gases freeze into ice.



Plasma on the surface of the Sun.  
*Image: National Solar Observatory.*

Earth is just the right distance from the Sun for water to stay liquid, which makes life possible. Because the Earth spins at an angle, it also gets cold enough for the poles to be covered in ice year-round. Polar ice caps also exist on Mars. These are made of frozen carbon dioxide instead of water.

Planets, moons, and asteroids at the far end of the Solar System are much colder because they are so far away from the heat of the sun.



Uranus and Neptune. *Image: NASA.*

Neptune and Uranus are two ice giant planets at the edge of the Solar System. It gets so cold that the gases around the planets become very thick and form ice crystals.

On the outside edge of the Solar System, the Kuiper Belt is a huge ring of icy rocks orbiting around the Sun. The dwarf planet Pluto is the most famous object in the Kuiper Belt. These deeply frozen objects may hold clues to the origins of the Solar System.

*Right: Artist's impression of a Kuiper Belt Object. Image: NASA, ESA, and G. Bacon (STScI).*

