

# Amaze Your Brain *at Home!*

**EXPERIMENTS**

BEST FOR  
Grades  
5+

## **ICE ALBEDO** Activity

### **MATERIALS**

- 1 or many small bowls/containers
- Water
- Various substances (1 for each bowl); liquid water, dirt, sand, etc.
- Desk lamp
- Light meter (most cameras have this capability, or smartphone cameras or apps)
- Paper/pencil optional

### **INSTRUCTIONS**

Ice is the most reflective substance known (this is why Saturn's rings of ice are so brilliant and why it is so important to put sunscreen on the bottom of your nose when playing in the snow). This reflectivity can cause a run-away Ice Age feedback effect where colder temperatures cause water to freeze into ice, which reflects more heat, which causes the Earth to cool, which freezes more water into ice. . . so on and so on. This activity explores the reflectivity of ice and different materials.

1. Fill container with water and place in freezer overnight (make sure it is an open container).
2. Fill other containers. Examples are one with dirt, one empty, one with tan sand, dark sand, water.
3. Place containers on table with desk lamp at angle. Hold light meter (or camera) at an angle to receive maximum reflection of light.
4. Record and compare differences.

If using a camera without light meter, make sure to set exposure manually. Keep same setting and take pictures of each container. Examine the relative differences in exposures. Intense reflected light will wash out the resulting image of the surface – lower intensities of light will do the opposite and the surfaces will appear darker.



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