

Materials Needed

- Muffin tins (silver and black if available)
- Assortment of small solid objects: (hard or semi-soft cheese, marshmallow, butter, ice, chocolate, crayons, bar soap, coins, Lego bricks, wooden blocks, rocks, toy car, plastic lid, marbles, etc.)
- Timer
- Sunny day (at least 65 - 78 degrees Fahrenheit)
- Submersible thermometer (optional)

Grade Range

Pre-K
K-2

Topics/Skills

Matter and Its Interactions;
Melting point; Investigations;
Observations

Learning Standards

NGSS: [Physical Science](#)

Duration

30 – 45 minutes

Prep Time

5 – 10 minutes

Make it Melt

Testing the Melting Point of Objects

Which objects melt in the sun? In this activity, students learn about melting points by choosing objects to test, making predictions about which objects will melt in the sun, and observing how each object is affected by the sun.

Activity Challenge

Observe the changes in various objects that are subjected to heat from the sun.

Preparation

1. Review the Materials Needed and gather materials.
2. Make sure to gather a variety of solid objects (soft, hard).
3. Print or draw an observation chart (see next page).

To Do

1. Place each object into separate cups on the muffin tin.
2. Place muffin tin in a sunny spot outside for 20 minutes. Use the timer to keep track of time.
4. Make predictions about which objects will melt in the heat of the sun.
3. Track (record) what happens to each object on the observation chart.

Observations

Compare the objects that melted with the ones that did not melt. Why did the melted objects melt? Why did the objects that didn't melt stay solid? How long did it take for each of the objects to fully melt? What properties do the melted items share? What properties do the objects that stayed solid share? Does the color of an object affect the rate at which it melts? Does the color of the muffin tin affect the time required to melt?

Extensions

- Repeat the activity and test different objects.
- Put objects in the sun for a longer time. What differences do you notice?
- Do this activity with both a silver and a black tin. What differences do you notice?
- Measure and record the melting temperatures of each object.

The Science behind the Activity

The melting point of a material is the temperature at which it begins to change from a solid to a liquid, at a given pressure; e.g., solid ice changes into liquid water at 32 degrees Fahrenheit at 1 atmosphere of pressure. Not all materials melt. Some, like paper and wood, will burn before they get hot enough to melt. Others, like dry ice, (frozen carbon dioxide), will turn directly from a solid to a gas. Materials that melt may do so at different temperatures. For example, butter, made by churning the cream that floats on the top of non-homogenized milk, melts between 90 and 95 degrees Fahrenheit. Marshmallows melt at body temperature, approximately 98 degrees F, soap melts at about 120 degrees F.

What is today's temperature? _____

Object	Prediction: Will the object melt?	Did it melt? <u>How long did it take to fully melt?</u>
<i>Example: soap</i>	<i>Yes</i>	<i>Yes 15 minutes</i>