Properties of Matter

Concepts and Skills

- Students know the properties of solids, liquids, and gases.
- Students know that boiling point, melting point, solubility, and electrical and thermal conductivity are all physical properties of matter.
- Students determine the melting point of ice and the boiling point of water.
- Students compare the relative solubility of several different substances in water.
- Students examine the electrical and thermal conductivity of different materials.

Planning

Materials

- aluminum foil
- baking soda
- batteries, D-cell
- battery holders
- bulb holders
- bulbs
- copper disks
- copper strips
- cornstarch
- droppers, glass
- flour
- hot pot
- *ice
- *jewelry, metal
- *magnifiers
- paper clips
- paper, white
- *pencils
- plastic cups
- plastic spoons
- rulers, plastic, 15-cm
- salt, table
- *sugar, granulated
- syringe
- thermometer
- *timer, or watch with second hand
- tongue depressors
- *water
- wires, stripped
- zinc strips

*Not provided in kit

Student Resources

- 1.1 Vocabulary
- 1.2 Melting and Boiling Points
- 1.3 Solubility in Water
- 1.4 Electrical Conductivity
- 1.5 Section 1 Assessment

Record Data

When students record data, they write down observations and measurements in an organized way.

Learn by Reading

For additional content area reading, see the Houghton Mifflin Science eBook: Grade 5, Unit E, pages E42–E46.

Also see: Breathing Underwater: Adventures in Chemistry, a Houghton Mifflin Science Leveled Reader.

Vocabulary

boiling point the temperature at which a liquid becomes a gas

conductivity a property that shows how easily heat or electricity flows through matter

melting point the temperature at which a solid becomes a liquid

property a characteristic of matter that can be used to identify it

solubility a measure of how easily one substance dissolves in another substance

Inquiry Focus

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Science Background

A property of matter is a characteristic that can be used for identification. Physical properties are those that can be observed without changing the identity of the substance. Some physical properties, such as state of matter or shape, relate to the appearance of the matter. Melting point, boiling point, and conductivity are physical properties that describe behavior of matter. Physical properties are often used to separate different types of matter. For example, iron-containing metals can be separated from other materials using a magnet. Magnetism is a physical property of iron.

Matter also has chemical properties. Chemical properties cannot be observed unless the identity of the matter changes. Ability to burn is a chemical property because as the matter burns, it changes into one or more new substances. The ability to rust is another chemical property.