



Subject Code	SCI 21101
Subject	SCIENCE1
Credit	1.5 units
Learning Standards	SCIENCE
Teacher	Ms.GenÇ Chonthicha
Grade Level	Grade 7 (Matthayom 1)
Learning Time	3 hrs/ week
Total Learning Time	60 hrs

Lesson Plan 5

Materials:

12 foot rope

Bags of solid objects such as: rabbit fur & agate slate; quartz crystal & pumice; pinecone & apple;

cotton balls & clear marbles; hollow shell & geode; snakeskin & candle; potholder & rubber

grip mat; steel ball bearing & ping pong ball; rubber band & turtle shell
Liquids in jars such as: chocolate syrup, Italian dressing, shampoo, hand lotion, mouthwash, maple

syrup, lemon juice, vinegar

(5) different shaped 1000mL containers, water, optional food color

Hot plate, glass measuring cup or beaker, saucepan, water, potholders

8 tubs with lids and 8 sets of mixture ingredients (Styrofoam, glass stones, cubes)

4 containers of powder per table (salt, lemon jello mix, grape jello mix, cherry jello mix) Water, clear plastic cups, stir sticks

What's the Matter? Powerpoint and LCD projector

Procedures:

1. Introduction- What is matter? (matter is anything that has mass and takes up space)
2. Use a rope and groups of children to model molecules in: Solid, (dense, hold shape) Liquid (linked but flowing), and Gas (spread out)

3. Discuss properties of solids. In small groups, students examine, compare and describe collections of solid objects, then share one adjective per child.
4. Compare and discuss properties of liquids, using two liquids per table. Look at each, smell it, then spread some on a plate. Some liquids will sit on top, some will soak through, and some will evaporate.
5. Liquid flows, pours, and takes the shape of the container. Measuring containers are marked to show volume. Which container would hold the most liquid? Pour liquid in 5 different shaped 1000 mL containers (conservation of liquids).
6. How can we change water to a different form? Measure 1000 mL of water, boil it for 15 minutes, then measure it again. Where did the water go?
7. What happens when solids and liquids are mixed? Make a mixture using Styrofoam peanuts, stones, and cubes. Add the items, shake, and watch how it settles. Turn the container upside down and shake it again; what always settles on top? Why? What would happen if you added water to the container? (Some solids would sink and some would float). A mixture can be separated easily.
8. A solution is a special kind of mixture. Make 4 solutions- one in each cup. Predict what color each will turn before you add the water. Can you take the dry, solid powders out again? (Show salt crystals where the water evaporated). Some solids dissolve in water.
9. Powerpoint: Review and summarize What's the Matter

Activities: 7Es, Science and Engineering Practices, and Cross Cutting Concepts

7E

Procedures

SEPs

CrossCut

Elicit

What is matter? Can you find examples of a solid, liquid, and gas in the room?

Ask questions

Engage

Use a rope and 3 groups of children to create 3 models: A solid, liquid and gas.

Develop and use models

Systems & Models

Explore

1. Investigate properties of solid objects.

Plan and conduct investigations

Energy & Matter

2. Investigate properties of liquids.

Plan and conduct investigations

Stability & Change

3. What happens when solids and liquids are mixed? Make a mixture using Styrofoam peanuts, stones and cubes. What would happen if you added water to the container?

Plan and conduct investigations

Energy & Matter

4. Make 4 solutions – one in each cup. Predict what color each will turn before you add the water. Mix well. Can you take the powders out again?

Plan and conduct investigations

Cause & Effect

Explain

Use the PowerPoint presentation to review concepts and vocabulary

Elaborate

1. Which container holds the most? Measure, predict and pour liquid in 5 different shaped 1000 mL containers (conservation of volume).

Use mathematical, computational thinking

Scale, Proportion, Quantity

2. How can we change water to a different form? Measure 1000 mL of water, boil it for 15 minutes, then measure it again. Where did it go?

Use mathematical, computational thinking

Scale, Proportion, Quantity

Evaluate

Look at a picture of a glass of soda with ice. Identify the solid, liquid, and gas in the picture.

Obtain, evaluate, and communicate information

Extend

Ask students to demonstrate ways that matter can be changed, such as heating, cooling, cutting, tearing, bending, or stretching.

Construct explanations and design solutions

Structure & Function

Fill a clear container 1/2 full of baby oil. Add 3 drops of blue food color. Fill with water and watch what happens. Blue water is now at the bottom of the container. Why?

Plan and conduct investigations

Cause & Effect

Separate a solution: Add water to Kool-aid mix, Jell-O mix, salt, or sugar. Stir well until the solid powder has dissolved in the liquid. Put the solution in a windowsill and watch what happens over several days.

Plan and conduct investigations

Cause & Effect

Science

Volume Mass Evaporation Mixture

Solution Dissolve

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1. Fill a clear container 1/2 full of baby oil. Add 3 drops of blue food color. Fill with water and watch what happens. Blue water is now at the bottom of the container. (Water and oil do not mix; oil is lighter

than water so it floats)

2. Separate a solution: Add water to Koolaid mix, Jello mix, salt, or sugar. Stir well until the solid powder has dissolved in the liquid. Put the solution in a windowsill and watch what happens over several days. (The water will evaporate, but the solid is left behind)

Mathematics

1. Measure 1000ml of water. Pour it all into a pan and boil it for 15 minutes. Pour the water back into the beaker and measure it again. How much water is left? How much water evaporated?
2. Measure 1 cup of water and 1 cup of sand. Both have the same VOLUME. Now use a balance or scale to find the MASS of each. Are they the same or different? Why?

Language Arts

Use a Tree Map graphic organizer to compare a solid, a liquid, and a gas.

a. Solid

- a. The molecules are packed tightly together
- b. The solid has a definite shape
- c. The solid holds its shape
- d. You can push or pick up a solid

b. Liquid

- a. The molecules are linked but can move
- b. The liquid can change its shape to fit a container
- c. The liquid flows
- d. You can pour a liquid

c. Gas

- a. The molecules spread out
- b. The gas can change shape
- c. The gas fills up all the space in a container
- d. You can breathe a gas