

Lesson 1: Our Ideas About Matter

Science Focus Question

What is Matter?

Equipment Survey

1. **Beakers:** Used to mix, heat, and transfer liquids. Not used to measure the volume of a liquid.
2. **Graduated Cylinder:** Used to measure volumes of liquids. Used to determine volume of irregular objects.
3. **Test-tube rack:** Used to hold test-tubes.
4. **Test-tubes:** Used to hold and heat liquids and solids.
5. **Magnifying Loupe:** Used to observe objects in greater detail.
6. **Lab Scoop:** Used to transfer chemicals and other substances.
7. **Petri dish:** Used to hold substances and specimens for examination.
8. **Thermometer:** Used to measure temperature of solids, liquids and gasses.

Pipette: Used to transfer small amounts of liquids. Can be used to get exact volume in graduated cylinder.

Inquiry 1.1: The Bottle and the Balloon

- 1) Describe what happened when you placed the bottle in the pot of hot water.

- 2) Describe what happened when you placed the bottle in the ice water.

- 3) Explain why you think the balloon changed like it did.

Inquiry 1.2: Similar Objects

Table 1: Calculating Volume

	Volume of Water (mL)	Volume of Water & Object (mL)	Volume of Object (mL)
Ball			
Rectangular Block			

- 1) How could you find out whether the two objects contain the same amount of matter? _____

Inquiry 1.3: The Burning Candle

- 1) What can you see taking place at or near the top of the candle?

- 2) What happened after the beaker was placed over the candle?

- 3) Why do you think the candle reacted the way it did? _____

Inquiry 1.4: Describing Matter

- 1) Describe substances A and B in as much detail as possible.

Substance A: _____

Substance B: _____

- 2) Do you think substance A and B are pure substances or mixtures? What evidence supports your answer? _____

Inquiry 1.5: Adding Water

Table 2 Observations Before and After Adding Water

Substance	Drawing of Substance	Drawing of Substance After Adding Water
A		
B		

1) Describe what happened to both substances when water was added.

Inquiry 1.6: Mixing Liquids

1) Describe in detail what you observe in the bottle. _____

2) Based on your observations what inferences can you make about the two liquids in the bottle? _____

Inquiry 1.7: Floating or Sinking

1) What do you observe about each pan after it was placed in water?

2) Why do you think the pans behave differently even though they are both made of the same substance (aluminum)? _____

Inquiry 1.8: Reacting a Tablet

1) The starting temperature of the water is _____ °C.

2) Describe what happened after the tablet was added to the water.

3) The temperature of the water after no further changes have taken place is _____ °C.

4) What evidence do you have that a chemical reaction occurred? _____

What is Matter?

1) According to this reading, what is a one-sentence description of matter?

2) This reading mentions that all matter takes up space. How can we measure the amount of space that matter takes up? What units do we use to measure this space? _____

3) How can we measure the amount of matter an object contains? What units do we use to measure this? _____

4) What phases (or states), does matter exist in? Give a common example of each phase. _____

Where Did Matter Come From?

1) Everything in the Universe is made from matter, including you. Where do you think all of this matter came from? What evidence, if any, do you have that supports your ideas? _____

2) In science, we use the term “theory” to describe a well-supported scientific idea. How is a scientific theory different from a belief? _____
