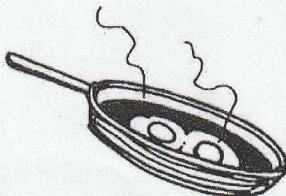
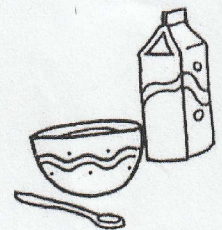
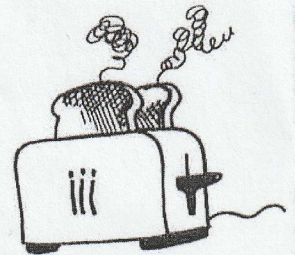


# TWO WAYS TO CHANGE

A melting ice sculpture . . . a spectacular bonfire . . . a cake baking in the oven . . . a milkshake in the making . . . an explosion . . . all of these involve changes in matter. Some are physical changes (changes in shape, color, or state) and others are chemical changes (changes involving chemical reactions). Which are which? For each change described below, write **P** for physical change or **C** for chemical change. Be ready to explain your choices.



- \_\_\_\_\_ 1. glass breaking
- \_\_\_\_\_ 2. hammering wood together to build a playhouse
- \_\_\_\_\_ 3. a rusting bicycle
- \_\_\_\_\_ 4. melting butter for popcorn
- \_\_\_\_\_ 5. glassblower creating sculptures out of glass
- \_\_\_\_\_ 6. freezing chocolate-covered bananas
- \_\_\_\_\_ 7. separating sand from gravel
- \_\_\_\_\_ 8. spoiling food
- \_\_\_\_\_ 9. burning toast
- \_\_\_\_\_ 10. making salt water to gargle for a sore throat
- \_\_\_\_\_ 11. mixing lemonade powder into water
- \_\_\_\_\_ 12. cream being whipped
- \_\_\_\_\_ 13. water evaporating from a pond
- \_\_\_\_\_ 14. cutting grass
- \_\_\_\_\_ 15. burning leaves
- \_\_\_\_\_ 16. humidifier putting moisture into the air
- \_\_\_\_\_ 17. corroding metal
- \_\_\_\_\_ 18. bleaching your hair
- \_\_\_\_\_ 19. fireworks exploding
- \_\_\_\_\_ 20. squeezing oranges to get orange juice
- \_\_\_\_\_ 21. frying an egg
- \_\_\_\_\_ 22. pouring milk on your oatmeal



Name \_\_\_\_\_

# Identifying Physical and Chemical Changes

Read each description and classify it as a physical or chemical change.

- 1 \_\_\_\_\_ Iron rusts.
- 2 \_\_\_\_\_ Sodium hydroxide dissolves in water.
- 3 \_\_\_\_\_ A safety match ignites and burns.
- 4 \_\_\_\_\_ A cube of ice melts to form a puddle of water.
- 5 \_\_\_\_\_ Icicles form at the edge of a roof.
- 6 \_\_\_\_\_ Water is heated and changed into steam.
- 7 \_\_\_\_\_ Milk goes sour.
- 8 \_\_\_\_\_ A chocolate bar melts in the sun.
- 9 \_\_\_\_\_ Acid on limestone produces carbon dioxide gas.
- 10 \_\_\_\_\_ Vinegar and baking soda react.
- 11 \_\_\_\_\_ A tea kettle begins to whistle.
- 12 \_\_\_\_\_ Wood and leaves rot to form humus.

Name: \_\_\_\_\_ Section: \_\_\_\_\_

### Physical or Chemical Changes?

**Directions:** Classify the changes listed below as either physical or chemical and explain your reasoning. **On the reverse side of this paper, provide two additional examples of physical changes and two additional examples of chemical changes while also explaining your reasoning.**

Change	Type of Change (Chemical or Physical)	Reasoning
1. Melting Ice		
2. Burning wood		
3. Breaking glass		
4. Burning propane		
5. Mixing peas and carrots		
6. Digesting French fries		
7. Unzipping a zipper		
8. Smashing a pumpkin		
9. Plants going through photosynthesis		
10. A cavity appearing in a tooth		

# Density Practice Problem Worksheet

Remember to consider significant figures circle final answer; be sure to include units

1) A block of aluminum occupies a volume of 15.0 mL and weighs 40.5 g. What is its density?

2) Mercury metal is poured into a graduated cylinder that holds exactly 22.5 mL. The mercury used to fill the cylinder weighs 306.0 g. From this information, calculate the density of mercury.

3) What is the weight of the ethyl alcohol that exactly fills a 200.0 mL container? The density of ethyl alcohol is 0.789 g/mL.

4) A rectangular block of copper metal weighs 1896 g. The dimensions of the block are 8.4 cm by 5.5 cm by 4.6 cm. From this data, what is the density of copper?

5) A flask that weighs 345.8 g is filled with 225 mL of carbon tetrachloride. The weight of the flask and carbon tetrachloride is found to be 703.55 g. From this information, calculate the density of carbon tetrachloride.

6) Calculate the density of sulfuric acid if 35.4 mL of the acid weighs 65.14 g.

7) Find the mass of 250.0 mL of benzene. The density of benzene is 0.8765 g/mL.

8) A block of lead has dimensions of 4.50 cm by 5.20 cm by 6.00 cm. The block weighs 1587 g. From this information, calculate the density of lead.

9) 28.5 g of iron shot is added to a graduated cylinder containing 45.50 mL of water. The water level rises to the 49.10 mL mark, from this information, calculate the density of iron.

10) What volume of silver metal will weigh exactly 2500.0 g. The density of silver is 10.5 g/cm<sup>3</sup>.