

<http://studyjams.scholastic.com/studyjams/jams/science/matter/changes-of-matter.htm>

### PHYSICAL CHANGES

In a physical change, matter changes form but not chemical identity.

MELTING ICE: A block of white ice melting into water.

SHREDDING PAPER: A piece of white paper being shredded into small pieces.

CHOPPING WOOD: A log being split into two pieces with an axe.

MIXING GRAY AND GREEN MARBLES: A collection of gray and green marbles.

### CHEMICAL CHANGES

In a chemical change, a chemical reaction occurs and new products are formed.

BURNING WOOD: A campfire with marshmallows being roasted.

ROTTING BANANA: A banana with brown spots and small insects.

FIREWORKS: A night sky with exploding fireworks.

MIXING VINEGAR AND BAKING SODA: A glass of liquid with white foam and bubbles.

ThoughtCo.

Jan 22-2:14 PM

### Chemical Changes

Iron Rusting

Burning Wood

Metabolism

Cooking an Egg

Baking a Cake

Electroplating

Rotting Banana

Vinegar and Baking

Fireworks

Chemical Battery

Oct 30-7:44 AM

## 5 SIGNS OF CHEMICAL REACTION

1. Gas given off



2. Light or heat given off



3. Color change



4. Solid Precipitate formed

*Milk Spoiled*



5. Water is formed

Mar 4-12:27 PM

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

*TEST WED 3/10/21*

Date: \_\_\_\_\_

### Topic 2 Changes in Matter

#### Make sure to study:

- Packets/Notes from Topic 2
- All vocabulary in Topic 2 *in book*
- This study guide

#### Chapter 6 Vocabulary:

- |           |                           |                      |
|-----------|---------------------------|----------------------|
| 1. solid  | 4. physical change        | 7. chemical reaction |
| 2. liquid | 5. chemical change        | 8. mixture           |
| 3. gas    | 6. conservation of matter | 9. solution          |

10. Match each to its properties

☐ solid

a. does not have a definite shape or volume, will fill the entire volume of a closed container

☐ liquid

b. has a definite volume, does not have a definite shape – will take the shape of its container

☐ gas

c. has a definite shape and a definite volume

Nov 26-7:52 AM

11. List 5 changes in matter that show a physical change has occurred. *crumbled cookie* *melting chocolate* *broken mirror*

change in size



change in shape

*Painting or mixing* change in color

change in temperature

*← H<sub>2</sub>O →*  
change in state of matter

12. List 5 changes in matter that show a chemical change has occurred. *rotting food*

*baking soda & vinegar* release of heat or gas

change in color

gas bubbles

new smell

*bad milk?*  
formation of a solid

13. What is the main difference between a physical and chemical change?

A chemical change will create a new substance with new properties. After a physical change, the substances will still have the same properties

Nov 26-7:58 AM

14. Identify the following as a physical or chemical change

Baking cookies in an oven chemical change

Water freezing into an ice cube physical change

Mixing ketchup and mustard physical change

Metal rusting on a bicycle chemical change

15. *cookie* A tree trunk has a mass of 900 kg. The tree is cut into pieces for firewood. If you were to find the mass of all of the pieces of firewood, what would it be? How do you know?  
900 grams. The law of conservation of matter states that in

any chemical change or physical change, the total mass of the matter does not change. This was a physical change because only the shape changed.



Nov 26-7:58 AM

16. What is evaporation? Give one example of evaporation.

Evaporation is when a liquid heats up and turns to a gas. This happens at the boiling point (for water: 100 degrees Celsius or 212 degrees Fahrenheit)

17. Jake finds the mass of a brand new penny in 1980 to be 3.11 grams. He then puts this penny in his drawer. He forgets about the penny and finds it ten years later. The penny is a different color that is darker and duller. He knows that the copper has chemically reacted with oxygen to form this darker layer of copper oxide. He measures the mass and finds that it is now 3.13 grams.

oxidization

The law of conservation states that in any physical or chemical change, the total mass of the matter does not change, so why does Jake's penny weigh more in 1990 than it did in 1980?

Jake's penny reacted with the oxygen in the air. The mass of the oxygen was not measured in 1980. The extra 0.02 grams is the weight of the oxygen that reacted with the copper.

Nov 26-7:58 AM

18. The two chemicals below combine to form a chemical reaction. List three examples of what the model could look like after the chemical reaction.

Samples

ML + AK

~~MA + AK~~

MK + AL

MAL + K

MKL + A

KAM + L

19. What is the difference between a mixture and a solution?

A solution is a mixture in which the substances are evenly spread out. All solutions are mixtures, but not all mixtures are solutions.

Salt water

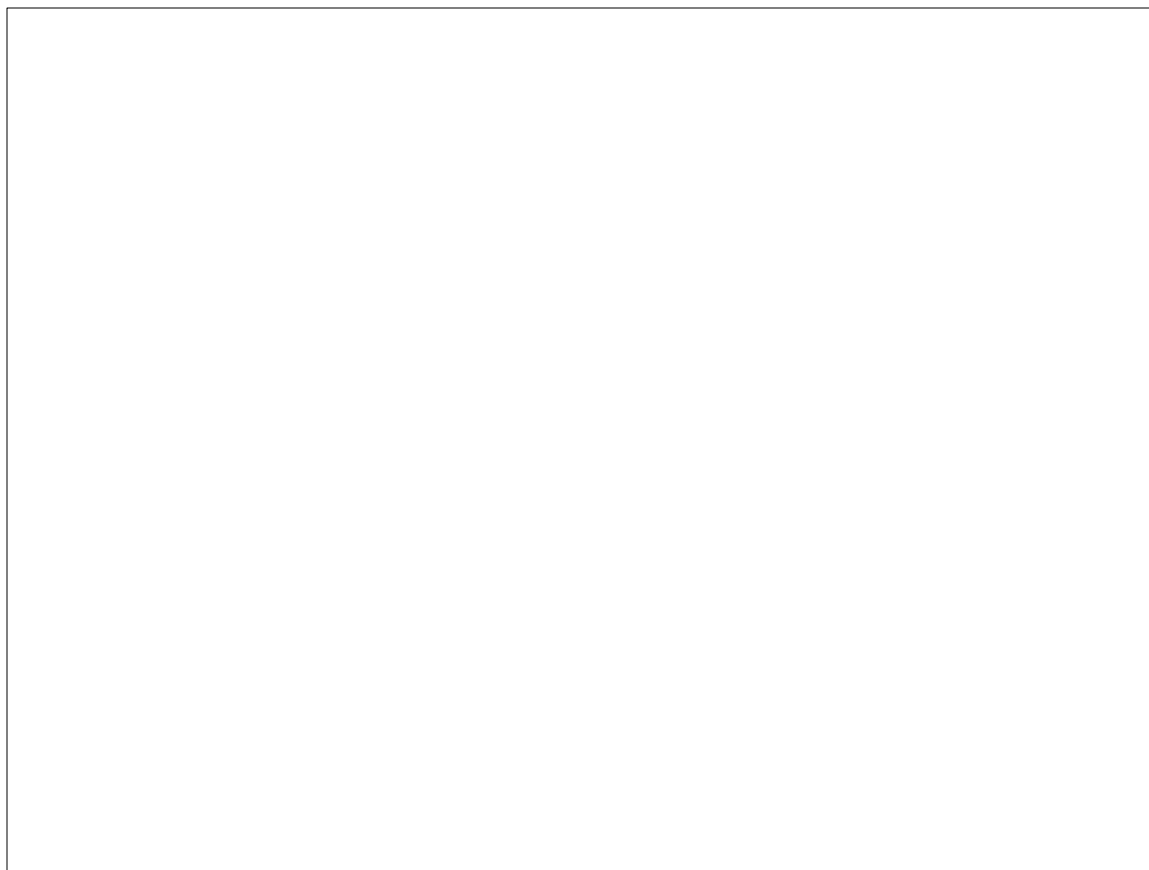
20. List two ways you can separate a mixture.

with your hands, filter paper, sieve, Magnet

21. How can you separate a solution?

let water evaporate

Nov 26-7:58 AM



Nov 26-11:23 AM