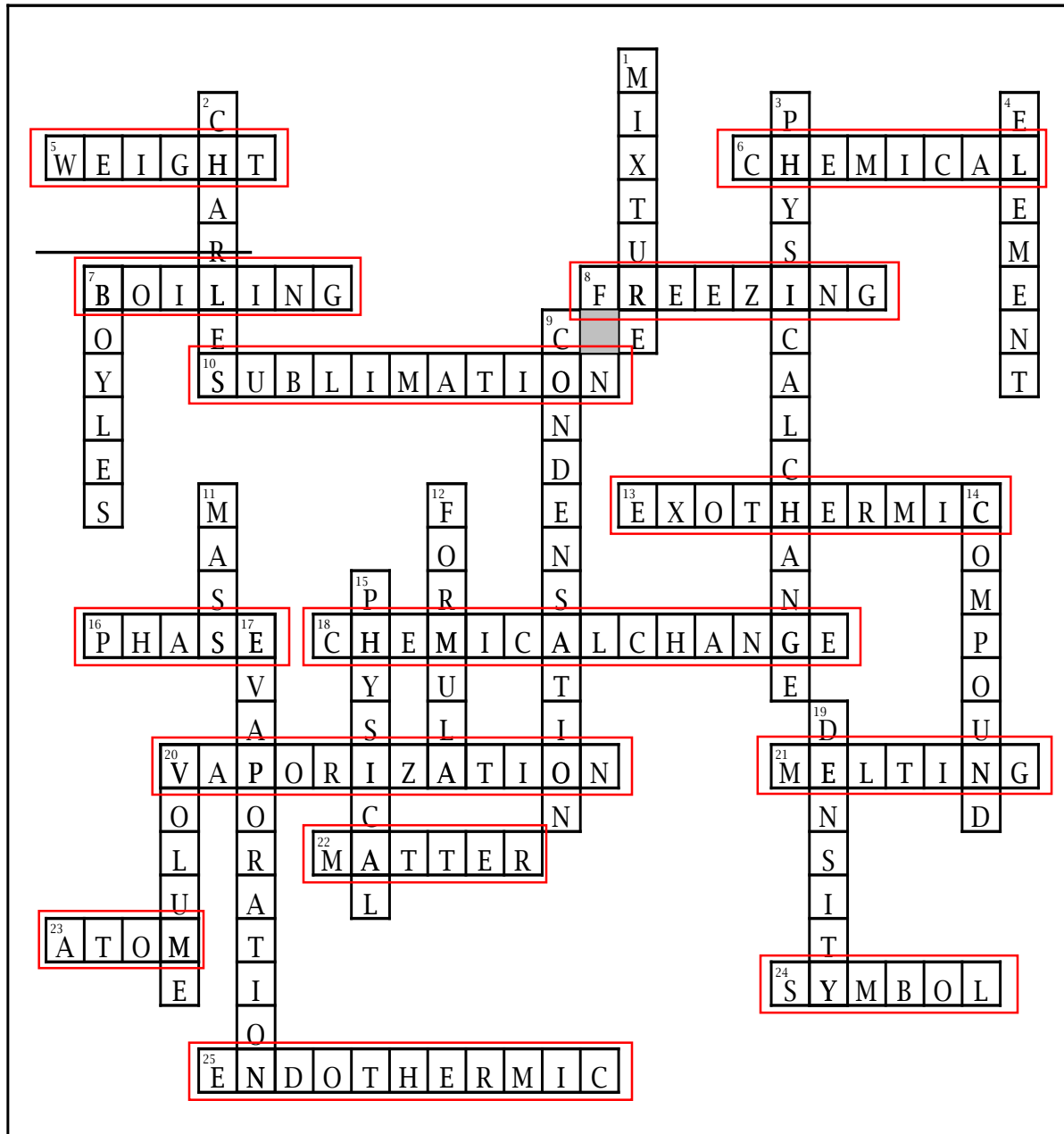


Chemistry

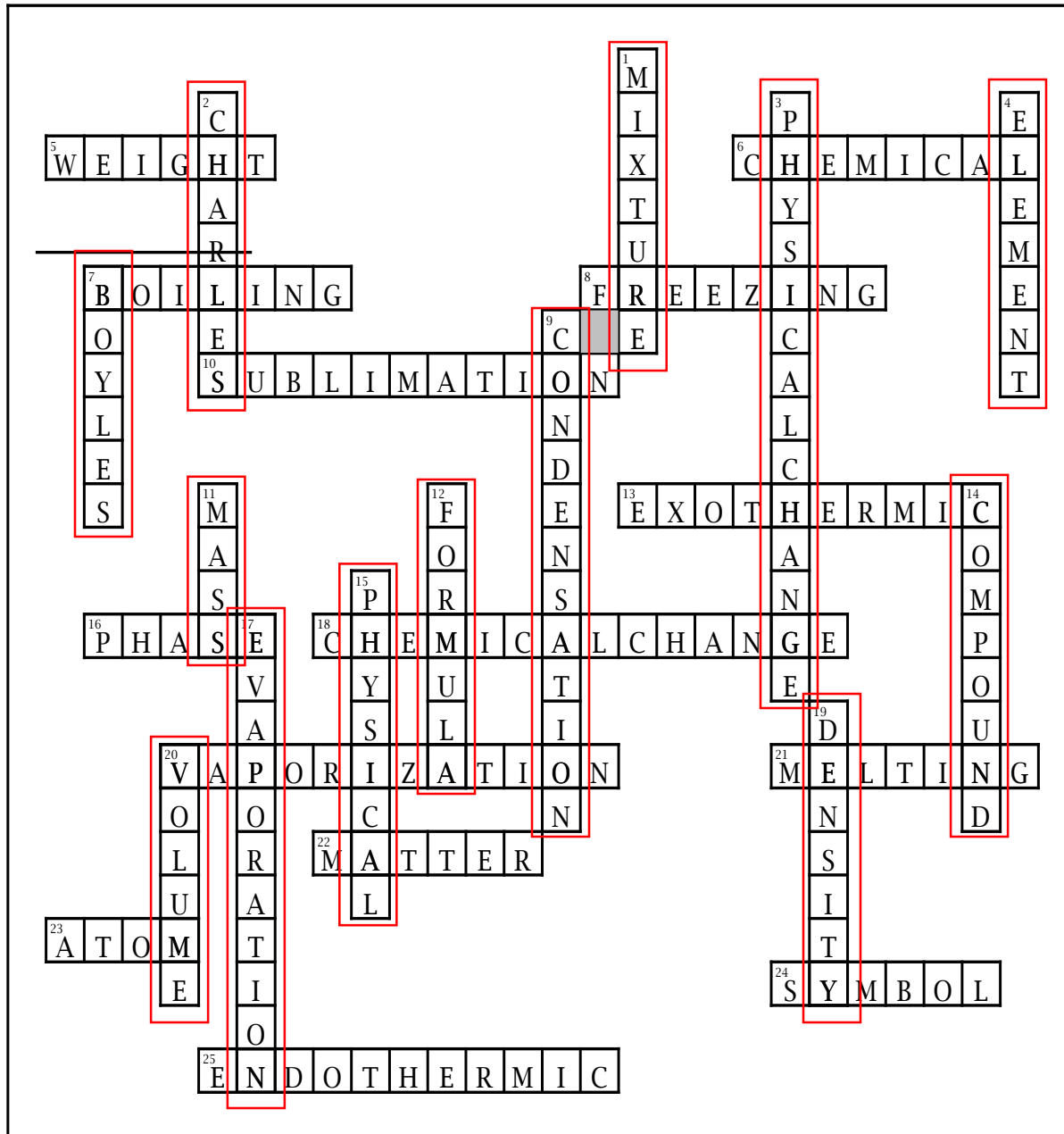
Unit 1

Review Key



Across

5. A measure of the force of gravity acting on an object; changes with changes in gravity
6. A ___ property describes how matter reacts or changes, such as flammability
7. Type of vaporization that occurs throughout a liquid, ~~such as water~~ heating up and turning into steam
8. Occurs as a liquid turns into a solid as it loses thermal energy
10. Occurs when a gas turns to a solid (or solid to a gas) without going through the liquid phase
13. Type of reaction in which energy is released during the process
16. Form for matter with varying levels of thermal energy; solids, liquids, and gases
18. Type of reaction in which matter is changes and creates a new substance
20. Occurs when a liquid changes into a gas; may be evaporation or boiling
21. Occurs when a solid changes into a liquid as it gains thermal energy
22. Any substance that has mass and volume
23. Smallest particle of an element that still has its properties; made up of protons, neutrons, & electrons
24. A chemical ___ represents a chemical element
25. Type of reaction in which energy is absorbed during the process



Down

1. Two or more substance mixed together but not chemically combined
2. ___ law states that the volume of a gas will change directly with a change in temperature
3. Change in size, shape, or state; does not create a ~~new substance~~
4. Represented by a chemical symbol
7. ___ law states that the pressure of a gas will change indirectly with a change in volume
9. Occurs when a gas turns into a liquid, such as water vapor forming water droplets
11. Amount of matter in an object; does not change with changes in gravity
12. A chemical ___ represents a chemical compound, such as HCl or NaF.
14. Two or more substances that are chemically combined; represented by chemical formulas
15. A ___ property describes the appearance and other characteristics of matter
17. Type of vaporization that occurs at the surface of a liquid, such as water turning into water vapor
19. Calculated by dividing an object's mass by its volume
20. Amount of space an object takes up

1. Identify each as a physical change (P) or chemical change (C).

C Putting acid on a rock to see it fizz

P Ice cream melting into a liquid

P Coloring on a piece of paper

P Mixing water and powder to
make Kool-Aid

C Rust on a piece of metal

C Eating an apple

P Smashing a rock into smaller pieces

P Covering an apple with caramel

C Baking brownies

P Boiling water

P Droplets forming on a water glass

P Melting wax

P Squishing a marshmallow until it is flat

C Toasting a marshmallow until it is
black

Do you remember?

Physical Change – Change in size, shape, or state; same substance before and after the change

Chemical Change – Creates a new substance through a chemical reaction

2. Identify each item as an element (E), mixture (M), or compound (C).

C CO₂

M Soda pop

C Sugar

M Milk

E Gold

C Water

E Chlorine

C SiO₂ (Quartz)

M Hamburger

E Hydrogen

C Salt

E Mercury

What's the difference?

- **Element** – Simplest pure substance; represented by a chemical symbol
- **Mixture** – 2 or more substances mixed together, but not chemically combined (can usually be separated by filtering, distillation, etc.)
- **Compound** – Two or more substances that are chemically combined; and cannot be separated by physical means; represented by a chemical formula

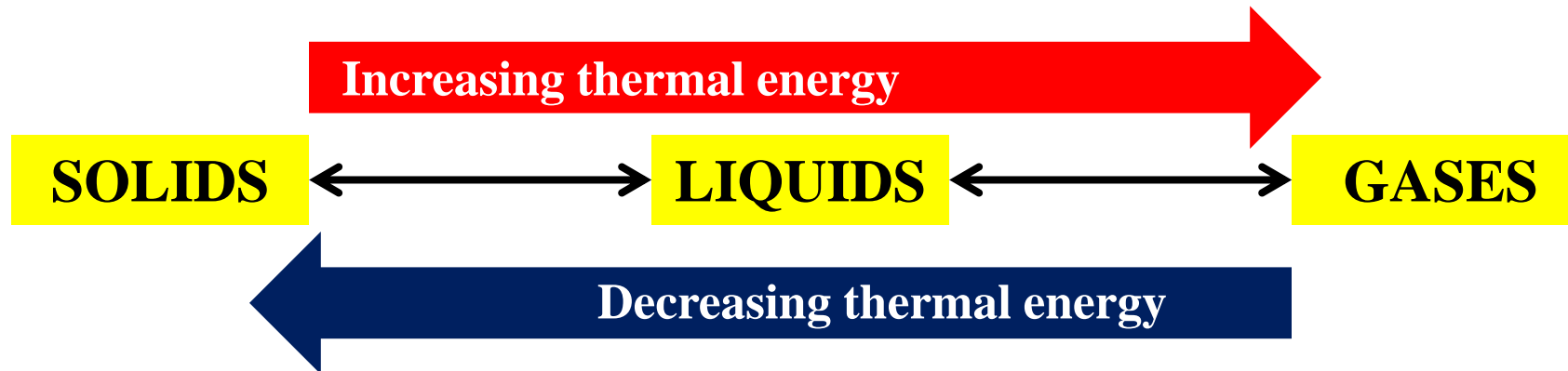
3. Complete each description for the three phases of matter.

Liquids - Have a definite VOLUME, but takes the SHAPE of its container

Gases - Do not have a definite VOLUME or SHAPE as it takes up available SPACE.

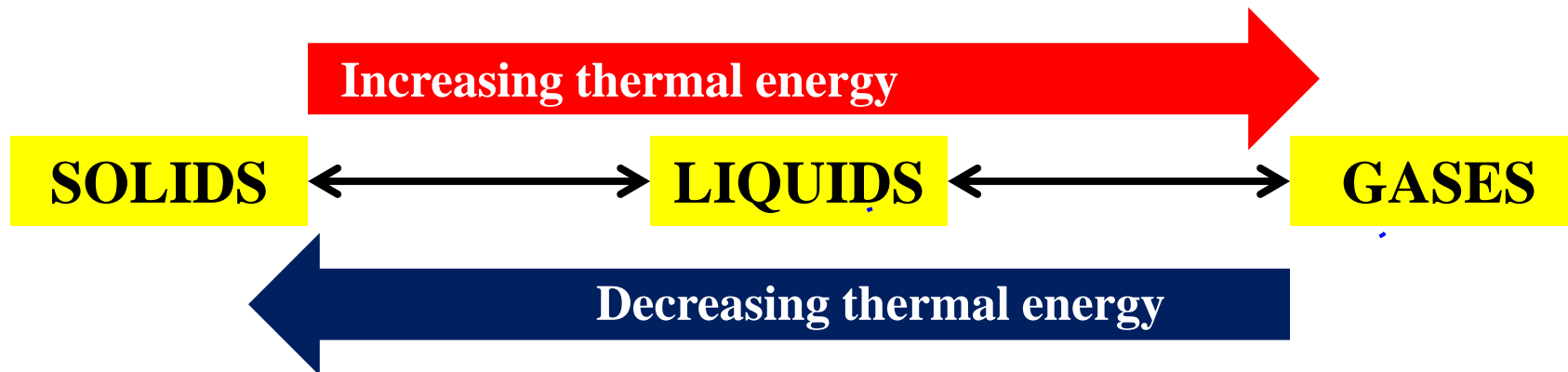
Solids - Have a definite VOLUME and definite SHAPE

Think About It – What causes matter to change phase or state?



4. Identify each type of phase change and circle the correct arrow to show if the substance is gaining or losing thermal energy.

- ↑ ↓ **FREEZING** - Water droplets → Snowflakes
- ↑ ↓ **BOILING** - Water → Steam (throughout the liquid)
- ↑ ↓ **SUBLIMATION** - Water Vapor → Frost on a window (no liquid phase)
- ↑ ↓ **CONDENSATION** - Water vapor → Water droplets on a glass
- ↑ ↓ **EVAPORATION** - Water on a wet sponge → Water vapor
- ↑ ↓ **MELTING** - Popsicle → Juice



5. Complete these statements related to Charles' Law and a balloon in a warm room vs. a cold one.

A balloon in a warm room would increase in TEMPERATURE, which causes the gas to EXPAND. The volume INCREASES and causes the balloon to get LARGER. However, in a cold room, the balloon would decrease in TEMPERATURE, which causes its volume to DECREASE and the balloon gets SMALLER.

WORD LIST

EXPAND
INCREASES
DECREASE

TEMPERATURE
VOLUME

SMALLER
LARGER

Some words will be used twice!

6. Complete these statements related to Boyle's Law and the experiment we did in class.

When we held our finger on the end of the syringe and decreased the **VOLUME** by pushing in on the plunger, we **INCREASED** the pressure of the air inside. The **HIGH** pressure caused the marshmallows to **SHRINK**. However, when we pulled on the plunger to increase the **VOLUME** of air in the syringe, we decreased the **PRESSURE** inside. The **LOWER** pressure allowed the marshmallows to **EXPAND**.

WORD LIST

EXPAND

INCREASED

SHRINK

DECREASED

HIGH

VOLUME

LOWER

PRESSURE

Some words will be used twice!