TEKS 6.5D identify the formation of a new substance by using the evidence of a possible chemical change such as production of a gas, change in temperature, production of a precipitate, or color change.
TEKS 8.5E investigate how evidence of chemical reactions indicate that new substances with different properties are formed.

# Physical vs. Chemical Changes Notes

Matter undergoes changes all of the time. There are two types of changes, **physical** and **chemical**.

**Physical Changes:**

Physical changes occur when the **appearance** of a substance changes, but **chemically** the substance is the same. The individual molecules do not **change**. Examples of physical changes are melting, freezing, or changing **size** or **shape.** A physical change also occurs when substances are **mixed** and something **dissolves**, like when making salt water or Kool-Aid. The water, salt and sugar still keep their **original properties** and the substances can be separated again.

**Chemical Changes:**

A **chemical change** occurs when the atoms making up matter **rearrange** to form a new substance with **new properties**. This usually occurs during a **chemical reaction.**

**Evidence of a chemical change:**

| Evidence | What You Might Observe |
|---|---|
| **production of a gas** | **bubbles foaming odor fizzing smoke** |
| **color change** ***not all color changes are chemical!!** | **a different color appears** |
| **formation of a precipitate** | **cloudiness foggy** **solid at the bottom of the container** |
| **change in heat or light energy** | **temperature increases or decreases** **sparks explosion glowing** |

These are only **clues**… a chemical change has not actually taken place unless matter has changed into a **new substance**. Some common examples of chemical changes include **rusting**, tarnishing, burning, cooking and digesting.

If you have the chemical **equation**, you can tell if a chemical change has taken place by looking to see if the products in the equation are **different** from the **reactants**.

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# Physical vs. Chemical Changes Notes

Matter undergoes changes all of the time. There are two types of changes, _____ and _____.

**Physical Changes:** Physical changes occur when the _____ of a substance changes, but _____ the substance is the same. The individual molecules do not _____. Examples of physical changes are melting, freezing, or changing _____ or _____. A physical change also occurs when substances are _____ and something _____, like when making salt water or Kool-Aid. The water, salt and sugar still keep their _____ _____ and the substances can be separated again.

**Chemical Changes:** A _____ occurs when the atoms making up matter _____to form a new substance with _____. This usually occurs during a _____.

**Evidence of a chemical change:**

| Evidence | What You Might Observe |
|---|---|
| **production of a gas** | **_____ foaming odor fizzing smoke** |
| **color change<br>*not all color changes are chemical!!** | **a _____ color appears** |
| **formation of a _____** | **cloudiness foggy _____ at the bottom of the container** |
| **change in _____ or light energy** | **temperature increases or decreases sparks _____ glowing** |

These are only _____… a chemical change has not actually taken place unless matter has changed into a _____. Some common examples of chemical changes include _____, tarnishing, burning, cooking and digesting.
If you have the chemical _____, you can tell if a chemical change has taken place by looking to see if the products in the equation are _____ from the _____.