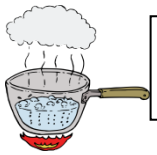
Name _____ Date _____

Matter Can Change

Matter is all around us: solids, liquids, and gases. Matter is anything that takes up space. Did you know that matter can be changed? There are many ways to change the shape, size, texture, appearance, and state of matter.

Temperature can change matter. Water can change state when you add heat. Solid ice melts to liquid water. In contrast, liquid water freezes to solid ice when it is cold enough. Liquid water can be boiled to change into gas, or steam. Solid candle wax melts to liquid wax when it is heated. Not all matter freezes when it is cold, however. Candle wax "freezes" to a solid at room temperature. It does not need to be put in the freezer to be a solid.

Heat can melt solids to liquids.

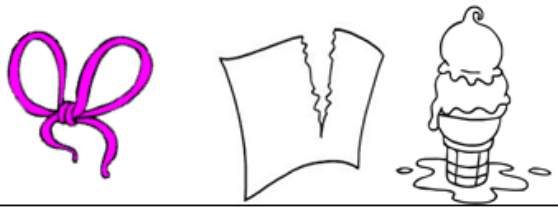


Heat can change liquid water to steam (gas).

Mixtures are another way to change matter. A mixture different types of matter mixed together to make a new substance. An example of a mixture that you might have tried is trail mix. There are peanuts, chocolate chips, dried fruit, Cheerios, and whatever else you like, mixed together. You can separate the mixture if you wanted to by sorting out all of those individual substances again.

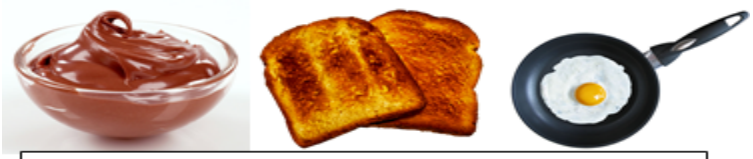
Trail mix is a mixture.

Sometimes matter can change state, shape, appearance, and texture, but the material is still the same. This is called a physical change. Solid wood can be cut into smaller pieces, but it is still wood. Other physical changes happen when you tear paper, squeeze Play-Doh, bend a straw, or pour water on a towel. The size, shape and appearance might change, but the change can be undone.



Tying, tearing, and melting are all physical changes.

When matter changes into a new substance, and it cannot be changed back, it is called a chemical change. When you make Jell-O, for example, the powder mixture is dissolved to water, and that new substance hardens into Jell-O. This change can never be reversed (undone). Burning paper is another chemical change. The paper burns to ashes and can never change back to paper again. Popcorn goes through a chemical change from a kernel to fluffy, white popcorn when heat is added to the kernel. Burnt toast is another example of a chemical change.



Pudding, toast, and fried eggs are examples of chemical changes.

Name _____ Date _____

Matter Can Change – Questions

1. Matter is _____

2. State something you can do to change matter. _____

3. What happens when you heat solid ice? _____

4. Solid wax _____ to a liquid when you _____ it up.

5. Explain how to change liquid water into steam. _____

_____

6. Do you **need** to freeze matter to turn it into a solid? _____ Explain using evidence from the text.

_____

7. In your own words, explain what a physical change means. _____

_____

8. According to the article, solid wood can be cut to change its size and shape. Give another example of a physical change by cutting.

_____

9. In your own words, explain what a chemical change means. _____

_____

10. Give an example of a chemical change. _____

11. Write a short story about a time when you saw matter change size, shape, state, or appearance. Be sure to name the matter that changed, how it changed, and why it changed.

_____

_____

_____

_____

Name _____ Date _____

Matter Can Change – Questions Answer Key

1. Matter is _____all around us; anything that takes up space_____

2. State something you can do to change matter. ___heat, freeze, mix, rip, squeeze, bend, etc_____

3. What happens when you heat solid ice? _____it melts to liquid water_____

4. Solid wax _____melts_____ to a liquid when you _____heat_____ it up.

5. Explain how to change liquid water into steam. _____

_____heat the water to a boil_____

6. Do you **need** to freeze matter to turn it into a solid? ____no____ Explain using evidence from the text.

_____wax "freezes" to a solid at room temperature_____

7. In your own words, explain what a physical change means. _____

___changing size, shape, appearance, etc without changing the material and that change can be undone__

8. According to the article, solid wood can be cut to change its size and shape. Give another example of a physical change by cutting.
_____cut paper, cut fruit, etc_____

9. In your own words, explain what a chemical change means. _____

_____changing matter into something completely new and the change cannot be undone._____

10. Give an example of a chemical change. ____burnt toast, burn paper, making jello, etc_____

11. Write a short story about a time when you saw matter change size, shape, state, or appearance. Be sure to name the matter that changed, how it changed, and why it changed.

_____any plausible answer that includes all three criteria earns full points._____

_____

_____

_____