

Name _____ Date: _____

Physical and Chemical Changes

Change is a part of life. You can see changes in things all around you, in your environment and in yourself. In fact, change is happening more than you might even notice. While you can notice big changes like leaves turning colors in autumn or flowers blooming in spring, there are plenty of other changes that are happening on a daily and minute-by-minute basis. Essentially, there are two types of changes: physical change and chemical change. Let's take a moment to learn a bit more about each of these changes.

Physical changes might alter the shape or feel of something, but the thing is mostly the same. For example, if you have a piece of paper and fold it into a paper airplane, you have caused a physical change. The paper looks different than when you started, but it is still a piece of paper. (It has not, in fact, turned into an actual airplane, right?) Then, if that paper airplane didn't fly very far, and you crumpled it up into a ball, you made another physical change. It is still paper, but now it is in the shape of a ball for you to toss in the trash. Another key characteristic of physical changes is that the changes are reversible. So, if you realize that paper had your math homework, you would try to smooth it flat to turn it in to your teacher. Yet another physical change, right? It's still paper, but it is crumpled and feels different than the smooth piece of paper that you originally started out with.

Sometimes, you can alter a substance down to the molecules and create something entirely different. This is called a chemical change. Let's think about cookies. When you make cookies from scratch, you combine your flour and baking powder, chocolate chips and butter together with a few other ingredients. Once you mix everything up, you pop the batter into the oven and it comes out as cookies. The cookies are an entirely different thing than the flour and baking powder it started with. The cookies are now, well, cookies. And while physical changes are reversible, chemical changes are irreversible. Once you have cookies, you can't reverse the process and break them back down into the batter and the individual ingredients. The ingredients bound together and chemically changed into delicious cookies. There's no going back. Though, would you want to? Cookies are delicious.

The next time you notice a change around you, try to determine if it is a physical (and reversible) change or a chemical (and irreversible) change.

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Physical and Chemical Changes: Close Reading

1st Read: Annotate the text.

2nd Read: Compare and contrast physical and chemical changes.

3rd Read: What does the text mean when it says chemical changes “alter a substance down to the molecules”?

4th Read: Summarize the text.

5th Read: Answer the comprehension questions.

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Physical and Chemical Changes: Comprehension Questions

1. Determine the meaning of "alter" as used in paragraph two and three of the text.

2. Summarize the physical changes that occurred to the paper in paragraph two. Explain how these changes are physical changes.

3. Based on what you learned in the text, explain in your own words how making cookies is a chemical change.

4. What would be the best advice to give another student to help them determine the differences between physical and chemical changes?
