

**Chapter 1 : Classification Of Chemical Reactions Worksheets - Printable Worksheets**

*Classify each reaction as acid/base, redox, synthesis, decomposition, single replacement, double replacement or combustion. They may be more than one.*

Macroscopic patterns are related to the nature of microscopic and atomic-level structure. Introduction and Connection to the NGSS and Common Core In this lesson, students go through a series of lab stations in order to practice identifying reactions as chemical or physical changes and determining the physical and chemical properties that change during the reaction. At each lab station, students not only identify the signs of a chemical change, but they also read reactant and product descriptions in order to identify changes in chemical and physical properties that occurred. Each station is fun and allows students to get a real visualization of evidence that can predict a chemical change! Science and Engineering Practices: When students look for patterns in data to identify the signs of a chemical change based on their qualitative observations, they do just that! Therefore, this also means that students analyze and interpret data to provide evidence to describe phenomena. At each lab station, students use patterns in evidence to identify each reaction as chemical or physical. Students thus realize that patterns can be used to predict phenomena. In addition, students look at chemical equations and start to make clearer connections to the idea that bonds are broken and formed during chemical reactions. Thus, they can realize that macroscopic patterns are related to the nature of microscopic and atomic-level structure. Patterns Connecting to the Essential Question: What are you supposed to learn today? Students should respond by saying that they will be answering the Essential Question, "How do particles combine into new substances? And, what evidence can show how the physical and chemical properties of the substances change? Explain to students that we will again be working with Skill 5 of the Chemistry Unit Plan, "I can provide evidence to show if a reaction is a chemical or physical change. Have the students turn to their unit plans and silently read the skill. After reading the skill have the students rank their current level of mastery on a scale of 1 to 4 4 being mastery. Students in my room have already assessed themselves in the lesson prior to this; this would be an opportunity for the student to change their number if they felt their level of mastery had increased after the previous lesson. In my classroom, students frequently self-assess their level of understanding on each skill in the unit as we go. As you can see from the image below, this student ranks has continually updated his level of mastery on each skill as his learning has developed. Students in my class have already had an introduction to the differences between chemical and physical reactions. For a look at all the lessons that have led my students to this point and where we go from here check out the lessons in these units: Molecular Arrangement and Phase Changes: Focuses on Skills 1 - 4 of the Chemistry Unit Plan This unit is designed to answer the Essential Question, "How do particles combine into new substances? What evidence can show how the physical and chemical properties of the substances change? It particularly focuses on types of matter, physical properties, phase changes, and factors that affect physical properties. It stresses group discussion, discourse and utilizing text references when engaging in argument. Students utilize reading, writing, and speaking strategies in order to develop scientific literacy. Chemical Properties and Reactions: Focuses on Skills 4 - 6 of the Chemistry Unit Plan. This unit is also designed to answer the Essential Question, "How do particles combine into new substances? This unit focuses on chemical properties and chemical reactions. Students analyze evidence and property changes that allow them to distinguish between chemical and physical reactions. In addition, students investigate the Law of Conservation of Mass as they look at how bonds are broken and formed in chemical reactions. This unit is full of hands on labs and station rotations that will engage any middle school student in chemistry! Scientists cite qualitative and quantitative evidence! Students have already read and gone through one lab series relating to these topics. This lab rotation represents the students second lab experience and thus, I am asking them to back up all claims with multiple pieces of evidence as we increase the complexity of our understanding with each lab station. My conversation prior to these lab station unfolds something like this: The more evidence they can find to support the claim, the stronger their argument will be. Thus, in the lab rotation today, you must "channel their inner scientist" and do the same! At each lab station you must determine if the reaction

observed is a chemical or physical reaction. In addition, you must cite properties that change as a result of the reaction. When making these claims, it will be important that you cite qualitative as well as quantitative data. We use these words frequently, but a quick refresher of these words could be in order! For example, pretend a student watched a reaction in a zip lock bag. The bag bubbled, got cold, and turned from blue to red. Thus, the student determined that it was a chemical reaction. Then, they responded to the first question of the lab station. Take a look at your lab document - notice that the questions are similar for each station. One of the questions for each station is "Did you just observe a chemical or physical change? What evidence do you have to prove this? Back up your evidence with observations! What feedback would you provide the student with in terms of "sounding like a scientist and not like a 7th grader? Students should say things such as "Write in complete sentences. When complete, the response might read, "This is a chemical reaction. There was gas production when the bubbles formed. The color changed from blue to red. In addition, the temperature changed when the bag decreased in temperature. Scientists also cite evidence from text to support your claim. Thus, when answering this question, the student could reference the data included in this page to support their claim. Remember, when citing data, it is important to compare data points to demonstrate the change that occurred. Alka Seltzer is a white solid that breaks apart easily. It is made of sodium bicarbonate which is ionically bonded and reacts when in the presence of an acid. Water is a liquid and has a boiling point of degrees Celcius. The product of this reaction is carbon dioxide which is a colorless gas that has a boiling point of degrees Celsius. Carbon dioxide does not react strongly with acids. If I was going to note that the boiling point changed, as a scientist, I would not simply write "The boiling point changed. I might write, "The boiling point of the reactant was degrees Celsius while the boiling point of the product was degrees Celsius. Last, when noting the changes in the properties from the reactants to the products, please be sure to note at least one physical property that changed and one chemical property that changed. There are five stations. I tend to put enough materials at each station so that two groups can be at a station at a time working next to each other. In other words, I split my classes into 10 groups. I remind students that they must wear goggles at all of the lab stations and that as scientists, reading and following procedures is not only important to the success of the lab, but to their safety as well. In addition, I explain that groups must complete all lab questions first before rotating to the next station. This is important - middle school students will just want to do all of the "fun" very quickly and will try to save all of the "work" for the end. This is simply not effective for their learning. All questions for the previous station must be completed prior to rotating to the next station! Pop Your Top 15 minutes.

## DOWNLOAD PDF CLASSIFYING CHEMICAL REACTIONS WORKSHEET

### Chapter 2 : Photos: Chemical Reactions Worksheet, - WORKSHEET EDUCATION PICS

*This is a simple, easy-to-follow, one page worksheet that contains 18 chemical reactions to be balanced and classified according to type. The reactions presented are a mixture of the 6 reaction types: synthesis, decomposition, combustion, single displacement, double, displacement, and acid-base.*

Measure room temperature and record: Soak a steel wool pad in 30 mL of vinegar in a mL beaker. Remove pad and squeeze the excess vinegar back into the beaker. Wrap the pad around the thermometer bulb, secure it with a rubber band, and observe the temperature over 5 min. Record the final temperature of the steel wool: Was there a temperature change? Describe any changes to the steel wool. Write a balanced equation for this reaction. Include heat as a reactant or product. Decomposition activity Pour the yeast from the test tube into the flask containing the 20 mL of hydrogen peroxide H<sub>2</sub>O<sub>2</sub>. The yeast contains the enzyme catalase that decomposes hydrogen peroxide. What gas or gases could be produced? Review the table below for confirming 3 common gases. Is the test positive for hydrogen see Fig. Insert a glowing splint into the flask. Is the test positive for oxygen see Fig. Oxygen Gas Insert a glowing splint into the container. If it bursts back into flame, the test is positive. If there is a small explosion or barking sound, the test is positive. Carbon Dioxide Gas Insert a flaming splint into the container. If the flame is extinguished, the test is positive. Figure 1 Standard tests for 3 common gases. Write a balanced equation for this decomposition reaction. Single-replacement activity Hold the test tube containing 0. Place the test tube in the test tube rack. If you use a plain iron nail, here is the reaction: Complete and balance the equation below for this reaction: Complete and balance this equation, and identify the gas with a flaming or glowing splint: With a flaming splint, carefully ignite the ethanol in the dish. Do not touch the dish until 5 min after the flame extinguishes. Complete and balance the equation for this reaction: Complete and balance these 2 reactions: Have students use a digital camera to document examples of the 5 types of chemical reactions in their local communities. As a way to illustrate the relevance of synthesis and single-replacement reactions, have students research corrosion reactions e.

### Chapter 3 : Classifying Chemical Reactions Worksheets - Teacher Worksheets

*As a current student on this bumpy collegiate pathway, I stumbled upon Course Hero, where I can find study resources for nearly all my courses, get online help from tutors 24/7, and even share my old projects, papers, and lecture notes with other students.*

### Chapter 4 : Lesson Pop Your Top! | BetterLesson

*Some of the worksheets displayed are Work writing and balancing chemical reactions, Chemical reactions name, Balance the reactions 1 to 6, Balance the reactions a to e and indicate which types of, Physical and chemical changes work, Balancing equations practice problems, Classifying chemical reactions work, Work 1 composition synthesis reactions.*

### Chapter 5 : Classifying Chemical Reactions | calendrierdelascience.com

*Classifying Chemical Reactions. Showing top 8 worksheets in the category - Classifying Chemical Reactions. Some of the worksheets displayed are Classifying chemical reactions work, Chemical reactions name, Work writing and balancing chemical reactions, Balancing chemical equations, Balancing equations work and key 7 23 09, Physical and chemical changes work, Physical and chemical changes work.*

### Chapter 6 : Chemical Reaction Worksheets - Printable Worksheets

*KEY Chemistry: Balancing Chemical Equations Directions: First, balance each of the chemical equations below. Then,*

## DOWNLOAD PDF CLASSIFYING CHEMICAL REACTIONS WORKSHEET

*classify each reaction as synthesis, decomposition, single-replacement, or double-replacement.*

### Chapter 7 : Chemical Reactions

*Worksheet: Writing and Balancing Chemical Reactions 1. Balance the following equations and indicate the type of reaction as formation, decomposition, single.*