



Let's Get Physical! And Chemical!

by DeNise Gerst, 2013 CTI Fellow
Barringer Academic Center

This curriculum unit is recommended for:
5th Grade Science

Keywords: Chemistry, chemical, changes, matter, physical

Teaching Standards: See [Appendix 1](#) for teaching standards addressed in this unit.

Synopsis:

Students are generally concerned about changes in the world around them. The North Carolina Common Core essential standards for fifth grade science expects students to understand matter and energy, their interactions, and how they change. Students are also required to determine materials in their original state and determine when a change has occurred and if a new material has been formed as a result of this change.

This unit was designed to help students determine the difference between physical and chemical changes and the difference between them. This is to be accomplished during a series of lab sessions where students are engaging in inquiry based activities and hands on discoveries. During the course of this unit students will engage in a variety of activities geared to challenge their thinking. Students will follow the scientific method, recording their results for each activity. Students will distinguish between physical and chemical changes using basic materials.

I plan to teach this unit during the coming year to 125 5th Grade students during their science lab time.

I give permission for the Institute to publish my curriculum unit and synopsis in print and online. I understand that I will be credited as the author of my work.

Let's Get Physical! And Chemical!

DeNise Y. Gerst

Rationale

The human body and its functions have always intrigued me. Just how the body knows how to function, when to grow, how to heal and how to communicate between the systems is amazing. As a young child I learned that the pituitary gland controls the body's growth and communicates when it is time for an individual to enter into puberty. It is interesting that each person does not enter into puberty at the same time nor is their duration of puberty the same length. How does each body know when to stop growing?

Knowledge of your body's systems and proper functions is necessary to understand if your body is functioning normally or if there is a problem that needs to be addressed. Having knowledge of your body's functions keeps you informed and can alleviate confusion.

Students are generally curious about how their bodies work. This is evident through the questions that they ask. After teaching a unit on physical and chemical changes, a student asked, "Is the human body an example of a physical or chemical change?" This made me think of ways I could teach changes with more depth, maintaining a curriculum aligned to the standards, while also making the information relevant to the students. The more connections students are able to make between the curriculum and everyday occurrences, the more likely students are to retain the information presented.

As an educator I feel it is partly my responsibility to help students understand their bodily functions. This way student's are aware of what's happening with their bodies during different stages of their lives. By teaching students this information in the lab, I am allowing students to learn information in a safe environment while providing them with factual information.

Introduction

Barringer Academic Center is a National Magnet School of Excellence located on the west side of Charlotte, North Carolina. BAC, as it is affectionately called, is an elementary school in the Charlotte Mecklenburg School District and serves students in grades K-5. Currently BAC has 610 students enrolled. Though most of the students are African American, BAC does have a diverse population which includes Caucasian, Indian, Hispanic, Asian and Multi-race students.

A variety of clubs are offered throughout the school for all grade levels to enhance students' learning experiences beyond the classroom. Most clubs meet during designated times within the school day on Tuesday's and Friday's. Some clubs such as Science Olympiad, Chess, and Cyber Kids offer students the opportunity to compete with their peers regionally and statewide. Offering clubs throughout the school day allows those students who are involved in other extracurricular activities afterschool or who would not be able to stay after school the opportunity to still participate.

Barringer is a unique school. Though it is a magnet school, not all of the students are a part of the magnet program. Barringer is one school comprised of three different programs. Our Horizons program is our magnet program and serves approximately 70 students. These students are working well above their grade level. Students who desire to be a part of the Horizon's program must fill out an application, complete a series of tests and complete an interview. They are then invited into the program if they qualify.

BAC's gifted program serves students in grades K-5 who are working above their current grade level. Students who are a part of the Horizon's or gifted program generally come from areas that are out of our school's zone. BAC also serves approximately 400 students that live in the neighborhood surrounding the school. The majority of these students are working at or below grade level which do not qualify them to participate in the Horizon's or gifted programs. Many of these students are also economically challenged.

Though Barringer has multiple programs, every student comes to the science lab once a week for 45 minutes with their class. The Science lab is offered as a special area class. Students engage in center learning, and each week, students choose a center to work in. Students are not permitted to choose the same center week after week. This ensures that they are experiencing a variety of learning. Each center is aligned to the common core/essential standards for grades K-5.

All students are required to participate in a school-wide Science Fair held the third week of January each school year. Students work individually, in pairs, or as a class to complete a project. The students follow the scientific method in the development of their projects. Judges, not affiliated with our school, are invited in to interview and judge the projects using a rubric for the students, grades 3-5, who have completed an individual or partner (pairs) project. The top students are sent to the regional Science Fair held at the University of Charlotte each February.

As the Science Facilitator, I serve every student at BAC. I have been challenged to build a comprehensive science department that builds confidence in students who previously did not have much exposure to science and to challenge students who come with a vast background of science knowledge. My challenges also extend to breaking down a mindset that only *some* students are able to engage in science experiments.

Breaking this mindset has not been easy. I have taught my students that everyone is able to “do” science not just some students. When I first arrived, many of my students were shocked that they would have the opportunity to engage in scientific experiments. Students who were previously disinterested in science have now become fascinated with it.

Objectives

The purpose of this unit is to expose students’ to chemical and physical changes and determine how those changes affect the human body, specifically changes that occur during childhood and puberty. In this unit I would like to address chemical and physical changes with an emphasis on chemical changes. I would like to link these changes to everyday occurrences and also changes in the body systems. Elementary students often have difficulty determining the difference between physical and chemical changes and why they occur. By the end of the unit, students will be able to clearly identify and distinguish the difference between chemical and physical changes.

Students in the fifth grade are expected to understand how matter interacts with one another and be able to determine the properties of materials and specific changes they undergo when new materials are made. Fifth grade students are also required to understand the human body systems and their functions.

What are physical changes?

This unit will focus on what physical changes are and how they occur. I would like to link physical changes to everyday occurrences that students would be familiar with. An example would be ripping paper, cutting your hair or growing taller. Using changes students are familiar with will help them to better understand physical changes. Throughout this unit I would also like to focus on the physical changes that occur within the human body systems and have students determine why the changes are physical.

What are chemical changes?

I would like to use changes that students are familiar with and use them to explain why the changes are chemical versus physical. Some examples I could use would be burning wood or paper, baking a cake, frying an egg, or digesting food. Students will also be able to determine the chemical changes that occur in the human body systems and determine what makes the changes chemical.

Distinguish the difference between physical and chemical changes

In order for students to distinguish the difference between physical and chemical changes they must first understand the difference between these changes. Physical changes

change the form of an object but not the chemical make-up of that object such as ripping paper, whereas chemical changes occur when a new substance is formed as a result of the change. Students will also need to have an understanding that the body systems often experiences chemical as well as physical changes simultaneously.

Determine the type of changes each body system experiences

Students need to understand the systems of the body specifically: digestive, circulatory, respiratory, muscular, skeletal and cardiovascular. Students should understand how each body system functions properly and their importance to the overall function of the body as a whole. Students will discover the physical changes of each system and also the chemical changes of each body system, and be able to distinguish between the physical and chemical changes of each system while distinguishing the difference between each system. Students will also be able determine whether every individuals body experiences the same changes.

Distinguish how changes differ between individuals

Students will compare changes between individuals and determine whether these changes are the same, similar or different. This part of the unit will be linked to the fifth grade RHASE unit. (1) This unit focuses on changes that occur in males and females that take them from childhood into adolescence (puberty). Students will distinguish the difference between changes occurring during puberty that are physical and those that are chemical. Students will need to have an understanding of the function of the pituitary gland as well.

Strategies

This unit will begin with a general assembly of all fifth grade students to pique their interest. During the assembly students will not engage in hands on experiences. Instead, they will make predictions of the outcome of various scientific demonstrations. The format will be similar to that of a magic show. Students will be shown substances and objects which will then undergo either a physical or chemical change. Some of the demonstrations will include: ripping paper, making tea or Kool-Aid, lighting flash paper, mixing water and copper powder, and lighting hydrogen balloons. Some of these demonstrations cannot be done in an elementary science lab and will require additional assistance due to the need to properly handle potentially hazardous materials.

One strategy will be to give the students learning probes as a pre-assessment. Probes help you as the teacher to understand where your student's thought level is on a particular subject. The National Science Teachers Association has several books that provide probes that can be used within your classroom, and also provide explanations on the reasoning behind each probe. This is a quick and helpful assessment tool for understanding the student's thought process.

Another strategy will be to introduce what physical and chemical changes are and link them to the demonstrations that students will witness during the general assembly. Students will then decide on which demonstration showed a chemical change and which displayed a physical change.

The remainder of the unit will be taught with a layered curriculum approach. Layered curriculum allows students to take charge of their own learning while engaging in hands on experiences linked to the curriculum and this unit. Students will engage in several activities over the course of four to five weeks. The length of this unit is due to the limited amount of time the students have in the lab. These activities will be centered on chemical and physical changes within the human body.

Another strategy will be to connect with local universities and invite them in to teach about body processes and the chemical and physical changes that occur. Students at Johnson C. Smith University, located in Charlotte, North Carolina, are required to participate in community service. This will satisfy some of their community service requirements while also connecting our students with the community, allowing them to see themselves through these college students who are participating in education beyond that of fifth grade. This helps them to think as 21st century learners. Other local universities to link up with would be The University of Charlotte, Queens College, and King's College.

I would also like to invite guest speakers in, specifically chemists, that can discuss with students their scientific jobs and role in science. An ideal guest speaker would be chemists that work with creating new flavors for drinks or food thus keeping to the body theme. If it is not feasible for the chemists to come to speak to the students in person, skyping might be an option.

Students will also have the opportunity to engage in virtual labs provided through Discovery Education. (2) Virtual labs allow students the opportunity to complete labs on the computer. Many of these labs are helpful because in a short amount of time they provide the learning experience students need. Some labs, if done in a classroom setting, take a significant amount of time or require materials that may not be readily available.

Interactive notebooks are a strategy that integrates writing and science. (3) Students can use this strategy to demonstrate the learning that has occurred after they complete each activity or center. The notebook also provides a way to show growth of student learning throughout a unit as students choose a way to display what they've learned. Notebooks are ideally done independently but with creativity, class notebooks can be created where each child adds some information to a graphic organizer after the completion of a science session.

One strategy that I enjoy, is allowing students to choose a final project to show the knowledge they have gained throughout the unit. A company that provides great ideas for students who need a little direction is called Engine-Uity.(4) These tasks are designed to help students use their higher order skills. Students can choose tasks that require them to complete a mini project about their unit. Some project ideas might include creating a comic strip where the characters are non-human, creating a poster, brochure, phone book entry, creating a book fiction or non-fiction, or writing a short story about the adventures of physical and chemical changes. Students could also put together a skit to demonstrate their understanding of these changes.

Activities

Activity 1

Students will be given question probes about reactions to determine their level of thinking. Probes help explain the thinking of a student or individual about a particular topic. These probes will be given to students during their individual science time with me as a whole class.

Following this initial class where all students have answered their probes, I will hold a general assembly in the gym for all fifth grade students. The purpose of this assembly will be to further pique the student's interest about reactions. In the assembly, several reactions will be shown that demonstrate both physical and chemical changes. These reactions will be referred to later in the unit as prior knowledge for students.

I will begin this session by ripping a large piece of paper. I will then mix kool-aid and ask two kids what they think happened. These will represent physical changes. Continuing on, I will show students a fluid lighter and a piece of flash paper and ask what will happen if I light the paper. I will then light the paper (which completely disintegrates). Just for effect, I will repeat this reaction. This demonstration represents chemical changes.

I then will blow up a balloon. I will make sure to blow it up very large. I will then take a pin and pop it. This is an interesting example in that from the perspective of the balloon this is a physical change, but if the perspective is my body, there is a wonderful mix of physical changes (the expanding and contracting of my lungs) and chemical changes (the reaction of carbohydrates and sugars to produce the energy to accomplish my task). My final reaction will be popping hydrogen filled balloons (three of them), a loud and strong visual demonstration of a chemical change. Following the reactions, we will have a brief discussion. I will call on a few students to share what the differences were from demonstration to demonstration.

Activity 2

The next activity will be done when classes come to the science lab. At the beginning of this lesson the class will be asked to add what they know about reactions on a class sized KWL chart (See Appendix 111). This chart will be referenced throughout the unit. Students will be given the pre-test quiz on changes in matter. Students will then be shown the video “Matter and its Properties: Changes in Matter,” found on the discovery education website.(5) Following the video, students will be given a quiz based on the video. To culminate this activity, each student will respond to several discussion questions in groups of 3 or 4 (See Appendix 111).

Activity 3

Students will engage in the next activity in pairs as they rotate from center to center.

Center 1:

Materials:

Paper, science journal (See Appendix 111)

Take each piece of paper and fold it in half. Continue to fold it until you cannot make any more folds. Unfold the paper.

Has the paper gone through a chemical or physical change?

Center 2:

Materials:

Baking soda, vinegar, spoon, medicine dropper, small cup, safety goggles, science journal

Procedure:

Take a spoonful of baking soda and place it into the small cup. Take a dropper of vinegar and release it into the cup. Watch what is happening. Write what you notice. Was this a chemical or physical change? How do you know?

The students should notice a chemical reaction taking place. When the two substances are combined together they begin to bubble. The more baking soda and vinegar used, the bigger the reaction.

Center 3:

Materials:

Dirty pennies, coke, medicine dropper, small cup, science journal

Procedure:

Pour coke into the cup. Fill the cup half way. Place the penny in the cup. Watch what happens.

Is this a chemical or physical change? How do you know? This reaction may take a little longer than the rest. Be prepared for that. The students are watching a chemical reaction taking place. The coke will remove the rust from the penny and will make it look brand new.

Center 4:

Materials:

1 balloon, equal parts of vinegar and baking soda, small 8oz. empty water bottle, funnel, safety goggles, science journal

Procedure:

Put on your safety goggles. Take the funnel and pour the baking soda into the balloon. Rinse the funnel. Using the funnel pour an equal amount of vinegar into the water bottle. Carefully stretch the mouth of the balloon over the mouth of the water bottle. Be sure not to empty the contents of the balloon into the water bottle while doing so. Once the balloon has been stretched over the mouth of the water bottle, carefully shake the contents of the balloon into the water bottle.

What is happening? Is this a chemical or physical change? How do you know? In this center students will witness the balloon blowing up due to the gas created when the vinegar and baking soda are combined. This is an example of a chemical change.

Center 5:

Materials:

Milk, dish soap (Dawn works best), measuring cup, medicine dropper, food coloring (green, blue, red and yellow), safety goggles, plate, science journal

Procedure:

Pour half a cup of milk on to the plate; place two drops of each color of food coloring into the center of the milk. Take the medicine dropper and drop three drops of water into the center of the food coloring. What happened? Now take the medicine dropper and drop one drop of dish soap into the center of the food coloring. What happened?

Tell if each was a chemical or physical change. How do you know? Students will notice that the food coloring sits on top of the milk and stays in place when undisturbed.

When the drop of water is added, nothing happens. However, when the dish soap is added the colors immediately spread apart and then swirl.

Center 6:

Materials:

Measuring spoons (1 teaspoon and $\frac{1}{2}$ teaspoon, snack bags (zip closing), water, clear gel glue, food coloring, measuring cup($\frac{1}{4}$ cup), marking pen, disposable plastic cup (3 oz.), disposable plastic spoon, borax, glitter, metric ruler

Procedure:

Have students pour 2 teaspoons of water and 1 teaspoon of clear gel glue into a re-closable sandwich bag. Seal the bag. Mix the contents of the bag by gently kneading the bag. Open the bag and add no more than two drops of food coloring to the contents. Seal the bag and knead the contents with your fingers. Label the cup borax solution. Take your measuring cup and measure $\frac{1}{4}$ cup water. Pour the water into the plastic cup. Add $\frac{1}{2}$ teaspoon of borax to the water in the cup and stir until the borax dissolves. Add 1 teaspoon of the borax solution to the glue mixture in the bag. Seal the bag and knead well. Open the bag and feel the slime. How does it feel? Was this a physical or chemical change? (Note: If preferred this activity can be done whole group instead of in a center).

In this activity students will notice that when they mix the glue solution with the borax solution a slimy stretchy solution will form. When talking about the slime make a connection to how the body makes and uses mucus.

Center 7:

Materials:

Red cabbage leaves (this will be your indicator), sealable bag, water, 1 piece of white paper, 2 clear plastic cups, baking soda, vinegar, teaspoon, table spoon, disposable juice bottle with a wide mouth (a half liter bottle will work).

Procedure:

Tear two red cabbage leaves, and place them in the sealable baggie. Add $\frac{3}{4}$ cup water. Squeeze the excess air out of the bag and seal the bag tightly. Hold the bag with one hand and squish the leaves with the other. Continue to squish until the water turns a dark bluish color. Place the two plastic cups on a white piece of paper. Pour two tablespoons of your indicator solution into each cup. Place three tablespoons of baking soda into the juice bottle. Add 1 tablespoon of vinegar to the bottle and hold your hand over the top. Swirl to mix the baking soda and vinegar. You are creating carbon dioxide by doing so. CO_2 is a gas. Carefully tilt the bottle over one cup only, allowing CO_2 into the cup. Be

careful not to pour any liquid into the cup. Take a straw and stir the cup where the CO₂ gas was added.

Did you notice a change? Was this a physical or chemical change? Students should notice the indicator change color when the CO₂ was added to it. Challenge students by asking them what they think would happen if the added different gases or solutions to the indicator. Will they notice a change? Will they notice the same color changes? When Carbon dioxide and water are mixed, it creates an acid known as carbonic acid.



Students will be expected to respond to each center in the science journals. This will allow students to revisit what they learned about physical and chemical changes. This will be helpful when they begin their unit on Reproductive Health and Safety Education unit.

Activity 4

Students will identify physical and chemical changes within the human body (this will serve as an introduction to their Rhase unit). I will begin by showing the video “Human Body” on Brainpop (www.brainpop.com).(6) Students will then complete the activities and graphic organizer provided with this video in partner pairs. Following this video, students will begin their Rhase unit which takes several weeks to complete. Due to the length of this unit and the amount of classes I instruct, students will need to complete their RHASE unit in their classrooms. Once they complete lessons 3-5 our unit will continue in the lab. During the unit, students will be asked to identify changes happening within their bodies during puberty as chemical or physical.

Activity 5

Students will begin their RHASE unit in their regular classrooms. In the lab, once they have finished lessons 3-5, students will use what they have learned about female and male body changes to discuss chemical and physical changes. In small groups students will answer the following questions. What physical changes happen to male and female bodies? What changes are specific to the female bodies? What changes are specific to the male bodies? When do these changes usually occur? What changes can you determine are physical? Which changes are chemical? Are there any changes that males and females go through that include both chemical and physical changes? Based on what you have learned throughout this unit explain the difference between physical and chemical changes. When students have answered these questions on their small groups, we will come together and discuss their responses as a whole class.

Activity 6

Our culminating activity will be a closing session with a guest speaker. My first choice is to invite a chemist in who creates flavors for food. I think this would be most interesting for students. Our guest speaker will be asked to explain the background knowledge necessary to complete their job. I would also like to invite a student in from a local university who is majoring in chemistry. I want them to explain to the students why they chose chemistry as their major and what they hope to contribute to society using their major.

Chemical Waste

Due to this unit being designed for elementary level science, the materials used in each activity will be basic. When completing any science experiment taking consideration on how to properly dispose of chemical waste is important. Many substances cannot just be poured down the drain or thrown in the trash. This is because some chemicals can be extremely harmful to the environment. The materials used in this unit, with the exception of hydrogen, can be stored in a cabinet or closet until needed. When each experiment is complete, waste can be disposed of in the sink or trash. Before using hydrogen, speak with your custodian on how it should be properly stored.

Summary

This unit has been designed to help students understand the difference between chemical and physical changes through experimentation. This is a beginners approach to build a foundation for future experimentation to further understand these concepts.

Notes

1. Merry Angela Gallo, Matt Bells, Pam Omalay, "Reproductive Health and Safety Education," *Charlotte Mecklenburg Schools*, last modified July, 16, 2013 <http://www.cms.k12.nc.us/CMSDEPARTMENTS/CI/HEALTH-PHYS-ED/Pages/RHASE.aspx>
2. *Discovery Education*, October 2013, www.discoveryeducation.com
3. Kellie Marcarelli, *Teaching Science with Interactive Notebooks* (Thousand Oaks, California: Corwin, 2010), 57
4. Engine-Uity, *Engine-Uity*, October, 14, 2013, www.engine-uity.com
5. "Matter and its Properties: Changes in Matter," *Discovery Education*, October 12, 2013, www.discoveryeducation.com
6. "Human Body," *BrainPOP*, May, 8, 2013, www.brainpop.com

Bibliography

“Engine-Uity,” engine-uity.com, October 14, 2013, <http://www.engine-uity.com/product.asp?prodid=1040>

This website provides descriptions for products designed for students working above grade level.

Gallo, Merry Angela, Bells, Matt and Pam Omaley. “Reproductive Health and Safety Education,” *Charlotte Mecklenburg Schools*. Last modified July 16, 2013.

<http://www.cms.k12.nc.us/CMSDEPARTMENTS/CI/HEALTH-PHYS-ED/Pages/RHASE.aspx>

This resource is a part of the fifth grade curriculum in Charlotte Mecklenburg Schools. The curriculum teaches students about bodily changes and how to safely respond to these changes.

Marcarelli, Kellie. “*Teaching Science with Interactive Notebook*,” Thousand Oaks, California, 2010.

This resource guides teachers through the process of introducing and implementing the use of interactive notebooks specifically during science instruction.

Masterdon, William L. and Cecile N. Hurtlely. “*Chemistry: Principles and Reactions*,” Belmont, California: Thompson Higher Education, 2006

This resource provides in depth information about chemistry and chemical reactions. It is a great resource if you need additional help remembering what you learned years ago.

Shakhshiri, Bassam. “*Chemical Demonstrations: A Handbook for Teachers of Chemistry Vol 2*.” Wisconsin, University of Wisconsin Press, 1985.

This resource gives teachers the formula for several chemical demonstrations. It is one of many volumes.

Appendix 1: Implementing District Standards

- 5. P.2 Understand the interactions of matter and energy and the changes that occur.
- 5. P.2.3 Summarize properties of original materials and the new material(s) formed to demonstrate that a change has occurred.

This unit addresses the above standards as students engage in center learning. Students use the centers to make discoveries about matter and how it changes.

- 5. L.1 states Understand how structures and systems of organisms (to include the human body) perform functions necessary for life.
- 5. L.1.1 Compare the major functions of the human body (digestive, circulatory, respiratory, muscular, skeletal, and cardiovascular) in terms of their function necessary for life.

Students apply knowledge learned in previous experiments to determine whether changes occurring in their bodies during puberty are chemical, physical or a combination of both.

- PD.5.CC.1 Explain the physical, social and emotional changes that occur during puberty and adolescence.

Students recognize that their bodies are changing and are able to use the knowledge they have learned to determine if these changes are chemical, physical or a combination of both.

Appendix 11: Additional Resources for Teachers and Students

Reading list for students:

Bayrock, Fiona. "States of Matter: A Question and Answer Book," United States, Capstone Press, 2007

This book introduces students to the states of matter and provides them with necessary background knowledge to understand how matter can change.

Newark, Ann. "Eyewitness Books: Chemistry," New York, DK Publishing, 2005

This book provides students with an in depth look into the world of chemistry. This book communicates this information on a level students can understand.

Royston, Angela and Sally Hewitt. "My Body," United States: QEB Publishing, Inc, 2010

This book gives student's detailed information about the various systems of their bodies and their functions.

Vancleave, Janice. "Chemistry for Every Kid: 101 Easy Experiments That Really Work," Canada, John Wiley and Sons, 1989.

This book provides students with a variety of experiments that they can conduct at home (with adult supervision). This book also provides the explanation behind many questions kids have about chemistry.

Websites for students and teachers:

www.acs.org -this website has several activities on changes in matter.

www.brainpop.com -this website has some free videos available for teachers and

www.chem4kids.com – this website has great information chemistry that is student friendly.

<http://www.coolscience.org>- this website has fun, interactive science based activities for students.

Students.

www.discoveryeducation.com- this website has a wealth of resources available in the form of videos, eBooks, virtual labs, techbook activities, etc.

www.engine-uity.com –this website provides information on resources that are developed for students working above grade level.

www.nsta.org- this is the website to the National Science Teachers Association. It provides free use of materials even for teachers who are not members.

Videos and video clips for teachers and students:

www.brainpop.com (videos on the human body)

<http://www.brainpop.com/health/bodysystems/humanbody/preview.weml>
<http://www.brainpop.com/health/bodysystems/bodychemistry/preview.weml>
www.brainpop.com (videos on matter and how it changes)
<http://www.brainpop.com/science/matterandchemistry/propertychanges/preview.weml>

www.discoveryeducation.com (videos on physical and chemical changes)
<http://app.discoveryeducation.com/search?Ntt=physical+and+chemical+changes>
[al](#)

Changes in the Properties of Matter: Physical and Chemical

Identifying Physical and Chemical Changes in Matter

Physical and Chemical Changes

Physical and Chemical Changes in Matter

These videos provide instruction on matter, how and why it changes.

Appendix 111

Sample Discussion Questions:

1. What is a physical change?
2. Give two examples of physical changes discussed in the video.
3. What are chemical changes?
4. In most instances, how can we know a chemical change has occurred?
5. Give two examples of chemical changes discussed in the video.

KWL Chart:

What you know (Completed before the unit begins)	What you want to learn (Completed before the unit begins)	What you learned (Completed after the unit is taught)
--	---	---

Sample Science Journal:

Student Name _____

Name of experiment _____

Vocabulary _____

Materials _____

Procedure _____

Hypothesis _____

Analysis (what actually happened) _____

Conclusion _____