SCIENCE PARENT GUIDE – UNIT 5

IMPORTANT CONCEPTS YOUR STUDENT SHOULD KNOW AND ACTIVITIES TO DO AT HOME	
CHEMICAL AND PHYSICAL CHANGES	
DESCRIPTION	
In this unit, students will explain the difference between a physical and a chemical change. Students will use the following science and engineering practices to investigate chemical and physical changes.	
KEY WORDS TO KNOW	
• Physical change: change that makes something different without changing the makeup of the material (e.g. cutting, folding, melting) • Chemical Change- happens when matter breaks down into two or more substances or when more than one substance is combined to form a new substance • Matter- anything that has mass and takes up space • Mass- the amount of matter in an object • Substance- matter of any form that cannot be broken down into separate elements by physical means but can be broken down using chemical changes. • Mixture- something that contains two or more substances that are not combined chemically	• Change of State: occurs when a substance changes from one state to another (solid, liquid, gas). • Freezing Point- the temperature at which matter turns into a solid • Melting Point- the temperature at which matter turns into a liquid • Boiling Point-the temperature at which matter turns into a gas • Water vapor- water in a gaseous state, especially when diffused as a vapor in the atmosphere and at a temperature below boiling point • Physical properties-properties that are measurable and can be seen.

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CHEMICAL AND PHYSICAL CHANGES

Important Concepts Addressed in this Unit	Sample Problems	How You Can Help Your Child
S5P1. Obtain, evaluate, and communicate information to explain the differences between a physical change and a chemical change. a. **Plan and carry out investigations** of physical changes by manipulating, separating and mixing dry and liquid materials. b. Construct an argument based on observations to support a claim that the physical changes in the state of water are due to temperature changes, which cause small particles that cannot be seen to move differently. c. Plan and carry out an investigation to determine if a chemical change occurred based on observable evidence (color, gas, temperature change, odor, new substance produced).	1. How can you separate a salad mixture? 2. There is a mixture of iron fillings and rice. Devise a plan to separate this mixture. 3. Construct an argument supported by observations that water changes state due to temperature changes. 4. Chloe mixed baking soda and vinegar and observed bubbles. Did a chemical change take place? Explain why or why not. 5. Compare and contrast physical and chemical changes.	**Online Resources** • Science Curriculum: STEMscopes via MyBackpack • Milestones Assessment Guide https://lorpub.gadoe.org/xmlui/bitstream/handle/123456789/49665/Gr_05_Assessment_Guide_10.25.17.pdf?sequence=1 • Mixtures http://studyjams.scholastic.com/studyjams/jams/science/matter/mixtures.htm • States of Water http://studyjams.scholastic.com/studyjams/jams/science/matter/solids-liquids-gases.htm • Physical and Chemical Changes http://studyjams.scholastic.com/studyjams/jams/science/matter/changes-of-matter.htm

Changes to Science Standards: Students are expected to perform the practices while learning the content and understanding the crosscutting concepts.

Science and Engineering Practices

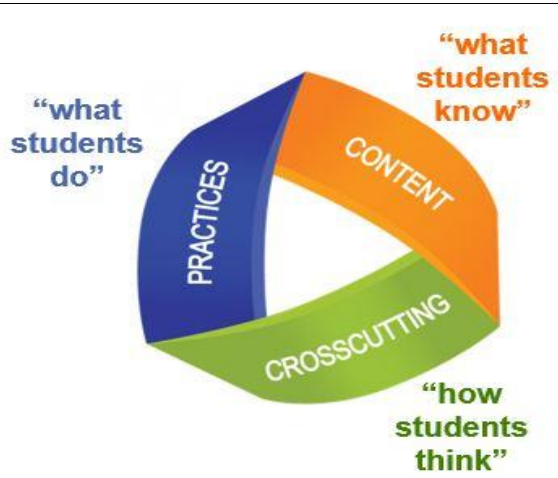
Students can use their understanding to investigate the natural world through the practices of science inquiry, or solve meaningful problems through the practices of engineering design.

Crosscutting Concepts

Provide students with connections and intellectual tools that are related across the differing areas of disciplinary content and can enrich their application of practices and their understanding of core ideas

Core Ideas

Core ideas cover the four domains: physical sciences, earth and space sciences, life science, and engineering and technology.



Quoted text from Peter A'Hearn