

6th Grade Science Syllabus

Harding Middle School 2016-2017

Contacts:

Feel free at any point in time to contact us at our email below on questions, comments, or concerns you may have! The best time to contact us during day is 7:00-7:20am, (M, T, TH, F) 12:05-12:50pm, (W) 11:45-12:15 and 2: 45-3:15. We can be reached at (515) 242-8445.

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Course/Unit Overview:

There are four main units during the year. Science inquiry and Processes Skills, Matter (chemistry), Weather and Climate and ending with Human Body. Below is a more detailed description of what will be taught in each unit. Each unit broken up into topics. Students earn scores (0-4) based on their understanding for individual topics. At the end of the unit, all the topic scores come together to give an accurate unit score. You will find a link to each of the topic's scales to see exactly what the students will be learning and how their understanding is scored. Links to scales can also be accessed online.

Unit: Science Inquiry and Process Skills (yearlong unit)

Topic: Scientific Investigative Skills

This topic will cover concepts with the scientific method (questioning, hypothesizing, observations, variable, data collection and analysis along with drawing conclusions.

[Access Scale Here](#)

Topic: Tool Use and Measurement

This topic will focus on basic measurements of length, volume, mass, and temperature using correct scientific tools and conducting accurate measurements.

[Access Scale Here](#)

Unit: Properties and Variations of Matter

Topic: Properties of Matter

Focus will be on the three phases of matter (solid, liquid, gas) and how each have a specific particle arrangement and particle movement. We will also learn about physical and chemical properties of different substances. While studying the physical properties we will spend time finding the density of different substances by using an equation of

$$\text{Density} = \frac{\text{mass}}{\text{Volume}}$$

Topic: Energy and Phases Changes of Matter

Extending our understanding of properties of matter we will transition into add energy into our understanding. Students will learn how energy can be added or taken away to change phases into other phases.

Topic: The Periodic Table

Using our understanding of the first two topics in this unit we will start to organize our concepts of properties of matter and phase changes to narrow in on specific elements and organization of the Periodic Table. Once we have learned the basics about the table we will move into a more in depth understanding of atoms and how to make atoms depending of the element.

[Access Scales Here](#)



Unit: Atmospheric Influence on Weather and Climate

Topic: The Water Cycle

Starting off our unit we will look at the water cycle, focusing on the how's and why's of what it does to benefit our world and what happens when there is a glitch in the cycle.

[Access Scale Here](#)

Topic: Earth's Atmosphere and Global Climate Change

Once we have an understanding of how water circulates through the oceans, crust and atmosphere and the important role the sun plays in this cycle we will broaden our learning to understanding wind patterns and their impact on weather, the different levels of the atmosphere and their job in sustaining life on earth and looking about human behaviors and their effect on the greenhouse gas effect.

[Access Scale Here](#)

Unit: Human Body

Topic: Body Organization

We will begin our human body unit by understanding how our body is structured starting with cells and working our way up to the whole body as a system working together.

[Access Scale Here](#)

Topic: Musculoskeletal System

Our first two body system well student give up structure protection and allow us to move! We'll focus on the skeletal system (parts and functions), muscular system (parts and functions) and how both work together to allow us to move and live every day.

[Access Scale Here](#)



Topic: Cardiovascular/Respiratory Systems

Our third topic in our understanding of the human body will be the cardiovascular system and the respiratory system. We will focus on blood flow through the heart and body and how the respiratory system is important for oxygen entering the bloodstream and carbon dioxide leaving the blood stream.

[Access Scale Here](#)

Topic: Digestive System

During the digestive system topic we will be studying the importance of eating proper food and maintaining a healthy diet. We will also learn about each organ in the digestive system process and the important role they play in digesting food.

[Access Scale Here](#)

Topic: Nervous System

We will end our human body unit by learning about the brain and how it is responsible for all the functions of the body. We will further deepen our understanding of the 5 sense and their connection to the brain.

[Access Scale Here](#)

FROG DISSECTION

To conclude our human body unit, students will be dissecting a frog. They will identify and explain the functions of major organs we learned about. This is a great hands on opportunity for students to experience a practical assessment like they will see as they further their education in science!

Safety:

Science gives students an opportunity to explore and experiments with science concepts. Being a science class, there are safety protocols that students must follow to ensure every student has the ability to learn in a safe environment. The next page is the safety contract your student will be learning and expected to follow during class.

Science Safety Contract

PURPOSE

Science is a hands-on laboratory class. However, science activities may have potential hazards. We will use some equipment that may be dangerous if not handled properly. Safety in the science classroom is an important part of the scientific process. To ensure a safe classroom, a list of rules has been developed and is called the Science Safety Contract. These rules must be followed at all times. Additional safety instructions will be given for each activity. No science student will be allowed to participate in science activities until this contract has been signed by the student.

SAFETY RULES

1. Conduct yourself in a responsible manner at all times in the science room. Horseplay, practical jokes, and pranks will not be tolerated.
2. Follow all written and verbal instructions carefully. Ask your teacher questions if you do not understand the instructions.
3. Do not touch any equipment, supplies, animals, or other materials in the science room without permission from the teacher.
4. Perform only authorized and approved experiments. Do not conduct any experiments when the teacher is out of the room.
5. Never eat, drink, chew gum, or taste anything-WITHOUT PERMISSION in the science room.
6. Keep hands away from face, eyes, and mouth while using science materials or when working with either chemicals or animals. Wash your hands with soap and water before leaving the science room.
7. Wear safety glasses or goggles when instructed. Never remove safety glasses or goggles during an experiment. There will be no exceptions to this rule!
8. Keep your work area and the science room neat and clean. Bring only your laboratory instructions, worksheets, and writing instruments to the work area.
9. Clean all work areas and equipment at the end of the experiment. Return all equipment clean and in working order to the proper storage area.
10. Follow your teacher's instructions to dispose of any waste materials generated in an experiment.
11. Report any accident (fire, spill, breakage, etc.), injury (cut, burn, etc.), or hazardous condition (broken equipment, etc.) to the teacher immediately.
12. Consider all chemicals used in the science room to be dangerous. Do not touch or smell any chemicals unless specifically instructed to do so.
13. Always carry a microscope with both hands. Hold the arm with one hand; place the other hand under the base.
14. Treat all preserved specimens and dissecting supplies with care and respect.
 - a. Do not remove preserved specimens from the science room.
 - b. Use scalpels, scissors, and other sharp instruments only as instructed.
 - c. Never cut any material towards you - always cut away from your body.
 - d. Report any cut or scratch from sharp instruments to the teacher immediately.
15. Never open storage cabinets without permission from the teacher.
16. Do not remove chemicals, equipment, or supplies from the science room without permission from the teacher.
17. Handle all glassware with care. Never pick up hot or broken glassware with your bare hands.
18. Use extreme caution when using a hot plate.
19. Dress properly—long hair must be tied back, no dangling jewelry, and no loose or baggy clothing.
20. Learn where the safety equipment is located and how to use it. Know where the exits are located and what to do in case of an emergency or fire drill.

AGREEMENT

I, _____, (student's name) have read and understand each of the above safety rules set forth in this contract. I agree to follow them to ensure not only my own safety but also the safety of others in the science classroom or laboratory. I also agree to follow the general rules of appropriate behavior for a classroom at all times to avoid accidents and to provide a safe learning environment for everyone. I understand that if I do not follow all the rules and safety precautions, I will not be allowed to participate in science activities.

Student Signature: _____ Date: _____