

Polson Middle School

Science

Madison Public School Long-Term Science Goals:

Students will be able to independently use their learning to:

- Use the scientific process to investigate authentic problems and significant questions.
- Use scientific inquiry to solve real world problems and issues.
- Analyze and interpret quantitative and qualitative data in order to represent relationships between variables in appropriate formats.
- Evaluate scientific claims by analyzing current issues involving science and technology.
- Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
- Explore ethical questions about the use of scientific knowledge and its impact on societies.
- Create models and simulations to explore complex systems, show mastery of key science concepts, and accomplish a specific objective.

Grade 7 Science

The middle school science program combines the development of logical, scientific thought process with the present day body of scientific theories, and terminology, combined with 21st Century Skills.

The seventh grade science curriculum utilizes observation, investigation, and experimentation as major modes of student driven learning. Students are encouraged to collaborate, research, develop and use different modalities to demonstrate their understanding of science concepts. Teachers incorporate elements of constructivist philosophy as well as hands-on inquiry-based instructional strategies to guide students towards their learning goals.

The science curriculum is broken-up into several units of study:

Timeline	Unit Title
Entire school year	<u>Core Scientific Inquiry, Literacy, and Numeracy</u> Use data and research evidence to reach conclusions. Read, write, and search for scientific information Use of mathematic operations to analyze and interpret data
September/October	<u>Human Body Unit</u> Circulation Respiration Excretion Homeostasis
November/December	<u>Geology Unit</u> Earth's Layers Plate Tectonics Changing Earth's Surface Rocks and Minerals Weathering Erosion Glaciation

January/February	<u>Connecticut Water Resources</u> Water Distribution River Systems Watersheds Surface and Ground Water Water Quality Pollution
March/April	<u>Forces and Motion</u> Newton's Laws of Motion Speed and Acceleration Gravity Friction Forces
May	<u>Work and Machines</u> Work Power Simple Machines Mechanical Advantage Energy
June	<u>Structures (Bridges)</u> Types of Bridges Bridge Design Engineering

Grade 8 Science

The middle school science program combines the development of logical, scientific thought process with the present day body of scientific theories, and terminology, combined with 21st Century Skills.

The eighth grade science curriculum utilizes observation, investigation, and experimentation as major modes of student driven learning. Students are encouraged to collaborate, research, develop and use different modalities to demonstrate their understanding of science concepts. Teachers incorporate elements of constructivist philosophy as well as hands-on inquiry-based instructional strategies to guide students towards their learning goals.

The science curriculum is broken-up into several units of study:

Timeline	Unit Title and Sub-topics
September, October	<u>Astronomy</u> Gravity and Inertia Earth's Place in Space (seasons, rotation, revolution, solstices, and equinoxes) Moon Phases, Eclipses, and Tides
October, November, December	<u>Chemistry:</u> Atomic Structure Understanding how to use the Periodic Table Chemical Compounds and Bonding Physical/Chemical Changes Chemical Reactions (balancing equations, identifying reactions) Acids and Bases
December, January	<u>Life Processes I</u> Cell Structure and function Cell Chemistry and Processes Life Processes/functions of living things

January, February	<u>Genetics:</u> Cell Division/Reproduction Principles of inheritance Reading pedigree charts Using Punnett Squares
February, March	<u>Life Processes II:</u> Chemistry of Life (Organic Chemistry) Structure and function of the Digestive System Structure and function of the nervous system (eye and ear review)
March, April	<u>Electricity and Magnetism:</u> Static Electricity Current Electricity (circuits) Power Sources (cells and batteries) Magnetism Electromagnetism
April, May	<u>Waves, Light, and Sound:</u> Physics of waves Properties of Light (electromagnetic spectrum) Properties and behavior of Sound
June	<u>Forensic Sciences:</u> Crime scene processing Cold case processing (forensic artists) Eyewitness accounts/testimony