



Wood River Middle School

6th Grade Science

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I. Course Description:

Students will develop skills in the areas of scientific inquiry, data analysis, and communication of scientific concepts. (Please see table in last section for specific units.)

6th Grade Science Units of Study

Unit Title	Key Concept	Learning Outcomes	Summative Assessment
<i>The Working Scientist</i>	Systems	Tools, skills, and systems are used to answer questions, and test and communicate ideas.	The students will: a) investigate various fields of science and create a presentation teaching others about the work specific to one field. b) investigate the properties of a mystery substance and design a spaceship that can land on it staying within the limits of its properties.
<i>May the Force Be With You</i> (Force and Motion)	Change	Many types of forces exist that can cause change.	Using the scientific method students will conduct experiments to determine the best design of equipment or use of motion to improve the chances of winning an Olympic event.
<i>What's the Matter?</i>	Identity	Substances are made from different types of atoms. Properties of these elements determine their function. Matter can go through physical and chemical changes.	Students will investigate the properties of elements used for manufactured products. They will create a presentation communicating how and why these elements are useful for specific functions in manufactured materials.
<i>Power to the People</i> (Alternative Energy)	Relationships	Since fossil fuels are nonrenewable, scientists are developing alternative, sustainable forms of energy such as solar, wind, nuclear, hydro-electric, and geothermal power.	Students will research alternative forms of energy and develop a presentation to persuade a local city council to use a specific form of alternative energy suitable for their geographical location.

Curriculum and instruction are supported by the fundamental concepts of the IB Middle Years Programme: **intercultural awareness, holistic learning, and communication.**

Students are expected to strive to develop the following student character traits:

Inquirers

Open-minded

Knowledgeable

Caring

Thinkers

Risk-takers

Communicators

Balanced

Principled

Reflective

II. Aims & Objectives:

By the end of 6th grade, students should be able to, with guidance:

- comment on the ways in which science can be used to solve problems in life, society, and the world.
- use scientific language accurately and effectively.
- communicate scientific concepts using visual and oral formats.
- provide explanations, solve problems, and analyze information using scientific skills.
- conduct research, form hypotheses, collect and analyze data, carry out investigations, and construct scientific explanations.
- work effectively as individuals and as part of a group.

III. Key Concepts:

Science will be explored through at least three broad Key Concepts throughout the year that provide a framework for the sciences:

- **Change** - A conversion/shift/movement from one state to another. Exploring change allows students to examine forces that shape the world: past, present and future.
- **Relationships** - Allow students to identify and understand the connections and associations between properties, forces, objects, people and ideas, including the human community's connection with the worlds in which we live.
- **Systems** - Sets of interacting or interdependent components. Everything in the known universe is a component of a system and generally also a part of multiple interacting and interdependent systems. Systems provide structure and order in both natural and human environments.

IV. Global Contexts:

Science will offer students multiple opportunities to explore concepts within six Global Contexts which direct learning toward independent and shared inquiry into our common humanity and shared guardianship of the planet.

- identities and relationships
- orientation in time and space
- personal and cultural expression
- scientific and technical innovation
- globalization and sustainability
- fairness and development

IV. Texts & Resources:

- Houghton Mifflin *Science*, Grade 6
- Smithsonian Institute/Carolina Labs Resource Kits
- Interact "Roller Coaster" Simulation Guide and materials
- "Elements and the Periodic Table" Science Activity Book, Mark Twain Media Publishing Co.

V. Methodology:

- Students will be exposed to various methods of instruction, including reading and discussing content material, group and individual projects, teacher demonstrations, and hands-on scientific investigations.

VI. Methods of Assessment/Grading Policy:

- Assessments (Quizzes, Tests, Projects): 60%
- Daily Work and Homework: 40%