

Middle Country Central School District

Science Department

The Middle Country Central School District Science Department curriculum is aligned with the **NYS P-12 Science Learning Standards**. The standards emphasize the importance of student engagement with natural scientific phenomena and are grounded in the three dimensions of learning: Science and Engineering Practices, Disciplinary Core Ideas, and Cross Cutting Concepts. The science department aims to prepare students for college and careers through inquiry-based instruction, including research opportunities. Students advance 21st century science skills through abstract reasoning, collaboration, and technology in a dynamic learning environment.

Elementary Science

The elementary science program is designed to build the foundation that serves as the base for learning as a developmental progression. Students activate their curiosity and continually build on and revise their knowledge and abilities as they advance towards a

	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
	The Nature of Science					
Earth Science	Weather & Climate	The Universe	Processes that Shape the Earth	Weather & Climate	Processes that Shape the Earth	Earth's Major Systems Space Systems
Life Science	Living Things: Plants & Animals	Living Things: Plants & Animals	Exploring Plants & Trees Relationships in Ecosystems: Plants & Animals	Life Cycles & Traits: Insects & Birds	The Living Environment: Plants & Animals	Ecology & Ecosystems
Physical Science	Forces: Push & Pull States of Matter: Water Exploration	Waves: Light & Sound	States of Matter	Forces & Interactions: Magnets & Electricity	Density & Buoyancy Design Technology	Properties of Matter

Middle School Science

Grade 6	Grade 7	Grade 8
The Nature of Science Earth Science <ul style="list-style-type: none"> ▪ Weather & Climate ▪ Plate Tectonics ▪ Rocks & Minerals ▪ Surface Processes ▪ Space Systems Physical Science: Chemistry <ul style="list-style-type: none"> ▪ States of Matter ▪ Periodic Table ▪ Chemical Reactions 	The Nature of Science Physical Science: Physics <ul style="list-style-type: none"> ▪ Forces & Interactions ▪ Energy ▪ Waves & Electromagnetic Radiation ▪ Electricity & Magnetism Life Science <ul style="list-style-type: none"> ▪ Biochemistry ▪ Cells ▪ Body Systems ▪ Ecology: Cycles of Matter ▪ Ecology: Energy Transfer 	Regents Living Environment <ul style="list-style-type: none"> ▪ Scientific Method ▪ Classification ▪ Biochemistry ▪ Cells ▪ Transport ▪ Cellular Respiration & Photosynthesis ▪ Cellular Reproduction ▪ Genetics ▪ Evolution ▪ Ecology ▪ Body Systems ▪ Human Reproduction

High School Science

The high school science curriculum is designed to Students have access to three additional Regents exams in science: Earth Science, Chemistry, and Physics. In order to earn a Regents diploma with advanced designation, students must pass one of these additional physical science assessments in addition to the Living Environment Regents.

Earth Science	Chemistry	Physics
Earth Measurement Astronomy Insolation & The Seasons Meteorology Climate Surface Processes Rocks & Minerals The Dynamic Crust Earth's History	Measurement Lab Equipment & Safety Matter & Change Atomic Structure Periodic Table Ionic & Metallic Bonding Covalent Bonding Chemical Names & Formulas Chemical Reactions Chemical Quantities Stoichiometry States of Matter Behavior of Gases Solutions Thermochemistry Kinetics & Equilibrium Acid, Base, Salt Redox & Electrochemistry Organic Chemistry Nuclear Chemistry	Kinematics Dynamics Projectile Motion Momentum Work, Power, Energy Electricity & Magnetism Waves Modern Physics

In addition, the science department offers a variety of electives and advanced placement courses.

Electives		AP Classes
Astronomy	Marine Studies	AP Biology
College Science Research	Meteorology	AP Chemistry
Environmental Studies	Oceanography	AP Environmental Science
Forensic Science	Paleontology	AP Physics C: Mechanics
Intro to Anatomy & Physiology	Science Research	AP Research
Intro to Veterinary Science	Science Research 2H	

Resources

Standards

- New York State Science Learning Standards (<http://www.nysed.gov/curriculum-instruction/science-learning-standards>)
- Appendix E – Progressions Within the Next Generation Science Standards (<https://www.nextgenscience.org/sites/default/files/resource/files/AppendixE-ProgressionswithinNGSS-061617.pdf>)
- Appendix F – Science and Engineering Practices in the NGSS (<https://www.nextgenscience.org/sites/default/files/Appendix%20F%20%20Science%20and%20Engineering%20Practices%20in%20the%20NGSS%20-%20FINAL%20060513.pdf>)
- AP Curriculum Frameworks (<https://apcentral.collegeboard.org/courses>)

Testing

- Grade 4 Elementary-Level Science Test (<https://www.nysedregents.org/grade4/science/home.html>)
- Past Regents Exams (https://www.nysedregents.org/regents_sci.html)
- Science Reference Tables for Regents Courses (<http://www.p12.nysed.gov/assessment/reftable/home.html>)

Content Support

- Khan Academy (<https://www.khanacademy.org/>)