

Robert C. Parker School
Science Curriculum
K - 5

As children explore the world around them, they gain a deeper understanding and appreciation for the interconnections in nature and science. They begin to learn about conservation and activism. Our seventy-seven acres of meadows, woodlands, wetlands, and creeks are a natural workshop for science observation and discovery. Science studies are supported with field trips to museums and local nature sites, including in beginning in grade 4-5 an annual trip to Camp Chingachgook on Lake George. Cornell Cooperative Extension's Demonstration Gardens on our property provide an accessible resource. Students practice conservation through a recycling program coordinated by middle school students, composting in their classroom, monitoring energy use, and by collecting data from our solar panels. Students and teachers use our student-built greenhouse and raised-bed vegetable gardens to grow vegetables for a local food pantry.

In grades K – 5, students' scientific inquiry is closely connected with social studies essential questions and is integrated with language arts, math, art, and health. Students explore observable science through hands-on activities and move towards more abstract concepts as they mature. Activities focus on students asking and answering their own questions based on their own observations. Use of scientific tools, development of skills, and experiences with research are built into the science program.

K-1

Year 1

Big Questions: What do we need to live?

How does where we live affect how we live?

Science Explorations:

- Nature observations and drawings
- Principles of Life (what life needs)- Living versus non-living
- Energy Resources, Recycling, and Conservation
- Animal Homes and Habitats- Forest, Field and Stream
- Food Webs- Herbivore, Carnivore, Omnivore
- Winter- Snow and Snowflakes
- Animal Study – Native birds –Characteristics, Types, Songs, Eggs, Nests
- Motions of the Earth
- Plant Life Cycle – observations and experimentations in our garden
- Seasons / Weather (all year)
- Sonoran Desert- plants, animals, layers, climate

Year 2

Big Questions: How are we different? How are we the same?

Science Explorations:

- Nature observations and drawings
- The Five Senses
- Animal Life Cycle – Butterflies and Moths
- Seasonal Cycle and Weather

- Water and the Water Cycle
- Motion
- Energy- Sound and Light investigations
- Energy resources and conservation
- Earth Study- Rocks (Sedimentary and Igneous) & minerals
- African plants, animals, and climate
- Plant Life Cycle – observations and experimentations in our garden

Science in Health Class: Body Systems - Circulation, Skeletal, and Muscular

2-3

Year 1

Big Questions: How does water become the wellspring of life?

How and why do people live near water?

How does the river affect people? How do people affect the river?

Science Explorations:

- Rivers- What is a river?
- Data collection at the Hudson River and school creek, understanding pH, turbidity, salinity, chlorophyll, dissolved oxygen, and estuaries
- Erosion – How are rivers made?
- Water Cycle- How does the water get from one place to the next?
- Animal and Habitat Study: Hudson River Estuary – What and how do animals live at the borders of fresh and salt water? Food chains and webs
- Human Impact: What effects have people had on the Hudson River?
- Alternative Energy- What are the effects of oil spills? What are our alternatives? Water mills design and build and hydroelectricity
- Force, motion, friction experimentations
- Weather- What is weather? How do we measure the weather here? Ganges River: How do other cultures use and perceive their rivers? A comparison study of Geography, Environment, Animals and Ecology
- Gardening- Indian Spice Garden
- Human impact and climate- advocacy and action

Year 2

Big Questions: How has our landscape and biota changed over the millennia? How did people in Albany or Troy live long ago and today compared to people in China?

Science Explorations:

- Science investigations- How do scientists experiment and communicate ideas?
- Comparing Urban Rural and Suburban Environments and Ecology
- How does landscape influence society?
- What creatures and plants existed here in the past?
- Fossils- What do we know about ancient life?
- Dinosaurs and other extinct creatures- Physiology and habitats
- Prehistoric climates and biota – How have they changed over time?
- Geologic Time

- Plate Tectonics- What did the earth look like long ago and why did it change?
- Magnets- What is magnetism and how do we use it?
- Buoyancy, sinking and floating- How can I make a loaded boat float? Move?
- Ancient Chinese Inventions and Discoveries and Astronomy
- Environmental issues in the U.S. and in China
- Garden Project- Modeling a Chinese garden

Science in Health class:

- Anatomy/ Physiology
- Body Systems
- Human Life Cycle
- Body Comparisons
- Exercise Science
- Energy Systems: Aerobic/Anaerobic

4-5

Year 1

Big Question: How do organisms adapt to and rely on their environment?

Science Explorations:

- NYS local forests- What makes up our forests? Forest Food Webs, Tree studies, nutrient cycling, creating a Field Guide to Parker Trees
- Plant experiments- Creating controlled experiments to test plant and environment interactions
- Bird Sleuth and Animal Adaptations- What physical and behavioral characteristics help animals survive in their local environments?
- Energy Resources- Natural resource consumption, Carbon Cycle, Alternative Energy, Global Climate Change designing educational presentations
- Wind Turbines- Design, build, test blade variables, evaluation, How do Wind Turbines affect the local environment?
- Garden Project- Local Foods
- South and Central American Bioregions- How are they similar and different to our bioregion?
- Astronomy- Constellations and celestial bodies

Year 2

Big Questions: How does energy move and impact us? How did we create environmental change? What was its effect?

Science Explorations:

- Honey Bees- Ecology, Physiology, and interrelationship with human society
- Field Research- bee patterns on the property
- Movement of the Earth and Seasons
- Energy- Electromagnetic, Chemical, Power from food, Solar energy use, Invent a solar cooker
- Alternative Energies- characteristics, pros, cons, and debate

- Energy- Mechanical - force and motion, simple machines
- Animal/Plant Migration
- Garden Project- Pioneers' gardens
- Invasive and Exotic Species- What are they and how do they influence our local environment? Research a species project, Crow debate

Science in Health class:

- Anatomy/ Physiology
- Body Systems
- Human Life Cycle
- Body Comparisons
- Exercise Science
- Energy Systems: Aerobic/Anaerobic