**Clean Shore Corps-**

Kindergarten, Unit 2-

**NYS Science Standards**

**Major Understandings:**

Quoted from New York State Performance Indicators: (PS 3.1b-g)

■■ Matter has properties that can be observed through the senses. (3.1b)

■■ Objects have properties that can be observed, described, and/or measured: length, width, volume, size, shape, mass or weight, temperature, texture, flexibility, reflectiveness of light. (3.1c)

**NGSS Cross-Cutting Standards**

**Patterns:**

Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

■■ Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.

**Cause and Effect: Mechanism and Prediction:**

Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.

■■ Events have causes that generate observable patterns.

■■ Simple tests can be designed to gather evidence to support or refute student ideas about causes.

Unit 3

**Environmental Guidelines for Learning**

**Strand 1: Questioning, Analysis, and Interpretation Skills**

■■ Guideline E—Organizing information—Learners are able to describe data and organize information to search for relationships and patterns concerning the environment and environmental topics.

First Grade, Unit 2-

**NGSS Cross-cutting**

**Cause and Effect: Mechanism and Prediction:**

* Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.
* Events have causes that generate observable patterns.
* Simple tests can be designed to gather evidence to support or refute student ideas about causes.

**NYS Science Standards**

Water is recycled by natural processes on Earth. **(2.1c)**

— evaporation: changing of water (liquid) into water vapor (gas)

— condensation: changing of water vapor (gas) into water (liquid)

— precipitation: rain, sleet, snow, hail

Unit 3-

**Environmental Guidelines for Learning**

**Strand 1: Questioning, Analysis, and Interpretation Skills**

* Guideline C—Collecting information—Learners are able to locate and collect information about the environment and environmental topics.
* Guideline F—Working with models and simulations—Learners understand that relationships, patterns, and processes can be represented by models.

**Strand 2: Knowledge of Environmental Processes and Systems**

**Strand 2.4: Environment and Society**

* Guideline A—Human/environment interactions—Learners understand that people depend on, change, and are affected by the environment.

Grade 2, Unit 2

**NYS Science Standards**

■The position of an object can be described by locating it relative to another object or the background. (5.1a)

■■Describe the effects of common forces (pushes and pulls) of objects, such as those caused by gravity, magnetism and mechanical forces. (5.1)

■■The position or direction of motion of an object can be changed by pushing or pulling. (5.1b

Grade 3, Unit 2

**NYS Science Standards**

■Energy can be transferred from one place to another. (4.1b)

■■Some materials transfer energy better than others (heat and electricity). (4.1c)

■■Energy and matter interact: water is evaporated by the Sun’s heat; a bulb is lighted by means of electrical current; a musical instrument is played to produce sound; dark colors may absorb light, light colors may reflect light. (4.1d)

**NGSS Cross-Cutting Standards**

**Energy and Matter: Flows, Cycles, and Conservation:** Tracking energy and matter flows into, out of, and within systems helps one understand their system’s behavior.

**Environmental Guidelines for Learning**

**Strand 1: Questioning, Analysis, and Interpretation Skills**

■■Guideline A—Questioning—Learners are able to develop questions that help them learn about the environment and do simple investigations.

■■Guideline B—Designing investigations—Learners are able to design simple investigations.

■■Guideline C—Collecting information—Learners are able to locate and collect information about the environment and environmental topics.

■■Guideline D—Evaluating accuracy and reliability—Learners understand the need to use reliable information to answer their questions. They are familiar with some basic factors to consider in judging the merits of information.

■■Guideline E—Organizing information—Learners are able to describe data and organize information to search for relationships and patterns concerning the environment and environmental topics.

■■Guideline F—Working with models and simulations—Learners understand that relationships, patterns, and processes can be represented by models.

■■Guideline G—Drawing conclusions and developing explanations—Learners can develop simple explanations that address their questions about the environment**.**

**Strand 2.4: Environment and Society**

■■Guideline A—Human/environment interactions—Learners understand that people depend on, change, and are affected by the environment.

■■Guideline C—Resources—Learners understand the basic concepts of resource and resource distribution.

■■Guideline E—Environmental issues—Learners are familiar with some local environmental issues and understand that people in other places experience environmental issues as well.

Unit 3

**NYS Science Standards**

**Major Understandings:** Quoted from New York State Performance Indicators (PS: 5.1b-d, f)

■■Mechanical energy may cause change in motion through the application of force and through the use of simple machines such as pulleys, levers, and inclined planes. (5.1f )

■■The amount of change in the motion of an object is affected by friction. (5.1d)

■■The position or direction of motion of an object can be changed by pushing or pulling. (5.1b)

■■The force of gravity pulls objects toward the center of Earth. (5.1c)

**NGSS Cross-Cutting Standards**

**Scale, Proportion, and Quantity:**

In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.

■■Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods.

■■Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.

**Environmental Guidelines for Learning**

**Strand 4: Personal and Civic Responsibility**

■■Guideline A—Understanding societal values and principles – Learners can identify fundamental principles of U.S. society and explain their importance in the context of environmental issues.

■■Guideline D—Accepting personal responsibility—Learners understand that they have responsibility for the effects of their actions.

Grade 4, Unit 1

**NYS Science Standards**

■Over time humans have changed their environment by cultivating crops and raising animals, creating shelter, using energy, manufacturing goods, developing means of transportation, changing populations, and carrying out other activities. (7.1b)

■■Humans, as individuals or communities, change environments in ways that can be either helpful or harmful for themselves and other organisms. (7.1c)

Unit 3

**NYS Science Standards**

■Water is recycled by natural processes on Earth. (2.1c)

— evaporation: changing of water (liquid) into water vapor (gas)

— condensation: changing of water vapor (gas) into water (liquid)

— precipitation: rain, sleet, snow, hail

— runoff: water flowing on Earth’s surface

— groundwater: water that moves downward into the ground

**MST Standards**

**Key Idea 5:** Identifying patterns of change is necessary for making predictions about future behavior and conditions.

**Key Idea 6:** In order to arrive at the best solution that meets criteria within constraints, it is often necessary to make trade-offs.

Unit 4-

**Environmental Guidelines for Learning**

**Strand 3.2:** Decision-Making and Citizenship Skills

■■ Guideline A—Forming and evaluating personal views—Learners are able to examine and express their own views on environmental issues.

■■ Guideline B—Evaluating the need for citizen action—Learners are able to think critically about whether they believe action is needed in particular situations and whether they believe they should be involved.

■■ Guideline C—Planning and taking action—By participating in issues of their choosing—mostly close to home—they learn the basics of individual and collective action.

■■ Guideline D—Evaluating the results of actions—Learners understand that civic actions have consequences

**Common Core Standards**

**SL.4.1:** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on Grade 4 topics and texts, building on others’ ideas and expressing their own clearly.

**SL.4.3:** Identify the reasons and evidence a speaker provides to support particular points.

Grade 5, Unit 1

**MST Standards**

**Standard 2: Information Systems**

**Key Idea 1**: Information technology is used to retrieve process and communicate information as a tool to enhance learning.

**NGSS Cross-Cutting Standards**

**Cause and Effect: Mechanism and Prediction:**

Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.

■■ Cause and effect relationships are routinely identified, tested, and used to explain change.

■■ Events that occur together with regularity might or might not be a cause and effect relationship.

Grade 6, Unit 1

**NYS Science Standards**

Most substances expand when heated and contract when cooled. Water is an exception, expanding when changing to ice. (4.2d)

■■ Energy cannot be created or destroyed, but only changed from one form into another. (4.5a)

■■ Energy can change from one form to another, although in the process some energy is always converted into heat. Some systems transform energy with less loss of heat than others. (4.5b)

■■ The Sun is the major source of energy for Earth. Other sources of energy include nuclear and geothermal energy. (4.1a)

Unit 4

**NYS Science Standards**

**Major Understandings:**

■■ Climate is the characteristic weather that prevails from season to season and year to year. (PS 2.2i)

■■ The tilt of Earth’s axis of rotation and the revolution of Earth around the Sun cause seasons on Earth. The length of daylight varies depending on latitude and longitude. (PS 1.1i)

Grade 8, Unit 4

**NYS Science Standards**

■■ The environment may contain dangerous levels of substances (pollutants) that are harmful to organisms. Therefore, the good health of environments and individuals requires the monitoring of soil, air, and water, and taking steps to keep them safe. (7.1e)

■■ The environment may be altered through the activities of organisms. Alterations are sometimes abrupt. Some species may replace other over time, resulting in longterm gradual changes (ecological succession). (7.2b)

■■ Overpopulation by any species impacts the environment due to the increased use of resources. Human activities can bring about environmental degradation through resource acquisition, urban growth, land-use decisions, waste disposal, etc. (7.2c)

■■ Since the Industrial Revolution, human activities have resulted in major pollution of air, water, and soil. Pollution has cumulative ecological effects such as acid rain, global warming, or ozone depletion. The survival of living things on our planet depends on the conservation and protection of Earth’s resources. (7.2d)

**Environmental Guidelines for Learning**

**Strand 2.2—The Living Environment**

■■ Guideline A—Organisms, populations, and communities—Learners understand that biotic communities are made up of plants and animals that are adapted to live in particular environments.

■■ Guideline C—Systems and connections—Learners understand major kinds of interactions among organisms or populations of organisms.

■■ Guideline D—Flow of matter and energy—Learners understand how energy and matter flow among the abiotic and biotic components of the environment.

**Strand 2.3—Humans and Their Societies**

■■ Guideline A—Individuals and groups—Learners understand that how individuals perceive the environment is influenced in part by individual traits and group membership or affiliation.

■■ Guideline D—Global connections—Learners become familiar with ways in which the world’s environmental, social, economic, cultural, and political systems are linked.

■■ Guideline E—Change and conflict—Learners understand that human social systems change over time and that conflicts sometimes arise over differing and changing viewpoints about the environment.

**Strand 2.4—Environment and Society**

■■ Guideline A—Human/environment interactions—Learners understand that human caused changes have consequences for the immediate environment as well as for other places and future times.

■■ Guideline B—Places—Learners begin to explore the meaning of places both close to home and around the world.

■■ Guideline C—Resources—Learners understand that uneven distribution of resources influences their use and perceived value.

■■ Guideline D—Technology—Learners understand the human ability to shape and control the environment as a function of the capacities for creating knowledge and developing new technologies.

■■ Guideline E—Environmental issues—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that people in other places around the world experience environmental issues similar to the ones they are concerned about locally.

ES Unit 4

**NYS Science Standards**

**Major Understandings:**

■■ Earth has continuously been recycling water since the outgassing of water early in its history. This constant recirculation of water at and near Earth’s surface is described by the hydrologic (water) cycle. (1.2g)

■■ Wave Action: Erosion and deposition cause changes in shoreline features, including beaches, sandbars, and barrier islands. Wave action rounds sediments as a result of abrasion. Waves approaching a shoreline move sand parallel to the shore within the zone of breaking waves.

■■ Wind: Erosion of sediments by wind is most common in arid climates and along shorelines. Wind-generated features include dunes and sand-blasted bedrock.

■■ Mass Movement: Earth materials move downslope under the influence of gravity.

■■ Approximately 70 percent of Earth’s surface is covered by a relatively thin layer of water, which responds to the gravitational attraction of the moon and the Sun with a daily cycle of high and low tides. (1.1i)

**Environmental Guidelines for Learning**

**Strand 2.4: Environment and Society**

■■ Guideline A—Human/environment interactions— Learners understand that humans are able to alter the physical environment to meet their needs and that there are limits to the ability of the environment to absorb impacts or meet human needs.

■■ Guideline B—Places—Learners understand “place” as humans endowing a particular part of the Earth with meaning through their interactions with that environment.

■■ Guideline E—Environmental issues—Learners are familiar with a range of environmental issues at scales that range from local to national to global. They understand that these scales and issues are often linked