

# SCHOOL DISTRICT OF THE CHATHAMS

## Science Kindergarten Full Year

### Course Overview

This course provides students with a comprehensive understanding of patterns and variations in local weather and the use of weather forecasting to prepare for and respond to severe weather. Students apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution. Kindergarten students also apply an understanding of the effects of the sun on the Earth's surface. The students develop an understanding of what plants and animals need to survive and the relationship between their needs and where they live. Students compare and contrast what plants and animals need to survive and the relationship between the needs of living things and where they live. Students are expected to demonstrate grade-appropriate proficiency in asking questions, developing and using models; planning and carrying out investigations; analyzing and interpreting data; designing solutions; engaging in argument from evidence. Students are also expected to use these practices to demonstrate an understanding of the core ideas.

### New Jersey Student Learning Standards

*The New Jersey Student Learning Standards (NJSLS) can be located at [www.nj.gov/education/cccs/2020/](http://www.nj.gov/education/cccs/2020/).*

#### Physical Science

K-PS2-1. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.

K-PS2-2. Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.

K-PS3-1. Make observations to determine the effect of sunlight on Earth's surface.

K-PS3-2. Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.

#### Life Science

K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.

#### Earth & Space Science

K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time.

K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.

K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

## **Technology Standards**

9.4.2.IML.2: Represent data in a visual format to tell a story about the data

9.4.2.IML.3: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults

9.4.2.TL.2: Create a document using a word processing application.

## **21st Century Integration | NJSL 9**

9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated with each job.

## **Career Ready Practices**

CRP2. Apply appropriate academic and technical skills.

CRP4. Communicate clearly and effectively and with reason.

CRP6. Demonstrate creativity and innovation

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

CRP11. Use technology to enhance productivity.

## **Interdisciplinary Connections**

### **English Language Arts**

Reading Literature:

- RI.K.1 With prompting and support, ask and answer questions about key details in a text.

Writing:

- W.K.1 Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book.
- W.K.2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.
- W.K.7 Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).

Speaking and Listening:

- SL.K.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
- SL.K.5 Add drawings or other visual displays to descriptions as desired to provide additional detail.

### **Mathematics**

- K.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
- K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/”less of” the attribute, and describe the difference.
- K.MD.B.3 Classify objects into given categories; count the number of objects in each category and sort the categories by count.

<b>Units of Study</b>
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Unit 1: Weather and Climate (~25 days)

- What types of patterns can be observed in local weather conditions?
- How does weather forecasting help us to prepare for and respond to severe weather?

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- How does sunlight affect the playground?

#### Unit 2: Relationships in Ecosystems (~25 days)

- How can you tell if something is alive?
- What do animals and plants need to survive?
- Where do organisms live and why do they live there?
- How can people live comfortably without affecting the world around them?

#### Unit 3: Forces and Interactions: Pushes and Pulls (~25 days)

- How can you change the strength of a push or pull?
- How can you design a simple way to change the speed or direction of an object using a push or pull from another object?

<h3>Learning Objectives/Discipline Standards of Practice</h3>
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#### Learning Objectives:

##### Physical Science

- Objects need a push or a pull to move
- Force is a push or pull
- A Force can move an object faster or slower
- Forces can change the speed and direction of an object

##### Life Science

- What it means to be alive
- Animals and plants need certain abiotic factors to be present in order to thrive
- Organisms choose a place to live that meets their needs
- The needs of an organism varies by species
- People can affect the environment with everyday habits

##### Earth Science

- Weather is the combination of sunlight, wind, snow, or rain and temperature in a particular region at a particular time.
- People measure these conditions to describe and record the weather and to notice patterns over time.

#### Discipline Standards of Practice:

##### Science and Engineering Practices

- Plan and Carryout and Investigation
- Asking Questions and Defining Problems
- Analyzing and Interpreting Data
- Developing and Using Models
- Constructing Explanations and Designing Solutions
- Obtaining, Evaluating, and Communicating Information
- Engaging In Argument From Evidence

##### Crosscutting Concepts

- Patterns
- Cause and Effect
- Interdependence of Science, Engineering, and Technology
- Influence of Engineering, Technology, and Science on Society and the Natural World
- System and System Models

## **Instructional Resources and Materials**

*Whole class resources have been identified with an asterisk.*

### **Resources:**

Specific Lessons from:

- Picture-Perfect Science by Karen Ansberry and Emily Morgan\*
- More Picture-Perfect Science by Karen Ansberry and Emily Morgan\*
- Even More Picture-Perfect Science by Karen Ansberry and Emily Morgan\*
- Generation Genius\*

### **Materials**

- Science Journals

## **Assessment Strategies**

*Assessment is designed to measure a student's mastery of a course standard and learning objective.*

*Assessment can be used for both instructional purposes (formative assessment) and for evaluative purposes (summative assessment).*

The following is a general list of the many forms assessment may take in learning.

- Science Journals
- Investigations
- Class discussions