

**Toms River Science Curriculum**

Board Approved: April 2016

**Course:** Earth and Space Science  
**Grade Level:** Kindergarten

**Title of Unit:** Weather and Climate

**Stage 1 - Desired Results**

**Understandings:**

*Students will understand that.....*

- Weather forecasting is important to prepare for and respond to severe weather
- Structures including umbrellas, canopies, and tents minimize the warming effect of the sun
- Weather has different patterns (ex. cooler in the mornings)
- The temperature of Earth's surface (sand, soil, rocks, and water) can be warmer or cooler in relation to the sun's effect
- There are different types of weather (sunny, windy, rainy, snowy) and quantify the number of each in a month.
- A structure can reduce the warming effect of sunlight on an area

**Essential Questions:**

- What is the weather like today and how is it different from yesterday?
- What are the weather patterns in local weather?
- What is the purpose of forecasting the weather?
- How do you protect yourself in severe weather?

**Knowledge:**

*Students will know.....*

- Weather is the combination of sunlight, wind, snow and rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and notice patterns over time.
- Some kinds of weather severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that communities can prepare for and respond to these events.
- Sunlight warms Earth's surfaces

**Skills:**

*Students will be able to.....*

- Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather
- Make observations to determine the effects of sunlight on Earth's surfaces.
- Use and share observations of local weather conditions to describe patterns over time
- Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.

**Standards:** (Note: Include reference to relevant standards in the Core Content Area as well as technology and 21<sup>st</sup>-century life and careers.)

**NGSS:**

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.

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.

**CCSS:**

- ELA:

RI.K.c

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).

SL.K.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

- Mathematics:

SMP.2 Reason abstractly and quantitatively.

SMP.4 Model with mathematics.

K.CC.A1 Count to 100 by ones and by tens.

K.CC.A2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1).

K.MD.B3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

**Stage 2- Assessment Evidence:**

**Performance Tasks and other evidence:**

- probes
- observation and documentation

**Stage 3 – Learning Plan**

**Learning Activities:**

- Weather and Temperature (see binder)
- What melts in the sun?:<http://frugalfun4boys.com/2015/06/11/simple-science-experiment-for-kids-what-melts-in-the-sun/>
- Water and Weather (see binder)

- Learning About Weather Science
- Experiments: <http://www.fantasticfunandlearning.com/learning-about-weather-science-experiments.html>
- What Do Plants and Animals Need?-(see binder)

**Notes:** Indicate any special considerations as well as materials, resources (online, print, video, audio) or equipment.

- Assessment of temperature is limited to relative measures such as warmer/cooler.
- Assessment of quantitative observations limited to whole numbers and relative measures such as warmer/cooler.

**\*\*Teachers can expose students to the above terms, but these terms do not have to be unit key words as these terms will be introduced for mastery in Grade 3**

Technology based activity/games:

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Lesson resources:

- Scholastic Windowsill Science Centers by Lynne Kepler--Shades of Green p 18, The Sun's Warm Rays p 49,
- Make Snow-<http://playtivities.com/how-to-make-snow/>
- Integrated Theme Units--Weather--Scholastic-see binder
- [www.gynzy.com](http://www.gynzy.com)- Morning Routines-Weather-Graph for recording different types of weather on a daily basis
- Thunderstorm Safety-Billy, Maria and the Thunderstorm-(See Binder) [https://drive.google.com/file/d/1MrUUJ2tNw7aEOc98nw2YJ\\_N03las4TbHJDe7MzNJvuQiy-ExyB0UQoSwgsgRoMiGqbg8m50Ajqdcoc-A/view?usp=sharing](https://drive.google.com/file/d/1MrUUJ2tNw7aEOc98nw2YJ_N03las4TbHJDe7MzNJvuQiy-ExyB0UQoSwgsgRoMiGqbg8m50Ajqdcoc-A/view?usp=sharing)
- Our Sun Warms Interactive Notebook:<https://drive.google.com/a/trschools.com/file/d/0B7HaLgjTuus6RGRmSINTUFBSUmC/view?usp=sharing>
- Weather Patterns Interactive Notebook:<https://drive.google.com/a/trschools.com/file/d/0B7HaLgjTuus6Sjk4WE54WTN0UmM/view?usp=sharing>
- Wonders Unit 6- Day 4 weeks 1-3
  - Teacher manual page 53 Seasons chart
  - Teacher manual 135 wind chart
  - Teacher manual 217 Create a safety booklet

Modifications: (ELLs, Special Education, Gifted and Talented)

- \* Follow all IEP modifications/504 plan
- \* Teacher tutoring
- \* Peer tutoring
- \* Cooperative learning groups
- \* Modified assignments
- \* Differentiated instruction

Presentation accommodations allow a student to:

- \* Listen to audio recordings instead of reading text
- \* Learn content from audiobooks, movies, videos and digital media instead of reading print versions
- \* Work with fewer items per page or line and/or materials in a larger print size
- \* Have a designated reader
- \* Hear instructions orally
- \* Record a lesson, instead of taking notes
- \* Have another student share class notes with him
- \* Be given an outline of a lesson
- \* Use visual presentations of verbal material, such as word webs and visual organizers
- \* Be given a written list of instructions

Response accommodations allow a student to:

- \* Give responses in a form (oral or written) that's easier for him
- \* Dictate answers to a scribe
- \* Capture responses on an audio recorder
- \* Use a spelling dictionary or electronic spell-checker
- \* Use a word processor to type notes or give responses in class
- \* Use a calculator or table of "math facts"

Setting accommodations allow a student to:

- \* Work or take a test in a different setting, such as a quiet room with few distractions
- \* Sit where he learns best (for example, near the teacher)
- \* Use special lighting or acoustics
- \* Take a test in small group setting
- \* Use sensory tools such as an exercise band that can be looped around a chair's legs

so fidgety kids can kick it and quietly get their energy out (Analyze Data and develop an understanding of the effects of different directions of pushes and pulls on the motion of an object to determine if a design solution works as intended to change the speed or direction of an object with a push or pull)

Timing accommodations allow a student to:

- \* Take more time to complete a task or a test
- \* Have extra time to process oral information and directions
- \* Take frequent breaks, such as after completing a task

Scheduling accommodations allow a student to:

- \* Take more time to complete a project
- \* Take a test in several timed sessions or over several days
- \* Take sections of a test in a different order
- \* Take a test at a specific time of day

Organization skills accommodations allow a student to:

- \* Use an alarm to help with time management
- \* Mark texts with a highlighter
- \* Have help coordinating assignments in a book or planner
- \* Receive study skills instruction

Assignment modifications allow a student to:

- \* Complete fewer or different homework problems than peers
- \* Write shorter papers
- \* Answer fewer or different test questions
- \* Create alternate projects or assignments

Curriculum modifications allow a student to:

- \* Learn different material (such as continuing to work on multiplication while classmates move on to fractions)
- \* Get graded or assessed using a different standard than the one for classmates



<b>Courses:</b> Life Science <b>Grade Level:</b> Kindergarten	<b>Title of Unit:</b> Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment
<b>Stage 1 - Desired Results</b>	
<b>Understandings:</b> <i>Students will understand that.....</i> <ul style="list-style-type: none"> <li>● animals need to take in food but plants do not.</li> <li>● different types of food is needed by different types of animals.</li> <li>● plants need light.</li> <li>● all living things need water.</li> <li>● plants and animals change their environment according to their needs.</li> <li>● humans have an impact on their environment.</li> </ul>	<b>Essential Questions:</b> <ul style="list-style-type: none"> <li>● Where do animals live and why do they live there?</li> <li>● What do animals (including humans) need to survive?</li> <li>● What do plants need to survive?</li> <li>● How do plants and animals (including humans) interact with the environment to meet their needs?</li> <li>● What is the influence of humans on their environmental footprint?</li> </ul>
<b>Knowledge:</b> <i>Students will know.....</i> <ul style="list-style-type: none"> <li>● all animals need food in order to live and grow. They obtain their food from plants or from animals. Plants need water and light to live and grow.</li> <li>● plants and animals can change their environment.</li> <li>● actions that humans take to live comfortably can affect the world around them. However, people can make choices that reduce their impacts on the land, water, air, and other living things.</li> <li>● living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do.</li> </ul>	<b>Skills:</b> <i>Students will be able to.....</i> <ul style="list-style-type: none"> <li>● use observations to describe what plants and animals (including humans) need to survive, including the idea that animals need to take in food and plants do not.</li> <li>● communicate solutions using evidence from observations to explain how plants and animals (including humans) can change the environment to meet their needs.</li> <li>● use a model (ex. hands-on activity, mentor text, diagram, picture, student drawing) to represent the relationship between the needs of different plants or animals (including humans) and the places they live.</li> <li>● communicate solutions that will reduce the impact of humans on the land, water, air and/or other living things in the local environment.</li> </ul>

**Standards:****NGSS:**

- K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive.
- 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-ESS3-3 Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

**CCSS:**

- ELA:
  - RI.K.1 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.
  - 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 (e.g., *My favorite book is...*).
  - 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).
  - SL.K.5 Add drawings or other visual displays to descriptions as desired to provide additional detail.
- Math:
  - SMP.2 Reason abstractly and quantitatively.
  - SMP.4 Model with mathematics.
  - K.CC Counting and Cardinality
  - 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. *For example, directly compare the heights of two children and describe one child as taller/shorter.*

**Stage 2- Assessment Evidence:****Performance Tasks and other evidence:**

- Probes
- Teacher observation & documentation

**Stage 3 – Learning Plan****Learning Activities:**

- LORAX
  - ["Who Speaks for the Trees?" Project Learning Tree](https://www.plt.org/stuff/contentmgr/files/1/a6111bc3ec321c8cd2997198d9bd3c89/misc/plt_activities_with_the_lorax.pdf) [https://www.plt.org/stuff/contentmgr/files/1/a6111bc3ec321c8cd2997198d9bd3c89/misc/plt\\_activities\\_with\\_the\\_lorax.pdf](https://www.plt.org/stuff/contentmgr/files/1/a6111bc3ec321c8cd2997198d9bd3c89/misc/plt_activities_with_the_lorax.pdf)

- o Read *The Lorax* by Dr. Suess
- Watch We Sing video--"Under the Sea"
- Jack Johnson Video Clip, The Three R's - Reduce, Reuse, Recycle: <https://www.youtube.com/watch?v=wtoeZ9Nkeqk>
- PBS-Recycling: [Reuse, reduce, recycle](#) Lesson Plan and links
- PBS-[Plants and Animals: What Did We See?](#) Lesson Plan and Links
- PBS-[Environment: Home Sweet Home](#) Lesson Plan and Links
- [Diary of a Worm](#) Lesson - <http://www.classroomscience.org/primary-science-common-core-and-ngss>
- "I GOT A HABITAT" BY The Mother Earth Toons on Youtube
- Science Centers: Where Plants and Animals Live--K-ESS3-1, K.ESS3-1, K-ESS3-2 (see binder)
- Science Centers: How Plants and Animals Change the Environment--K-ESS2-2, K-ESS3-3 (see binder)
- Science Centers: Plants and Animals--Standard K-LS1-1(see binder)
- Kindergarten Classroom Ecologists (see binder)
- What do Plants and Animals need? (see binder)
- A House is a House For Me--By Mary Hobermann
- Living Things Interactive  
Notebook:<https://drive.google.com/a/trschools.com/file/d/0B7HaLgjTuus6SUJZM1dCdDNHWik/view?usp=sharing>
- We Love Earth Interactive  
Notebook:<https://drive.google.com/a/trschools.com/file/d/0B7HaLgjTuus6b0pNcXkyUm00dWM/view?usp=sharing>

**Modifications: (ELLs, Special Education, Gifted and Talented)**

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**Notes:**

**Course:** Physical Sciences  
**Grade Level:** Kindergarten

**Title of Unit:** Motion and Stability: Forces and Interactions

## Stage 1 - Desired Results

### Understandings:

*Students will understand that.....*

- forces are pushes or pulls
- forces can cause motion
- forces can stop motion

### Essential Questions:

- What happens if you push or pull an object harder?

### Knowledge:

*Students will know.....*

- pushes and pulls can have different strengths and directions
- pushing or pulling on an object can change the speed or direction of its motion and can start and stop it.
- when objects touch or collide, they push one another and can change motion
- a bigger push or pull makes things speed up or slow down more quickly.

### Skills:

*Students will be able to.....*

- Analyze data and develop an understanding of the effects of different directions of pushes and pulls on the motion of an object to determine if a design solution works as intended to change the speed or direction of an object with a push or pull
- analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or pull
- 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

**Standards:** (Note: Include reference to relevant standards in the Core Content Area as well as technology and 21<sup>st</sup>-century life and careers.)

### NGSS:

- 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.
- ETS1-A Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

### CCSS:

- ELA:
  - RI.K.1 With prompting and support, ask and answer questions about key details in a text.
  - 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).
  - SL.K.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
- Mathematics:
  - SMP.2 Reason abstractly and quantitatively.
  - 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. *For example, directly compare the heights of two children and describe one child as taller/shorter.*

**Stage 2- Assessment Evidence:**

**Performance Tasks and other evidence:**

- probes
- observation and documentation

### Stage 3 – Learning Plan

#### Learning Activities:

- collision activities (dominoes, bowling pins)
- pulling and pushing activities with carts, wagons, or scooters
- technology games (see links below)

**Notes:** Indicate any special considerations as well as materials, resources (online, print, video, audio) or equipment.

- Do not include non-contact pushes and pulls such as gravity and magnetism.
- Do not include friction as a mechanism for change in speed.

**\*\*Teachers can expose students to the above terms, but these terms do not have to be unit key words as these terms will be introduced for mastery in Grade 3**

#### Technology based activity/games:

- Interactive Science game [“Push or Pull”](#)
- Fun [“Forces Game”](#)
- [“Pushes and Pull”](#) game

#### Lesson Resources:

- [Forces & Interactions Unit](#)
- [Push & Pull mini lesson and center/station activities](#)
- Force and Motion (Teacher Pay Teachers):<https://drive.google.com/file/d/0B7HaLgjTuus6a09IU3hIUIR0R00/view?usp=sharing>
- Motion and Stability Interactive Notebook:<https://drive.google.com/a/trschools.com/file/d/0B7HaLgjTuus6QWF3a3E2bGMwZHc/view?usp=sharing>

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