



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

Curriculum Development Timeline

School: Township of Ocean Elementary Schools

Course: Science, Grade Kindergarten

Department: Science

Board Approval	Supervisor	Notes
June 2011	Christine Picerno	Born Date
August 2017	Christine Picerno	Revisions
March 2019	Christine Picerno	Review

Home of the Spartans!
#spartanlegacy





Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

Suggested alignment by units. (Correlations are cross-referenced with Wonders Units)

Science		Science	
1	WEATHER & CLIMATE	11	ANIMALS, PLANTS, and THEIR ENVIRONMENT
2	WEATHER & CLIMATE	12	ANIMALS, PLANTS, and THEIR ENVIRONMENT
3	WEATHER & CLIMATE	13	ANIMALS, PLANTS, and THEIR ENVIRONMENT
4	WEATHER & CLIMATE	14	ANIMALS, PLANTS, and THEIR ENVIRONMENT
5	WEATHER & CLIMATE	15	MOTION AND STABILITY
6	WEATHER & CLIMATE	16	MOTION AND STABILITY
7	WEATHER & CLIMATE	17	MOTION AND STABILITY
8	ANIMALS, PLANTS, and THEIR ENVIRONMENT	18	MOTION AND STABILITY
9	ANIMALS, PLANTS, and THEIR ENVIRONMENT	19	MOTION AND STABILITY
10	ANIMALS, PLANTS, and THEIR ENVIRONMENT	20	MOTION AND STABILITY
Social Studies		Social Studies	
21		31	
22		32	
23		33	
24		34	
25		35	
26		36	
27		37	
28		38	
29		39	
30		40	

Home of the Spartans!
#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

Core Instructional & Supplemental Materials including various levels of Texts

Mystery Science Lessons, Wonders Reading Program, Brain Pop, Pebble Go, PBS Kids, Interactive Games/Demonstrations, and various trade books related to unit topics.

Time Frame	7 Weeks
Course	
Earth and Space Science	
Title of Unit	
Weather and Climate	
Essential Questions	
<ol style="list-style-type: none">1. What is the weather like today and how is it different from yesterday?2. What are the weather patterns in local weather?3. What is the purpose of forecasting the weather?4. How do you protect yourself in severe weather?	
Enduring Understandings	
<p><i>Students will understand that...</i></p> <ul style="list-style-type: none">• 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	
Key Knowledge	
<p><i>Students will know...</i></p> <ul style="list-style-type: none">• 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.	

Home of the Spartans!

#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

- 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

Concepts and 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.

Learning Activities

Mystery Science

- Weather Watching- <https://mysteryscience.com/watching/weather-conditions-instruments-seasons>

BrainPop JR

- Seasons- <https://jr.brainpop.com/science/weather/seasons/>
- Fall- <https://jr.brainpop.com/science/weather/fall/>
- Winter- <https://jr.brainpop.com/science/weather/winter/>
- Spring- <https://jr.brainpop.com/science/weather/spring/>
- Summer- <https://jr.brainpop.com/science/weather/summer/>

PebbleGo

- About Weather - <https://pebblego.com/modules/2/categories/2980>
- Wet Weather - <https://pebblego.com/modules/2/categories/2974>
- Cold Weather - <https://pebblego.com/modules/2/categories/2979>
- Hot Weather - <https://pebblego.com/modules/2/categories/2995/articles/2021>
- Extreme Weather - <https://pebblego.com/modules/2/categories/2977>
- Weather Science - <https://pebblego.com/modules/2/categories/2975>

Video Resources

- What's the Weather Like? - <https://www.youtube.com/watch?v=UbfsQgiqD9M>
- Weather vs. Climate - <https://www.youtube.com/watch?v=RK5WUIVxv50>
- Weather Videos - <http://www.sciencekids.co.nz/videos/weather.html>
- Franklin: Four Seasons - <https://www.youtube.com/watch?v=GrGpw4ra5HE>
- Seasons - <https://www.youtube.com/watch?v=7UckUHeWxD0>
- Sid the Science Kid Clips - <http://pbskids.org/sid/videoplayer.html>

Home of the Spartans!
#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

- Super Sun
- Temperature Investigation
- Rain Observation
- I'm gonna be a big rain cloud!
- Where does rain come from?
- Wind Investigation
- I am the wind.
- Check Out the Weather - <https://www.youtube.com/watch?v=RmSKsyJ15yg>
- Grover the Weather Monster - <https://www.youtube.com/watch?v=tmO9cjsj1zc>
- Nat Geo Wonder About the Weather - <https://www.youtube.com/watch?v=QZVtgOK8uTw>
- Different Seasons - <https://www.youtube.com/watch?v=vqlyx9zpgCs>
- Peep & the Big Wide World: Stormy Weather - <https://www.youtube.com/watch?v=7Li59FFilYQ>
- Peep & the Big Wide World: Snow Daze - <https://www.youtube.com/watch?v=YjVtnXSCnho>

Interactive Games and Activities

- Sid the Science Kid: Temperature- http://pbskids.org/sid/fablab_weathersurprise.html
- Sid the Science Kid: Snow Search- http://pbskids.org/sid/fablab_snowsearch.html
- Sid the Science Kid: Weather Wheel- <http://pbskids.org/sid/weatherwheel.html>

Literature Connections:

- If Frogs Made the Weather By Marion Dane Bauer
- Weather: Poems for All Seasons By Lee Bennett Hopkins and Melanie Hall
- The Cloud Book by Tomie DePaola
- Little Cloud By Eric Carle
- Cloud Dance By Thomas Locker
- *Mama, Is It Summer Yet* (Wonders Unit 6 Week 1)
- *A Tour of the Seasons* (Wonders Unit 6 Week 1)
- *Rain* (Wonders Unit 6 Week 2)
- *Waiting Out the Storm* (Wonders Unit 6 Week 3)
- *Rainbow Crow* (Wonders Unit 6 Week 3)

Hands On Activities:

- Rain Jar <http://onelittleproject.com/shaving-cream-rain-clouds/>
- DIY Rain Gauge <https://www.education.com/science-fair/article/DIY-rain-gauge/>
- Make Your Own Rainbow <http://www.sciencekids.co.nz/experiments/makearainbow.html>
- Tornado in a Bottle <https://www.stevespanglerscience.com/lab/experiments/soda-bottle-tornado/>

Home of the Spartans!

#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

- Weather Wheel- https://teachables.scholastic.com/teachables/books/My-Weather-Wheel-March-Monthly-Idea-Book-9780439503723_034.html
- Day and Night Experiment- Need a globe and a flashlight
 - Mark where we are on globe. Have one student hold flashlight still, another student holds the globe, have students record observations. Spin the globe, show that the light is moving, but the flashlight (the sun) is not. Discuss light and warmth coming from the sun during the day, night is cooler and dark.
 - Observation sheet is in the teachers drive in a folder labeled NGSS Kindergarten

Assessments

Formative:

- Weather Quiz

Summative:

- Spring Weather Test
- Summer Weather Test
- Winter Weather Test
- Fall Weather Test

Benchmark:

- Engineering Design Process Rubric Assessment 1

NGSS and Interdisciplinary Connections

- **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

Home of the Spartans!

#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

land, water, air, and/or other living things in the local environment.

- **NJSLS: ELA**
 - **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.
- **NJSLS: Math**
 - **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.

Technology Integration

Technology Learning Activities:

- Students use Chromebooks to access Mystery Science extension activities.
- Students will use Google Classroom to access links to: interactive activities, science games, interactive stories and video resources.

Alignment to Standards:

- **TECH.8.1.2.A.CS2** - Select and use applications effectively and productively

21st-Century Skills

Career Ready Practices

CRP 6. Demonstrate creativity and innovation while creating a tornado in a bottle and rain jars.

CRP 8. SW utilize critical thinking to make sense of problems and persevere in solving them during the Weather Watching Mystery Science lesson.

CRP 11. SW use technology to enhance productivity by accessing Sid the Kid online activities.

Home of the Spartans!
#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

Time Frame	7 Weeks
Course	
Life Science	
Title of Unit	
Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment	
Essential Questions	
1. Where do animals live and why do they live there? 2. What do animals (including humans) need to survive? 3. What do plants need to survive? 4. How do plants and animals (including humans) interact with the environment to meet their needs? 5. What is the influence of humans on their environmental footprint?	
Enduring Understandings	
<i>Students will understand that...</i> <ul style="list-style-type: none">• animals need to take in food but plants do not.• different types of food is needed by different types of animals.• plants need light.• all living things need water.• plants and animals change their environment according to their needs• humans have an impact on their environment.	
Key Knowledge	
<i>Students will know...</i> <ul style="list-style-type: none">• 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.• plants and animals can change their environment.• 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.• 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.	
Concepts and Skills	
<i>Students will be able to...</i>	

Home of the Spartans!
#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

- 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.
- communicate solutions using evidence from observations to explain how plants and animals (including humans) can change the environment to meet their needs.
- 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.
- communicate solutions that will reduce the impact of humans on the land, water, air and/or other living things in the local environment.

Learning Activities

PLANTS

- **BrainPop Jr:**
 - Parts of a Plant-<https://jr.brainpop.com/science/plants/partsofaplant/>
 - Plant Life Cycle- <https://jr.brainpop.com/science/plants/plantlifecycle/>
 - Plant Adaptations- <https://jr.brainpop.com/science/plants/plantadaptations/>
- **PebbleGo:**
 - What are plants? -<https://pebblego.com/modules/2/articles/2127>
- **Hands On Activities:**
 - Seed Sprouts in a Bag <http://lifeovercs.com/germinating-seeds-bag-science-experiment-kids/>
 - How Plants Absorb Water <http://pagingfunmums.com/2013/07/09/fun-science-experiment-learning-how-plants-absorb-water/>
 - Do Seeds Need Light? <http://www.pre-kpages.com/science-kids-growing-plants-experiment/>
- **Video Resources/Interactive Games:**
 - PBS Kids Plum Landing- Videos and Games
 - http://www.pbslearningmedia.org/search/?q=*%26selected_facets=brand_exact%3A%20PLUM%20LANDING
 - Peep & the Big Wide World: Peep Plants a Seed <https://www.youtube.com/watch?v=Yxs7P7LWzDg>
 - Sid the Science Kid Clips - <http://pbskids.org/sid/videoplayer.html>
 - All about leaves
 - The Decayed Pumpkin
 - Sid examines leaves
 - Leaf investigation
 - Growing plants

Home of the Spartans!
#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

- The buzz with bees

- **Literature Connections**

- *Growing Plants* (Wonders Unit 5 Week 1)
- *My Garden* (Wonders Unit 5 Week 1)
- *The Pine Tree* (Wonders Unit 5 Week 2)
- *A Grand Old Tree* (Wonders Unit 5 Week 2)
- *Farms Around the World* (Wonders Unit 5 Week 3)
- *An Orange in January* (Wonders Unit 5 Week 3)

ANIMALS

- **Mystery Science:**

- Animal Secrets MS1 &2
<https://mysteryscience.com/secrets/animal-needs>

- **BrainPop Jr:**

- Mammals- <https://jr.brainpop.com/science/animals/mammals/>
- Insects- <https://jr.brainpop.com/science/animals/insects/>
- Fish- <https://jr.brainpop.com/science/animals/fish/>
- Caring for Pets- <https://jr.brainpop.com/health/beresponsible/caringforpets/>

- **PebbleGo:**

- What are animals? -
<https://pebblego.com/modules/2/categories/2985/articles/2144>
- About Birds - <https://pebblego.com/modules/2/categories/2954/articles/2147>
- About Reptiles - <https://pebblego.com/modules/2/categories/2954/articles/2152>
- About Insects - <https://pebblego.com/modules/2/categories/2954/articles/2149>
- About Fish - <https://pebblego.com/modules/2/categories/2954/articles/2148>
- About Mammals - <https://pebblego.com/modules/2/categories/2954/articles/2151>

- **Hands On Activities:**

- How Do Penguins Stay Dry - <http://raisinglittlesuperheroes.com/penguin-feathers-science-experiment/>
- How Do Arctic Animals Stay Warm - <http://www.sciencekiddo.com/how-arctic-animals-stay-warm/>

- **Video Resources/Interactive Games:**

- Smithsonian: Animals- <https://ssec.si.edu/showbiz-safari>
- PBS Kids Plum Landing- Videos and Games
- http://www.pbslearningmedia.org/search/?q=*&selected_facets=brand_exact%3A%20PLUM%20LANDING

Home of the Spartans!
#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

- Smithsonian National Zoo Web Cams- <https://nationalzoo.si.edu/webcams>
- Houston Zoo Web Cams- <https://www.houstonzoo.org/meet-the-animals/animal-webcams/>
- San Diego- <http://animals.sandiegozoo.org/live-cams>
- Animal Groups Song -<https://www.youtube.com/watch?v=EHAn3zi5Epw>
- Sid the Science Kid Clips - <http://pbskids.org/sid/videoplayer.html>
 - Animals-
 - Sid and Gerald wildlife watch
 - Love your pet
 - Bird nest investigation
 - Bird nests
- Wild Kratts Animal Videos - <http://pbskids.org/wildkratts/videos/>
- **Literature Connections:**
 - *Pouch!* (Wonders Unit 1 Week 2)
 - *From Caterpillar to Butterfly* (Wonders Unit 2 Week 3)
 - *I Love Bugs!* (Wonders Unit 2 Week 3)
 - *Baby Farm Animals* (Wonders Unit 7 Week 1)
 - *Zoo Borns!* (Wonders Unit 7 Week 1)
 - *The Family Pet* (Wonders Unit 7 Week 2)
 - *The Birthday Pet* (Wonders Unit 7 week 2)
 - *Anansi: An African Tale* (Wonders Unit 7 Week 3)
 - *Bear Snores On* (Wonders Unit 7 Week 3)

HUMANS/CONSERVATION

- **BrainPop Jr:**
 - Extinct and Endangered Species - <https://jr.brainpop.com/science/conservation/extinctandendangeredspecies/>
 - Natural Resources- <https://jr.brainpop.com/science/conservation/naturalresources/>
 - Reduce, Reuse, Recycle - <https://jr.brainpop.com/science/conservation/reducereuserecycle/>
- **PebbleGo:**
 - What are Humans? - <https://pebblego.com/modules/2/articles/2167>
 - Endangered and Threatened Animals - <https://pebblego.com/modules/2/articles/2145>
 - What Are Natural Resources? <https://pebblego.com/modules/2/categories/2949/articles/2193>
 - Humans and Earth - <https://pebblego.com/modules/2/categories/2949/articles/2194>
- **Hands On Activities:**

Home of the Spartans!
#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

- Recycled Bird Feeders <http://www.craftcreatecook.com/birdhouse-crafts-kids/>
- Water Pollution Experiment <http://jdaniel4smom.com/2017/01/water-pollution-experiments-kids.html>
- Recycling Old Crayons <https://enjoyingourdays.com/a-fun-way-to-recycle-broken-crayons/>
- **Video Resources/Interactive Games:**
 - PBS Kids Plum Landing- Videos and Games http://www.pbslearningmedia.org/search/?q=*%26selected_facets=brand_exact%3A%20PLUM%20LANDING
 - Sid the Science Kid Clips - <http://pbskids.org/sid/videoplayer.html>
 - Humans-
 - Ways we can not waste water
 - Recycling
 - Earth Day tips
 - The delicious and nutritious bad
 - Muscle investigation
 - Healthy Foods
 - 5 Senses Game - <http://pbskids.org/sid/isense.html>
 - Gabriella Cleans Up - <http://pbskids.org/sid/cleansup.html>
- **Literature Connections**
 - The Lorax Read Aloud - <https://www.youtube.com/watch?v=xzf6dQyNN7s>
 - *Protect the Environment!* (Wonders Unit 10 Week 3)
 - *Panda Kindergarten* (Wonders Unit 10 3)

Assessments

Formative:

- Plant Quiz

Summative:

- Animal Needs Test
- Human Impact Test

Benchmark:

- Engineering Design Process Rubric Assessment 2

Alternative Assessments:

- How Plants Absorb Water <http://pagingfunmums.com/2013/07/09/fun-science-experiment-learning-how-plants-absorb-water/>
- Do Seeds Need Light? <http://www.pre-kpages.com/science-kids-growing-plants->

Home of the Spartans!
#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

[experiment/](#)

NGSS and Interdisciplinary Connections

- **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.
- **NJSLS: 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.
- **NJSLS: 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.*

Technology Integration

Technology Learning Activities:

- Students use Chromebooks to access Mystery Science extension activities.

Home of the Spartans!
#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

- Students will use Google Classroom to access links to: interactive activities, science games, interactive stories and video resources.

Alignment to Standards:

- TECH.8.1.2.A.CS2 - Select and use applications effectively and productively

21st-Century Skills

9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals.

Career Ready Practices

CRP 4. SW communicate clearly and effectively and with reason during the How plants absorb water and Do seeds need water? lab experiments.

CRP 6. SW demonstrate creativity and innovation during the hand-on birder feeder activity.

Time Frame	6 Weeks
Course	
Physical Sciences	
Title of Unit	
Motion and Stability: Forces and Interactions	
Essential Questions	
What happens if you push or pull an object harder?	
Enduring Understandings	
<i>Students will understand that...</i>	
<ul style="list-style-type: none">• forces are pushes or pulls• forces can cause motion• forces can stop motion	
Key Knowledge	
<i>Students will know...</i>	
<ul style="list-style-type: none">• 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.	

Home of the Spartans!

#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

- 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.

Concepts and 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

Learning Activities

- **Mystery Science:**
 - Force Olympics MS 1&2 - <https://mysteryscience.com/pushes/forces-machines-engineering>
- **BrainPop Jr:**
 - Pushes and Pulls- <https://jr.brainpop.com/science/forces/pushesandpulls/>
 - Simple Machines- <https://jr.brainpop.com/science/forces/simplemachines/>
- **PebbleGo:**
 - Kinds of Forces- <https://pebblego.com/modules/2/articles/2094>
- **Video Resources:**
 - A Push or a Pull (song) - <https://www.youtube.com/watch?v=FOcY37oGhj8>
 - Forces Can Push or Pull (song) - <https://www.youtube.com/watch?v=AKUgWLCNb68>
 - Push & Pull Experiment - https://www.youtube.com/watch?v=0ZuYUCdWT_s
 - Sid the Science Kid Clips - <http://pbskids.org/sid/videoplayer.html>
- **Interactive Games:**
 - Piggy Push - <http://www.coolmath-games.com/0-piggy-push>
 - Push & Pull Tic-Tac-Toe - http://www.learningliftoff.com/kindergarten-science-learning-game-push-pull/#.WUv4ZIH_oqN
 - School of Dragons - <http://www.schoolofdragons.com/hiccups-science-workshop/ngss/kindergarten>
 - Caveman Push & Pull - <http://www.bbc.co.uk/bitesize/ks1/science/forces/play/popup.shtml>

Home of the Spartans!
#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

Literature Connections:

- Motion, by Darlene R. Stille
- How Things Move, by Don L. Curry
- Give it a Push! Give it a Pull!, by Jennifer Boothroyd
- And Everyone Shouted, "PULL!", by Claire Llewellyn
- Push and Pull, by Lola M. Schaefer
- Push and Pull, by Patricia Murphy
- Push and Pull, by Charlotte Guillain

Assessments

Formative:

- Pulls Lab
- Pushes Lab

Summative:

- Forces-Race Car Ramp Test

Benchmark:

- Engineering Design Process Rubric Assessment 3

Alternative Assessments:

- Pushes and Pulls- <https://jr.brainpop.com/science/forces/pushesandpulls/>
- Simple Machines- <https://jr.brainpop.com/science/forces/simplemachines/>

NGSS and Interdisciplinary Connections

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.

NJSLS: 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).

Home of the Spartans!

#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

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

Technology Integration

Technology Learning Activities:

- Students use Chromebooks to access Mystery Science extension activities.
- Students will use Google Classroom to access links to: interactive activities, science games, interactive stories and video resources.

Alignment to Standards:

- TECH.8.1.2.A.CS2 - Select and use applications effectively and productively

21st-Century Skills

9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

Career Ready Practices

CRP 4. SW communicate clearly and effectively and with reason during the push and pull labs.
CRP 11. SW use technology to enhance productivity utilizing various online resources.

Modifications (ELL, Special Education, At-Risk Students, Gifted and Talented, and 504 Plans)

ELL:

- Work toward longer passages as skills in English increase
- Use visuals

Home of the Spartans!
#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

- Introduce key vocabulary before lesson
- Teacher models reading aloud daily
- Provide peer tutoring
- Use of Bilingual Dictionary
- Guided notes and/or scaffold outline for written assignments
- Provide students with English Learner leveled readers.

Supports for Students With IEPs:

- Allow extra time to complete assignments or tests
- Guided notes and/or scaffold outline for written assignments
- Work in a small group
- Allow answers to be given orally or dictated
- Use large print books, Braille, or books on CD (digital text)
- Follow all IEP modifications

At-Risk Students:

- Guided notes and/or scaffold outline for written assignments
- Introduce key vocabulary before lesson
- Work in a small group
- Lesson taught again using a differentiated approach
- Allow answers to be given orally or dictated
- Use visuals / Anchor Charts
- Leveled texts according to ability

Gifted and Talented:

- Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)
- Provide options, alternatives and choices to differentiate and broaden the curriculum
- Organize and offer flexible small group learning activities
- Provide whole group enrichment explorations
- Teach cognitive and methodological skills
- Use center, stations, or contracts
- Organize integrated problem-solving simulations
- Propose interest-based extension activities
- Expose students to beyond level texts.

Supports for Students With 504 Plans:

- Follow all the 504 plan modifications
- Text to speech/audio recorded selections
- Amplification system as needed
- Leveled texts according to ability
- Fine motor skill stations embedded in rotation as needed
- Modified or constrained spelling word lists
- Provide anchor charts with high frequency words and phonemic patterns

Home of the Spartans!

#spartanlegacy



Township of Ocean Schools

Assistant Superintendent
Office of Teaching and Learning

SPARTAN MISSION:

Meeting the needs of all students with a proud tradition of academic excellence.

Home of the Spartans!
#spartanlegacy