



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.

DEPARTMENT : Science

COURSE : Grade Kindergarten

Curriculum Development Timeline

School: Township of Ocean Elementary Schools

Course: Science, Grade Kindergarten

Department: Science

Board Approval	Supervisor	Notes
February 2009	Jessica Shaw	Born Date
June 2011	Christine Picerno	Revisions
August 2017	Christine Picerno	Revisions
March 2019	Christine Picerno	Review
August 2021	Rich Steckhahn	Alignment to Standards & Revisions
August 2022	Patrick Sullivan	Incorporate State Mandates
August 2024	Patrick Sullivan	Updated to include New State Mandates

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Township of Ocean Pacing Guide			
Week	Marking Period 1	Week	Marking Period 3
1	Weather and Climate	21	Animals, Plants, and their Environment
2	Weather and Climate	22	Animals, Plants, and their Environment
3	Weather and Climate	23	Animals, Plants, and their Environment
4	Weather and Climate	24	Animals, Plants, and their Environment
5	Weather and Climate	25	Animals, Plants, and their Environment
6	Weather and Climate	26	Animals, Plants, and their Environment
7	Weather and Climate	27	Animals, Plants, and their Environment
8	Weather and Climate	28	Motion and Stability
9	Weather and Climate	29	Motion and Stability
10	Weather and Climate	30	Motion and Stability
Week	Marking Period 2	Week	Marking Period 4
11	Weather and Climate	31	Motion and Stability
12	Weather and Climate	32	Motion and Stability
13	Weather and Climate	33	Motion and Stability
14	Animals, Plants, and their Environment	34	Motion and Stability
15	Animals, Plants, and their Environment	35	Motion and Stability
16	Animals, Plants, and their Environment	36	Motion and Stability
17	Animals, Plants, and their Environment	37	Motion and Stability
18	Animals, Plants, and their Environment	38	Motion and Stability

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19	Animals, Plants, and their Environment	39	Motion and Stability
20	Animals, Plants, and their Environment	40	Motion and Stability

Climate Change: Weather and Climate (NJSLS-S: K-ESS3-3)

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	13 weeks
Topic	
Weather and Climate	
Alignment to Standards	
K-ESS2-1 Use and share observations of local weather conditions to describe patterns over time. <i>[Clarification Statement: Examples of qualitative observations could include descriptions of the weather (such as sunny, cloudy, rainy, and warm); examples of quantitative observations could include numbers of sunny, windy, and rainy days in a month. Examples of patterns could include that it is usually cooler in the morning than in the afternoon and the number of sunny days versus cloudy days in different months.] [Assessment Boundary: Assessment of quantitative observations limited to whole numbers and relative measures such as warmer/cooler.]</i>	
K-ESS3-2 Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather. <i>[Clarification Statement: Emphasis is on local forms of severe weather.]</i>	
K-ESS3-3 Communicate solutions that will reduce the impact of climate change and humans on the land, water, air, and/or other living things in the local environment. <i>[Clarification Statement: Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.]</i>	
K-PS3-1 Make observations to determine the effect of sunlight on Earth's surface. <i>[Clarification Statement: Examples of Earth's surface could include sand, soil, rocks, and water] [Assessment Boundary: Assessment of temperature is limited to relative measures such as warmer/cooler.]</i>	
K-PS3-2 Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. <i>[Clarification Statement: Examples of structures could include umbrellas, canopies, and tents that minimize the warming effect of the sun.]</i>	
K-2-ETS1-2 - Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	

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K-2-ETS1-1 - Ask questions, make observations, and gather information about a situation people want to change (e.g., climate change) to define a simple problem that can be solved through the development of a new or improved object or tool.

K-2-ETS1-3 - Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Learning Objectives and Activities

Students will understand that...

- 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.
- 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 severe weather are more likely to occur in a given region. Weather scientists forecast severe weather so that communities can prepare for and respond to these events.
- Structures including umbrellas, canopies, and tents minimize the warming effect of the sun.
- How climate may change over time from the sun's warmth

Activities

Mystery Science

- [Weather Watching](#)

Generation Genius

- [Sunlight Warms the Earth](#)
- [Introduction to Weather](#)
- [Reducing Our Impact on Earth](#)
- [Natural Resources](#)

BrainPop JR

- [Seasons](#)

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- [Fall](#)
- [Winter](#)
- [Spring](#)
- [Summer](#)

PebbleGo

- [About Weather](#)
- [Wet Weather](#)
- [Cold Weather](#)
- [Hot Weather](#)
- [Extreme Weather](#)
- [Weather Science](#)

Video Resources

- [What's the Weather Like?](#)
- [Weather vs. Climate](#)
- [Weather Videos](#)
- [Seasons](#)
- [Sid the Science Kid Clips](#)
 - 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](#)
- [Grover the Weather Monster](#)
- [Nat Geo Wonder About the Weather](#)
- [Different Seasons](#)
- [Peep & the Big Wide World: Stormy Weather](#)
- [Peep & the Big Wide World: Snow Daze](#)

Interactive Games and Activities

- [Sid the Science Kid: Temperature](#)
- [Sid the Science Kid: Snow Search](#)

Literature Connections

- If Frogs Made the Weather By Marion Dane Bauer
- Weather: Poems for All Seasons By Lee Bennett Hopkins and Melanie Hall

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- 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](#)
- [DIY Rain Gauge](#)
- [Make Your Own Rainbow](#)
- [Tornado in a Bottle](#)
- [Weather Wheel](#)

Assessments

Formative

- Weather Quiz

Summative

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

Benchmark

- Engineering Design Process Rubric Assessment 1

Interdisciplinary Connections

NJSLS: ELA

- **RI.CR.K.1.** With prompting and support, ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how). (K-ESS3-2), (K-2-ETS1-1)
- **W.IW.K.2.** Use a combination of drawing, dictating, and writing to compose informative/explanatory texts to convey ideas. (K-ESS3- 3), (K-ESS2- 2)

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- **W.WR.K.5.** With prompting and support, generate questions through shared research in response to a topic, text, or stimulus (e.g. event, photograph, video, book). (K-ESS2-1), (K-PS3-1), (K-PS3-2)
- **RI.MF.K.6.** With prompting and support, describe the relationship between illustrations and the text in which they appear. Climate Change Example: In a science unit, students may look at images of the impact(s) humans have on land, water, air, and/or other living things in the local environment and describe the relationship between the illustrations and the text in which they appear. (K-ESS3-3)

NJSLS: Math

- **K.M.A.1.** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. (K-ESS2-1), (K-2-ETS1-2)
- **K.M.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. (K-PS3-1), (K-PS3-2), (K-2-ETS1-3).
- **K.DL.A.1.** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Clarification: Limit category counts to be less than or equal to 10). (K-ESS2-1)
- **K.G.B.5.** Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes. Climate Change Example: Students may use sticks and clay to model trees and umbrellas and may then draw shapes (e.g., triangle, rectangle) to model those objects. With prompting and support, they may ask and answer questions about how trees and umbrellas may be used to reduce the warming effect of sunlight (K-ESS3-3).

NJSLS: Computer Science and Design Thinking

- **8.1.2.CS.1:** Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
- **8.1.2.DA.1:** Collect and present data, including climate change data, in various visual formats.
- **8.1.2.DA.3:** Identify and describe patterns in data visualizations.
- **8.1.2.DA.4:** Make predictions based on data using charts or graphs.

Career Readiness, Life Literacies, and Key Skills

Technology Integration

- **9.4.2.CT.1:** Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem

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- **9.4.2.DC.7:** Describe actions peers can take to positively impact climate change
- **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

Career Education

- **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.

Time Frame	14 weeks
Topic	
Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment	
Alignment to Standards	
K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive. <i>[Clarification Statement: Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and, that all living things need water.]</i>	
K-ESS2-2 Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. <i>[Clarification Statement: Examples of plants and animals changing their environment could include a squirrel digs in the ground to hide its food and tree roots can break concrete.]</i>	
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. <i>[Clarification Statement: Examples of relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas; and, grasses need sunlight, so they often grow in meadows. Plants, animals, and their surroundings make up a system.]</i>	
K-ESS3-3 Communicate solutions that will reduce the impact of climate change and humans on the land, water, air, and/or other living things in the local environment. <i>[Clarification Statement: Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.]</i>	

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COURSE : Grade Kindergarten

Learning Objectives and Activities

Students will understand that...

- 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.
- 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.
- Different types of food are needed by different types of animals.
- Plants and animals change their environment according to their needs.

Activities

Mystery Science

- [Plant and Animal Secrets](#)

Generation Genius

- [Living vs. Non-Living Things](#)
- [Plants Need Water And Light](#)
- [Animals Need Food](#)
- [Living Things Change Their Environment](#)
- [Habitats](#)

Plants

- **BrainPop Jr**
 - [Parts of a Plant](#)
 - [Plant Life Cycle](#)
 - [Plant Adaptations](#)
- **PebbleGo**
 - [What are plants?](#)
- **Hands On Activities**
 - [Seed Sprouts in a Bag](#)
 - [How Plants Absorb Water](#)
 - [Do Seeds Need Light?](#)

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COURSE : Grade Kindergarten

- **Video Resources/Interactive Games**

- [PBS Kids Plum Landing- Videos and Games](#)
- [Peep & the Big Wide World: Peep Plants a Seed](#)
- [Sid the Science Kid Clips](#)
 - All about leaves
 - The Decayed Pumpkin
 - Sid examines leaves
 - Leaf investigation
 - Growing plants
 - 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

- **BrainPop Jr**

- [Mammals](#)
- [Insects](#)
- [Fish](#)
- [Caring for Pets](#)

- **PebbleGo**

- [What are animals?](#)
- [About Birds](#)
- [About Reptiles](#)
- [About Insects](#)
- [About Fish](#)
- [About Mammals](#)

- **Hands On Activities**

- [How Do Penguins Stay Dry](#)
- [How Do Arctic Animals Stay Warm](#)

- **Video Resources/Interactive Games**

- [Smithsonian: Animals](#)
- [PBS Kids Plum Landing- Videos and Games](#)
- [Smithsonian National Zoo Web Cams](#)

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COURSE : Grade Kindergarten

- [Houston Zoo Web Cams](#)
- [San Diego Zoo Cams](#)
- [Animal Groups Song](#)
- [Sid the Science Kid Clips](#)
 - Animals
 - Sid and Gerald wildlife watch
 - Love your pet
 - Bird nest investigation
 - Bird nests
- [Wild Kratts Animal 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/Conversation

- **BrainPop Jr**
 - [Extinct and Endangered Species](#)
 - [Natural Resources](#)
 - [Reduce, Reuse, Recycle](#)
- **PebbleGo**
 - [What are Humans?](#)
 - [Endangered and Threatened Animals](#)
 - [What Are Natural Resources?](#)
 - [Humans and Earth](#)
- **Hands On Activities**
 - [Recycled Bird Feeders](#)
 - [Water Pollution Experiment](#)
 - [Recycling Old Crayons](#)
- **Video Resources/Interactive Games**
 - [PBS Kids Plum Landing- Videos and Games](#)
 - [Sid the Science Kid Clips](#)
 - Humans
 - Ways we can not waste water

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- Recycling
- Earth Day tips
- The delicious and nutritious bad
- Muscle investigation
- Healthy Foods
- [5 Senses Game](#)
- [Gabiella Cleans Up](#)
- **Literature Connections**
 - [The Lorax Read Aloud](#)
 - *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](#)
- [Do Seeds Need Light?](#)

Interdisciplinary Connections

NJSLS: ELA

- **W.WR.K.5.** With prompting and support, generate questions through shared research in response to a topic, text, or stimulus (e.g. event, photograph, video, book). (K-LS1-1)
- **RL.CR.K.1.** With prompting and support, ask and answer questions about key details in a literary text (e.g., who, what, where, when, why, how). (K-ESS2-2)
- **W.AW.K.1.** Use a combination of drawing, dictating, and writing to compose opinion pieces on topics or texts (e.g., My favorite book is...).(K-ESS2-2)
- **W.IW.1.2.** With prompts and support, write informative/explanatory texts to examine a topic and convey ideas and information. (K-ESS2- 2), (K-ESS3-3)

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NJSLS: Math

- **K.M.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. (K-LS1-1)
- **K.DL.A.1.** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Clarification: Limit category counts to be less than or equal to 10). (K-ESS3-1)

NJSLS: Computer Science and Design Thinking

- **8.1.2.CS.1:** Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.

Career Readiness, Life Literacies, and Key Skills

- **9.1.2.CR.1:** Recognize ways to volunteer in the classroom, school and community.

Technology Integration

- **9.4.2.IML.1:** Identify a simple search term to find information in a search engine or digital resource.
- **9.4.2.TL.4:** Navigate a virtual space to build context and describe the visual content.
- **9.4.2.TL.5:** Describe the difference between real and virtual experiences.

Career Education

Time Frame	13 weeks
Topic	
Motion and Stability: Forces and Interactions	
Alignment to Standards	
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. <i>[Clarification Statement: Examples of pushes or pulls could include a string attached to an object being pulled, a person pushing an object, a person stopping a rolling ball, and two objects colliding and pushing on each other.] [Assessment Boundary: Assessment is limited to different relative strengths or different directions, but not both at the same time. Assessment does not include non-contact pushes or pulls such as those produced by magnets.]</i>	
K-PS2-2 - Analyze data to determine if a design solution works as intended to change the	

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speed or direction of an object with a push or a pull. *[Clarification Statement: Examples of problems requiring a solution could include having a marble or other object move a certain distance, follow a particular path, and knock down other objects. Examples of solutions could include tools such as a ramp to increase the speed of the object and a structure that would cause an object such as a marble or ball to turn.] [Assessment Boundary: Assessment does not include friction as a mechanism for change in speed.]*

K-2-ETS1-2 - Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

K-2-ETS1-3 - Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Learning Objectives and Activities

Students will understand that...

- Forces are pushes or pulls.
- 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.

Activities

Mystery Science

- [Force Olympics](#)

Generation Genius

- [Pushes and Pulls](#)

BrainPop Jr

- [Pushes and Pulls](#)
- [Simple Machines](#)

PebbleGo

- [Kinds of Forces](#)

Video Resources

- [A Push or a Pull \(song\)](#)
- [Forces Can Push or Pull \(song\)](#)

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- [Push & Pull Experiment](#)
- [Sid the Science Kid Clips](#)

Interactive Games

- [Piggy Push](#)
- [Push & Pull Tic-Tac-Toe](#)
- [School of Dragons](#)
- [Caveman Push & Pull](#)

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 - Brainpop Jr.](#)
- [Simple Machines - Brainpop Jr.](#)

Interdisciplinary Connections

NJSLS: ELA

- **RL.CR.K.1.** With prompting and support, ask and answer questions about key details in a literary text (e.g., who, what, where, when, why, how). (K-PS2-2)
- **W.WR.K.5.** With prompting and support, generate questions through shared research in response to a topic, text, or stimulus (e.g. event, photograph, video, book). (K-PS2-1)

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- **W.SE.K.6.** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-3)

NJSLS: Math

- **K.M.A.1** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. (K-PS2-1)
- **K.M.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. (K-PS2-1)

NJSLS: Computer Science and Design Thinking

- **8.1.2.CS.1:** Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.

Career Readiness, Life Literacies, and Key Skills

Technology Integration

- **9.4.2.CI.2:** Demonstrate originality and inventiveness in work.
- **9.4.2.CT.2:** Identify possible approaches and resources to execute a plan.
- **9.4.2.CT.3:** Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

Career Education

- **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 & Talented, & 504 Plans)

ELL:

- Work toward longer passages as skills in English increase
- Use visuals
- Introduce key vocabulary before lesson
- Teacher models reading aloud daily
- Provide peer tutoring

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- 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

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.

DEPARTMENT : Science

COURSE : Grade Kindergarten

- 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

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