Overview of Science Units & Major Resources:
KINDERGARTEN

Unit 1: Earth and Space Science: Weather & Seasons

- Nature of Science and Engineering benchmarks are embedded into each unit.
- All resources for these units can be found in the kindergarten science crates at each building.

Unit 2: Physical Science: Five Senses & Matter

- Nature of Science and Engineering benchmarks are embedded into each unit.
- All resources for these units can be found in the kindergarten science crates at each building.

Unit 3: Life Science: Living & Nonliving

- Nature of Science and Engineering benchmarks are embedded into each unit.
- All resources for these units can be found in the kindergarten science crates at each building.

** See Science Curriculum Frameworks for more detailed information.*

** See grade level district shared folder for additional resources.*

KINDERGARTEN: SCIENCE CURRICULUM FRAMEWORKS

UNIT 1: EARTH AND SPACE SCIENCE: WEATHER & SEASONS (Introduced in fall, ongoing)

Big Questions	Formative/Summative Assessments (To be determined by teachers/teams)
1. What clothing would be appropriate for each of the 4 seasons (winter, spring, summer fall)? 2. What's the weather today? 3. How does weather/climate around the world affect the way people build houses? 4. Can you use the sun for energy? How? Nature of Science and Engineering Questions: 5. What tools does a scientist use? 6. How can you think like a scientist (observe, ask a question, form an idea, experiment)? 7. Can you identify if an object is man-made or found in nature?	Options include, but are not limited to: • Student will be able to tell what clothing would be appropriate for different seasons. • Student will be able to identify the day's weather by observation. • Student will be able to describe different types of housing around the world based on the climate. • Student will be able to list different ways we use sun for energy. Nature of Science and Engineering Assessments: • Student will be able to identify tools that a scientist might use. • Student will be able to think like a scientist (observe, ask a question, form an idea, experiment). • Student will be able to sort objects into groups that are man-made and found in nature.

Substrand/Standard	Curriculum Benchmark	Standards of Proficiency (To be determined by teachers/teams)	Resources*	Optional Ideas for Engineering Connections
Substrand: Interdependence Within the Earth System Standard: Understand that weather can be described in measurable quantities and changes from day to day and with the seasons.	Monitor daily and seasonal changes in weather and summarize the changes. For example: Recording cloudiness, rain, snow and temperature. *(Standard ESS: 0.3.2.2.1)*		**Big Books:** • Our Sun, Our Weather by Nancy White • Think About the Weather by Cynthia Rothman **Other Materials:** • Thermometers **Student Books (6 copies each):** • A Sunny Day by Robin Nelson • A Cloudy Day by Robin Nelson • A Rainy Day by Robin Nelson • A Snowy Day by Robin Nelson • A Windy Day by Robin Nelson **Listening Center:** • Our Sun, Our Weather by Nancy White **Electronic Resources in District Grade Level Shared Folder:** • Video: *A First Look at Weather* • Reproducible mini-book: "My Weather Book" • Reproducible: "My Book About Seasons"	Weather is different in different parts of the world. With your students, explore how weather affects the things people create. How are houses different in hot places and in cold places? How are roofs different in snowy places? What could you use to build a house in a forest? In a desert? *(from "The Works"**)*

* All kindergarten resources are provided at each building.
Check with your kindergarten team to locate these shared resources
** "The Works" http://www.theworks.org/

KINDERGARTEN: SCIENCE CURRICULUM FRAMEWORKS

UNIT 1: EARTH AND SPACE SCIENCE: WEATHER & SEASONS (Introduced in fall, ongoing) (continued)

Substrand/Standard	Curriculum Benchmark	Standards of Proficiency (To be determined by teachers/teams)	Resources*	Optional Ideas for Engineering Connections
Substrand: Interdependence Within the Earth System Standard: Understand that weather can be described in measurable quantities and changes from day to day and with the seasons.	Identify the sun as a source of heat and light. For example: Record the time of day when the sun shines into different locations of the school and note patterns. *(Standard ESS: 0.3.2.2.2)*		**Big Books:** • The Four Seasons by Melvin Berger • A Tree for All Seasons by Robin Bernard • Squirrels All Year Long by Melvin Berger **Other Materials:** • Weather and Seasons instant learning Center **Student Books (6 copies each):** • Winter by Tanya Thayer • Spring by Tanya Thayer • Summer by Tanya Thayer • Fall by Tanya Thayer **Video:** • *The Four Seasons* **Electronic Resources in District Grade Level Shared Folder:** • Video: *The Four Seasons* • Video: *Thinking About the Seasons*	Have your students design and build a simple solar cooker. Measure the temperature in the shade, in the sun and in your solar cooker. Oven thermometers are useful here. Can you melt a piece of chocolate? Can you melt a marshmallow? Make a s'more in your solar cooker. *(from "The Works"**)*
Substrand: The Practice of Science Standard: Understand that scientific inquiry is a set of interrelated processes used to pose questions about the natural world and investigate phenomena.	**Use observations to develop an accurate description of a natural phenomenon and compare one's observations and descriptions with those of others.** *(Standard NSE: 0.1.1.2.1)*		**Big Books:** • Science Tools by J.A. Randolph • A Closer Look by Natalie Lunis **Other Materials:** • Thermometers • Magnifying Glasses • Binoculars • Microscope & Slides **Other Curriculum:** Literacy by Design – kindergarten • UNIT: Thinking Like a Scientist • THEME 8: Does it Sink or Float? • Pages 232-263	

* All kindergarten resources are provided at each building.
Check with your kindergarten team to locate these shared resources
** "The Works" http://www.theworks.org/

KINDERGARTEN: SCIENCE CURRICULUM FRAMEWORKS

UNIT 1: EARTH AND SPACE SCIENCE: WEATHER & SEASONS **(Introduced in fall, ongoing)** (continued)				
Substrand/Standard	**Curriculum Benchmark**	**Standards of Proficiency** (To be determined by teachers/teams)	**Resources***	**Optional Ideas for Engineering Connections**
Substrand: The Practice of Engineering Standard: Understand that some objects occur in nature; others have been designed and processed by people.	**Sort objects into two groups: those that are found in nature and those that are human made.** For example: Cars, pencils, trees, rocks. *(Standard NSE: 0.1.2.1.1)*			Engineers create things to meet human needs and wants. As your students sort, when they find something that is human made, ask: Why did people make this? What need or want did it meet? Show your students a picture of a city or the inside of a store or house and ask: What would be left is you took away all the things made by humans? *(from "The Works"**)*

* All kindergarten resources are provided at each building.
Check with your kindergarten team to locate these shared resources
** "The Works" http://www.theworks.org/

KINDERGARTEN: SCIENCE CURRICULUM FRAMEWORKS

UNIT 2: PHYSICAL SCIENCE: FIVE SENSES & MATTER (Winter)

Big Question	Formative/Summative Assessments (To be determined by teachers/teams)
1. What are the five senses and how do you use them? 2. What are other physical properties (electricity, magnets) and what can you do with them? Nature of Science and Engineering Questions: 3. What tools does a scientist use? 4. How can you think like a scientist (observe, ask a question, form an idea, experiment)? 5. Can you identify if an object is man-made or found in nature?	Options include, but are not limited to: • Student will be able to identify the five senses? Nature of Science and Engineering Assessments: • Student will be able to identify tools that a scientist might use. • Student will be able to think like a scientist (observe, ask a question, form an idea, experiment). • Student will be able to sort objects into groups that are man-made and found in nature.

Substrand/Standard	Curriculum Benchmark	Standards of Proficiency (To be determined by teachers/teams)	Resources*	Optional Ideas for Engineering Connections
Substrand: Matter Standard: Understand that objects can be described in terms of the materials they are made of and their physical properties.	Sort objects in terms of color, size, shape, and texture, and communicate reasoning for the sorting system. *(Standard PS: 0.2.1.1.1)*		**Big Books:** • See, Hear, Touch, Taste, Smell by Melvin Berger **Video:** • *Our Five Senses* **Other Materials:** • 5 Senses Game • Sound Cubes • Mystery Box & Objects • 8 Smelling Canisters with Picture Cards(home made) **Listening Center:** • Animals Soundtracks • Nursery Rhymes Soundtracks • Soundtracks **(continued on next page)**	Explore other physical properties, too: What kinds of things can you pick up with a magnet? What materials conduct electricity? Which things sink and which things float? *(from "The Works"**)*

* All kindergarten resources are provided at each building.
Check with your kindergarten team to locate these shared resources
** "The Works" http://www.theworks.org/

KINDERGARTEN: SCIENCE CURRICULUM FRAMEWORKS

UNIT 2: PHYSICAL SCIENCE: FIVE SENSES & MATTER (Winter) (continued)				
Substrand/Standard	**Curriculum Benchmark**	**Standards of Proficiency** (To be determined by teachers/teams)	**Resources***	**Optional Ideas for Engineering Connections**
Substrand: Matter Standard: Understand that objects can be described in terms of the materials they are made of and their physical properties	Sort objects in terms of color, size, shape, and texture, and communicate reasoning for the sorting system. *(Standard PS: 0.2.1.1.1)*		**(continued from previous page)** **Student Books (6 copies each):** PAPERBACK: • Seeing by Robin Nelson • Hearing by Robin Nelson • Tasting by Robin Nelson • Smelling by Robin Nelson • Touching by Robin Nelson HARDCOVER: • Your Senses by Helen Frost • Seeing by Helen Frost • Hearing by Helen Frost • Tasting by Helen Frost • Smelling by Helen Frost • Touching by Helen Frost **Electronic Resources in District Grade Level Shared Folder:** • Video: *The Fabulous Five – Our Five Senses* • SMART Board: "Five Senses" • SMART Board: "Hearing"	Explore other physical properties, too: What kinds of things can you pick up with a magnet? What materials conduct electricity? Which things sink and which things float? *(from "The Works"**)*
Substrand: The Practice of Science Standard: Understand that scientific inquiry is a set of interrelated processes used to pose questions about the natural world and investigate phenomena.	**Use observations to develop an accurate description of a natural phenomenon and compare one's observations and descriptions with those of others.** *(Standard NSE: 0.1.1.2.1)*		**Big Books:** • Science Tools by J.A. Randolph • A Closer Look by Natalie Lunis **Other Materials:** • Thermometers • Magnifying Glasses • Binoculars • Microscope & Slides **Other Curriculum:** Literacy by Design – kindergarten • UNIT: Thinking Like a Scientist • THEME 8: Does it Sink or Float? • Pages 232-263	

* All kindergarten resources are provided at each building.
Check with your kindergarten team to locate these shared resources
** "The Works" http://www.theworks.org/

KINDERGARTEN: SCIENCE CURRICULUM FRAMEWORKS

UNIT 2: PHYSICAL SCIENCE: FIVE SENSES & MATTER **(Winter)** (continued)				
Substrand/Standard	**Curriculum Benchmark**	**Standards of Proficiency** (To be determined by teachers/teams)	**Resources***	**Optional Ideas for Engineering Connections**
Substrand: The Practice of Engineering Standard: Understand that some objects occur in nature; others have been designed and processed by people.	**Sort objects into two groups: those that are found in nature and those that are human made.** For example: Cars, pencils, trees, rocks. *(Standard NSE: 0.1.2.1.1)*			Engineers create things to meet human needs and wants. As your students sort, when they find something that is human made, ask: Why did people make this? What need or want did it meet? Show your students a picture of a city or the inside of a store or house and ask: What would be left is you took away all the things made by humans? *(from "The Works"**)*

* All kindergarten resources are provided at each building.
Check with your kindergarten team to locate these shared resources
** "The Works" http://www.theworks.org/

KINDERGARTEN: SCIENCE CURRICULUM FRAMEWORKS

UNIT 3: LIFE SCIENCE: LIVING & NON-LIVING (Spring)

Big Questions	Formative/Summative Assessments (To be determined by teachers/teams)
1. Can you name the parts of a plant (flower, stem, leaves, root)? 2. Using pictures, can you show me the life cycle of a pumpkin (seed, sprout, flower, baby green pumpkin, medium pumpkin, large orange pumpkin)? 3. Can you name basic body parts (heads, legs, eyes, and ears) on humans and animals? 4. What is the difference between a living thing and a non-living thing? 5. Can you describe the habitat of a frog? 6. Can you describe how an engineer might work with living and non-living things? Nature of Science and Engineering Questions: 7. What tools does a scientist use? 8. How can you think like a scientist (observe, ask a question, form an idea, experiment)? 9. Can you identify if an object is man-made or found in nature?	Options include, but are not limited to: • Student will be able to name the parts of a plan (flower, stem, leaves, root). • Student will be able to show me the life cycle of a pumpkin (seed, sprout, flower, baby green pumpkin, medium pumpkin, large orange pumpkin)? • Student will be able to identify basic body parts (heads, legs, eyes, and ears). • Student will be able to identify whether something is living or non-living. • Student will be able to describe the habitat of a frog. • Student will be able to describe how an engineer works with living and non-living things. Nature of Science and Engineering Assessments: • Student will be able to identify tools that a scientist might use. • Student will be able to think like a scientist (observe, ask a question, form an idea, experiment). • Student will be able to sort objects into groups that are man-made and found in nature.

Substrand/Standard	Curriculum Benchmark	Standards of Proficiency (To be determined by teachers/teams)	Resources*	Optional Ideas for Engineering Connections
Substrand: Structure and Function in Living Systems Standard: Understand that living things are diverse with many different observable characteristics.	Observe and compare plants and animals. *(Standard LS: 0.4.1.1.1)*		**Big Book:** • Growing Pumpkins by Melvin Berger • The Vegetable Garden by Melvin Berger • Life Cycle of a Bird by Bobbie Kalman **Reproducible:** • Pumpkin, Pumpkin mini-book with picture cards **Field Trip:** • To Thorn Crest Farm in Dundas (usually in October) **Electronic Resources in District Grade Level Shared Folder:** • Video: *Tadpoles Grow Into Frogs* • SMART Board: The Tiny Seed Retelling	

* All kindergarten resources are provided at each building.
Check with your kindergarten team to locate these shared resources
** "The Works" http://www.theworks.org/

KINDERGARTEN: SCIENCE CURRICULUM FRAMEWORKS

UNIT 3: LIFE SCIENCE: LIVING & NON-LIVING (Spring) (continued)				
Substrand/Standard	**Curriculum Benchmark**	**Standards of Proficiency** (To be determined by teachers/teams)	**Resources***	**Optional Ideas for Engineering Connections**
Substrand: Structure and Function in Living Systems Standard: Understand that living things are diverse with many different observable characteristics.	Identify the external parts of a variety of plants and animals including humans. For example: Heads, legs, eyes and ears on humans and animals; flowers, stems and roots on many plants. *(Standard LS: 0.4.1.1.2)*		**Big Books:** • An Apple a Day by Melvin Berger • Seeds Get Around by Nancy White • Animal Armor by Cathy Smith • A Frog Has a Sticky Tongue by Pamela Graham **Reproducible:** • Plant labeling sheet **Electronic Resources in District Grade Level Shared Folder:** • Video: *Plant Life Cycles* • Video: *Frogs – Wild by Nature for Kids* • Reproducible: Animal Report Forms • Reproducible: Animal Reports – Parent Letter • Video: *Beyond the Bars, Zoo & Zoo Animals* • Reproducible: My Zoo Book	
Substrand: Structure and Function in Living Systems Standard: Understand that living things are diverse with many different observable characteristics.	Differentiate between living and nonliving things. For example: Sort organisms and objects (or pictures of these) into groups of those that grow, reproduce, and need air, food, and water; and those that don't. *(Standard LS: 0.4.1.1.3)*		**Big Book:** • Animals and Their Babies by Melvin Berger • Is it Alive? by Marcia S. Freeman • Sort it Out by Kari Jenson Gold • Bird's Nest by Eileen Curran • Leaping Frogs by Melvin Berger • A Butterfly is Born – by Melvin Berger • The World of Ants by Melvin Berger **Video:** • *Living or Non-living?* **Additional Resources:** • All About Animals Photo Library	Engineers work with living as well as nonliving things. For example, biomedical engineers make artificial legs, joints and heart valves for people. Show your students pictures of these devices and ask why they were invented. Agricultural, chemical and industrial engineers design processes for making plants into all kinds of foods and useful products. With your students, explore what materials and products are made from plants. *(from "The Works"**)*

* All kindergarten resources are provided at each building.
Check with your kindergarten team to locate these shared resources
** "The Works" http://www.theworks.org/

KINDERGARTEN: SCIENCE CURRICULUM FRAMEWORKS

UNIT 3: LIFE SCIENCE: LIVING & NON-LIVING (Spring) (continued)				
Substrand/Standard	**Curriculum Benchmark**	**Standards of Proficiency** (To be determined by teachers/teams)	**Resources***	**Optional Ideas for Engineering Connections**
Substrand: Interdependence Among Living Systems Standard: Understand that natural systems have many components that interact to maintain the system.	Observe a natural system or its model, and identify living and nonliving components in that system. For example: A wetland, prairie, garden or aquarium. *(Standard LS: 0.4.2.1.1)*		**Big Book:** • Leaping Frogs (ponds)by Melvin Berger • Life in the Sea by Melvin Berger • In the Tree by Zoe Sharp • Busy as a Bee by Melvin Berger	
Substrand: The Practice of Science Standard: Understand that scientific inquiry is a set of interrelated processes used to pose questions about the natural world and investigate phenomena.	**Use observations to develop an accurate description of a natural phenomenon and compare one's observations and descriptions with those of others.** *(Standard NSE: 0.1.1.2.1)*		**Big Books:** • Science Tools by J.A. Randolph • A Closer Look by Natalie Lunis **Other Materials:** • Thermometers • Magnifying Glasses • Binoculars • Microscope & Slides **Other Curriculum:** Literacy by Design – kindergarten • UNIT: Thinking Like a Scientist • THEME 8: Does it Sink or Float? • Pages 232-263	
Substrand: The Practice of Engineering Standard: Understand that some objects occur in nature; others have been designed and processed by people.	**Sort objects into two groups: those that are found in nature and those that are human made.** For example: Cars, pencils, trees, rocks. *(Standard NSE: 0.1.2.1.1)*			Engineers create things to meet human needs and wants. As your students sort, when they find something that is human made, ask: Why did people make this? What need or want did it meet? Show your students a picture of a city or the inside of a store or house and ask: What would be left is you took away all the things made by humans? *(from "The Works"**)*

* All kindergarten resources are provided at each building.
Check with your kindergarten team to locate these shared resources
** "The Works" http://www.theworks.org/