Overview of Science Units & Major Resources:
GRADE 1

Unit 1: Life Science – Life Cycles
- Grade 1 Harcourt Science
- "Monarchs and More" Curriculum Guide K-2 – 4th Edition

Unit 2: Nature of Science & Engineering – Living/Nonliving
- Grade 1 Harcourt Science

Unit 3: Earth and Space Science – Rocks and Soil
- Grade 1 Harcourt Science
- Lakeshore "Rocks and Soil" Book and Activity Tub

Unit 4: Life Science – All About Animals
- Grade 1 Harcourt Science

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

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

GRADE 1: SCIENCE CURRICULUM FRAMEWORKS

UNIT 1: LIFE SCIENCE – LIFE CYCLES

Big Questions	Formative/Summative Assessments (To be determined by teachers/teams)
1. How do animals grow? 2. How do people use tools to gather information?	Options include, but are not limited to: • Grade 1 Harcourt Science Unit A, Chapter 3 Assessment

Substrand/Standard	Curriculum Benchmark	Standards of Proficiency (To be determined by teachers/teams)	Resources	Optional Ideas for Engineering Connections
Substrand: Evolution in Living Systems Standard: Understand that plants and animals undergo a series of orderly changes during their life cycles.	Demonstrate an understanding that animals pass through life cycles that include a beginning, development into adults, reproduction and eventually death. (For example: Use live organisms or pictures to observe the changes that occur during the life cycle of butterflies, meal worms or frogs.) *(Standard LS: 1.4.3.1.1)*		Grade 1 Harcourt Science • Unit A, Chapter 3, Lesson 5 (pages A64-A69) – Workbook pages (WB 28-29) Smart Board "Monarch Unit" (linked to United Streaming) (in district 1st grade shared folder) "Monarchs and More" Curriculum Guide K-2 – 4th Edition (University of Minnesota) Purchase eggs/larvae from this website: www.monarchlab.umn.edu (Cost per classroom is approximately $12/year plus shipping. Total building cost would be approximately $75/year. Cost is to be taken from building budgets.) Monarch Butterfly by Gail Gibbons	
Substrand: Evolution in Living Systems Standard: Understand that plants and animals undergo a series of orderly changes during their life cycles.	Recognize that animals pass through the same life cycle stages as their parents. *(Standard LS: 1.4.3.1.2)*		Grade 1 Harcourt Science • Unit A, Chapter 3, Lesson 4 (pages A58-A63) – Workbook pages (WB 26-27) United Streaming Video: "Animal Life Cycles" (7 segments/14 minutes) (in district 1st grade shared folder)	

GRADE 1: SCIENCE CURRICULUM FRAMEWORKS

UNIT 1: LIFE SCIENCE – LIFE CYCLES (continued)				
Substrand/Standard	**Curriculum Benchmark**	**Standards of Proficiency** (To be determined by teachers/teams)	**Resources**	**Optional Ideas for Engineering Connections**
Substrand: Interactions Among Science, Technology, Engineering, Mathematics, and Society. Standard: Understand that men and women throughout the history of all cultures, including Minnesota American Indian tribes and communities, have been involved in engineering design and scientific inquiry.	**Recognize that tools are used by people, including scientists and engineers, to gather information and solve problems. (For example: Magnifier, snowplow, calculator.)** *(Standard NSE: 1.1.3.2.1)*		Use magnifying glasses to observe caterpillar stages.	Other examples of using tools to solve problems include using a magnet to sort recycling or using a hammer to drive a nail. Many times, there are different machines that serve a similar purpose. For example, ask your students how many different ways there are to move people and things. Answers they come up with might include bicycles, boats, cars, buses and airplanes. Reading picture biographies of engineers, inventors and scientists is a good way to integrate STEM with language arts for this grade. *(from "The Works"*)*

GRADE 1: SCIENCE CURRICULUM FRAMEWORKS

UNIT 2: NATURE OF SCIENCE & ENGINEERING – LIVING/NONLIVING

Big Questions	**Formative/Summative Assessments** (To be determined by teachers/teams)
1. What are living and nonliving things? 2. How do people use evidence to support their observations?	Options include, but are not limited to: • Grade 1 Harcourt Science Unit A, Chapter 1 Assessment

Substrand/Standard	**Curriculum Benchmark**	**Standards of Proficiency** (To be determined by teachers/teams)	**Resources**	**Optional Ideas for Engineering Connections**
Substrand: Interactions Among Science, Technology, engineering, Mathematics, and Society. Standard: Understand that designed and natural systems exist in the world. These systems are made up of components that act within a system and interact with other systems.	**Observe that many living and nonliving things are made of parts and that if a part is missing or broken, they may not function properly.** *(Standard NSE: 1.1.3.1.1)*		Grade 1 Harcourt Science • Unit A, Chapter 1, Lesson 2, (pages A10-A19) – Workbook pages (WB 4-8) Smart Board Lesson on district 1st grade shared folder	Often engineers have to take things apart to learn more about how they work, so they can create new ones. It is interesting for children to take things apart and talk about the parts and what each part does. This can be done with simple things, like a pen or a flashlight, or more complicated things like a mechanical toy, a computer keyboard, a VCR or a DVD player. *(from "The Works"*)*
Substrand: The Practice of Science Standard: Understand that scientists work as individuals and in groups to investigate the natural world, emphasizing evidence and communicating with others.	**When asked "How do you know?" students support their answer with observations. (For example: Use observations to tell why a squirrel is a living thing.)** *(Standard NSE: 1.1.1.1.1)*		Grade 1 Harcourt Science • Unit A, Chapter 1, Lesson 2, (pages A10-A19) – Workbook pages (WB 4-8)	

* "The Works" http://www.theworks.org/

GRADE 1: SCIENCE CURRICULUM FRAMEWORKS

UNIT 3: EARTH AND SPACE SCIENCE – ROCKS AND SOIL

Big Questions	Formative/Summative Assessments (To be determined by teachers/teams)
1. What can we observe about rocks? 2. How do you classify rock and soil? 3. How do people use tools to solve problems?	Options include, but are not limited to: • Grade 1 Harcourt Science Unit C, Chapter 1 Assessment

Substrand/Standard	Curriculum Benchmark	Standards of Proficiency (To be determined by teachers/teams)	Resources	Optional Ideas for Engineering Connections
Substrand: Earth Structure and Processes Standard: Understand that Earth materials include solid rocks, sand, soil and water. These materials have different observable physical properties that make them useful.	**Group or classify rocks in terms of color, shape and size.** *(Standard NSE: 1.3.1.3.1)*		Grade 1 Harcourt Science • Unit C, Chapter 1, Lesson 1, (pages C4-C7) – Workbook pages (WB 58-59) Smart Board "Rocks and Soil Unit" (in district 1st grade shared folder) Lakeshore "Rocks and Soil Book Library" Lakeshore "Science Rocks and Soil Activity Tub" Rocks, Hard, Soft, Smooth, and Rough by Natalie Myra Rosinsky (AV Smart Board book)	Mining engineers figure out how to extract metals and other useful things from rocks. *(from "The Works"*)*
Substrand: Earth Structure and Processes Standard: Understand that Earth materials include solid rocks, sand, soil and water. These materials have different observable physical properties that make them useful.	Describe similarities and differences between soil and rocks. (For example: Use screens to separate components of soil and observe the samples using a magnifier.) *(Standard ESS: 1.3.1.3.2)*		Grade 1 Harcourt Science • Unit C, Chapter 1, Lesson 1, (pages C4-C7) – Workbook pages (WB 58-59) Smart Board "Rocks and Soil Unit" (in district 1st grade shared folder) Option: • Use plastic sieves to separate soil and make observations. • Use Venn diagram to compare soil and rocks.	

* "The Works" http://www.theworks.org/

GRADE 1: SCIENCE CURRICULUM FRAMEWORKS

UNIT 3: EARTH AND SPACE SCIENCE – ROCKS AND SOIL (continued)				
Substrand/Standard	**Curriculum Benchmark**	**Standards of Proficiency** (To be determined by teachers/teams)	**Resources**	**Optional Ideas for Engineering Connections**
Substrand: Earth Structure and Processes Standard: Understand that Earth materials include solid rocks, sand, soil and water. These materials have different observable physical properties that make them useful.	Identify and describe large and small objects made of Earth materials. *(Standard ESS: 1.3.1.3.3)*		Grade 1 Harcourt Science • Unit C, Chapter 1, Lesson 1, (pages C4-C7) – Workbook pages (WB 58-59)	The first tools made by early humans were made of stone. Show your students pictures of spear heads, axes and other early tools. These tool-makers were the first engineers. Long ago, Native Americans in Minnesota made stone tools. Earth materials have also been used to make houses in many cultures throughout human history. Examples of this include sod houses, wigwams, and pueblos. With your students, look at pictures and read books about houses like this. *(from "The Works"*)*
Substrand: Interactions Among Science, Technology, Engineering, Mathematics, and Society. Standard: Understand that men and women throughout the history of all cultures, including Minnesota American Indian tribes and communities, have been involved in engineering design and scientific inquiry.	**Recognize that tools are used by people, including scientists and engineers, to gather information and solve problems. (For example: Magnifier, snowplow, calculator.)** *(Standard NSE: 1.1.3.2.1)*		• Use sieves to separate soil and make observations.	

GRADE 1: SCIENCE CURRICULUM FRAMEWORKS

UNIT 4: LIFE SCIENCE – ALL ABOUT ANIMALS

Big Questions	Formative/Summative Assessments (To be determined by teachers/teams)
1. What do animals need? 2. What are some kinds of animals? 3. Why is it important to accurately describe your animal observations?	Options include, but are not limited to: • Grade 1 Harcourt Science Unit A, Chapter 3 Assessment • Grade 1 Harcourt Science Unit B, Chapter 2 Assessment

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.	Describe and sort animals into groups in many ways, according to their physical characteristics and behaviors. *(Standard LS: 1.4.1.1.1)*		Grade 1 Harcourt Science • Unit A, Chapter 3, Lesson 2 (pages A48-A53) – Workbook pages (WB 22-23) Smart Board "Animal Classification Unit" (in district 1st grade shared folder)	
Substrand: Interdependence Among Living Systems Standard: Understand that natural systems have many components that interact to maintain the living system.	Recognize that animals need space, water, food, shelter and air. *(Standard LS: 1.4.2.1.1)*		Grade 1 Harcourt Science • Unit A, Chapter 3, Lesson 1 (pages A42-A47) – Workbook pages (WB 20-21)	Environmental engineers design tools and techniques to measure air quality and water quality to find out when habitats are in trouble. *(from "The Works"*)*
Substrand: Interdependence Among Living Systems Standard: Understand that natural systems have many components that interact to maintain the living system.	Describe ways in which an animal's habitat provides for its basic needs. (For example: Compare students' houses with animals' habitats.) *(Standard LS: 1.4.2.1.2)*		Grade 1 Harcourt Science • Unit B, Chapter 2, Lessons 1-4 (pages B24-B41) Smart Board "Animal Habitats Unit" (in district 1st grade shared folder)	Ask your students to design and build a habitat for a pet or other small animal, such as a hamster cage, an ant farm or an aquarium. One example: have your students collect small twigs, rocks or pinecones and put them in a box. Clay animals could be made to complete the habitat. *(from "The Works"*)*

* "The Works" http://www.theworks.org/

GRADE 1: SCIENCE CURRICULUM FRAMEWORKS

UNIT 4: LIFE SCIENCE – ALL ABOUT ANIMALS (continued)				
Substrand/Standard	**Curriculum Benchmark**	**Standards of Proficiency** (To be determined by teachers/teams)	**Resources**	**Optional Ideas for Engineering Connections**
Substrand: The Practice of Science Standard: Understand that scientists work as individuals and in groups to investigate the natural world, emphasizing evidence and communicating with others.	**Recognize that describing things as accurately as possible is important in science because it enables people to compare their observations with those of others.** *(Standard NSE: 1.1.1.1.2)*		• Non-fiction books from school/ classroom library	Communication is also important in engineering. Part of the engineering design process is describing precisely how to build something. Another important part is sharing your results. *(from "The Works"*)*