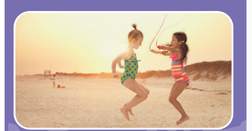
twig SCIENCE Grade K Scope and Sequence

ASSESSMENT All modules include: Pre-Exploration, Formative Assessment, Performance Task, and Multiple Choice Assessment

MODULES	MODULE ANCHOR PHENOMENON	STORYLINE	PERFORMANCE EXPECTATIONS (*PEs that integrate traditional science content with engineering through SEPs or DCIs)	NGSS		CROSS-CURRICULAR CONNECTIONS	
1: My Big Nature Adventure **NGSS Topic Arrangements: Interdependent Relationships in Ecosystems** 	Different plants and animals live in different places.	Hold on tight—you're going on an adventure! In this module, students travel the world looking at different environments—including deserts, grasslands, cities, and even their very own schoolyard. They observe some of the plants and animals that live in these places, and discover that each environment provides living things with everything they need to survive. Through hands-on exploration, videos, and books, students also learn that all living things share the same basic needs—whether you're a plant, a human, or a dung beetle!	**K-LS1-1** Use observations to describe patterns of what plants and animals (including humans) need to survive. **K-ESS3-1** Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places in which they live.	**Crosscutting Concepts** **CCC-1** Patterns **CCC-2** Cause and Effect **CCC-4** Systems and System Models **CCC-7** Stability and Change **Disciplinary Core Ideas** **LS1.C** Organization for Matter and Energy Flow in Organisms **ESS3.A** Natural Resources	**Science and Engineering Practices** **SEP-1** Asking Questions and Defining Problems **SEP-2** Developing and Using Models **SEP-3** Planning and Carrying Out Investigations **SEP-4** Analyzing and Interpreting Data **SEP-7** Engaging in Argument from Evidence **SEP-8** Obtaining, Evaluating, and Communicating Information **Environmental Principles and Concepts** **Principle I** People depend on natural systems **Principle II** People influence natural systems	**Common Core English Language Arts** **RI.K.1–3** Key Ideas and Details **RI.K.4–6** Craft and Structure **RI.K.7–8** Integration of Knowledge and Ideas **RI.K.10** Range of Reading and Level of Text Complexity **L.K.5–6** Vocabulary Acquisition and Use **RF.K.1** Print Concepts **RF.K.3** Phonics and Word Recognition **RF.K.4** Fluency **SL.K.1–3** Comprehension and Collaboration **SL.K.4, 6** Presentation of Knowledge and Ideas **W.K.2** Text Types and Purposes **W.K.7–8** Research to Build and Present Knowledge **English Language Proficiency Domains** Speaking, Listening, Reading, Writing	**WIDA English Language Development** **Standard 1**: Social and Instructional Language **Standard 2**: The Language of Language Arts **Standard 3:** The Language of Mathematics **Standard 4:** The Language of Science **Common Core Math** **K.G.A** Identify and describe shapes **K.MD.A** Describe and compare measurable attributes **K.MD.B** Classify objects and count the number of objects in each category **MP5** Use appropriate tools strategically **MP6** Attend to precision **MP7** Look for and make use of structure
2: Marble Run Engineer **NGSS Topic Arrangements: Forces and Interactions; Engineering Design** 	What happens when we push, pull, and drop objects? How can we change their speed and direction?	In this module, students become Marble Run Engineers. They explore forces by observing and analyzing what happens when they push and pull different objects. They use tools to alter and measure how far they can push a marble, and how precisely they can control its direction. Finally, students put all their knowledge into practice by designing, building, observing, and analyzing fun (and functional!) marble run tracks. Let's roll!	**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 whether a design solution works as intended to change the speed or direction of an object with a push or a pull.* **K–2-ETS1-1** Ask questions, make observations, and gather information about a situation people want to change in order to define a simple problem that can be solved through the development of a new or improved object or tool.	**Crosscutting Concepts** **CCC-1** Patterns **CCC-2** Cause and Effect **Disciplinary Core Ideas** **PS2.A** Forces and Motion **PS2.B** Types of Interactions **PS3.C** Relationship Between Energy and Forces **Engineering, Technology, and Applications of Science** **ETS1.A** Defining and Delimiting an Engineering Problem	**Science and Engineering Practices** **SEP-1** Asking Questions and Defining Problems **SEP-2** Developing and Using Models **SEP-3** Planning and Carrying Out Investigations **SEP-4** Analyzing and Interpreting Data **SEP-5** Using Mathematics and Computational Thinking **SEP-7** Engaging in Argument from Evidence **SEP-8** Obtaining, Evaluating, and Communicating Information	**Common Core English Language Arts** **RI.K.1–3** Key Ideas and Details **RI.K.7–8** Integration of Knowledge and Ideas **RI.K.10** Range of Reading and Level of Text Complexity **L.K.6** Vocabulary Acquisition and Use **RF.K.1** Print Concepts **RF.K.3** Phonics and Word Recognition **RF.K.4** Fluency **SL.K.1–3** Comprehension and Collaboration **SL.K.4–6** Presentation of Knowledge and Ideas **W.K.2–3** Text Types and Purposes **W.K.5** Production and Distribution of Writing **W.K.8** Research to Build and Present Knowledge **WIDA English Language Development** **Standard 1**: Social and Instructional Language **Standard 2**: The Language of Language Arts **Standard 3:** The Language of Mathematics **Standard 4:** The Language of Science **English Language Proficiency Domains** Speaking, Listening, Reading, Writing	**Common Core Math** **K.CC.A** Know number names and the count sequence **K.CC.B** Count to tell the number of objects **K.MD.A** Describe and compare measurable attributes **K.MD.B** Classify objects and count the number of objects in each category **K.OA.A** Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from **MP1** Make sense of problems and persevere in solving them **MP2** Reason abstractly and quantitatively **MP3** Construct viable arguments and critique the reasoning of others **MP4** Model with mathematics **MP5** Use appropriate tools strategically **MP6** Attend to precision **MP7** Look for and make use of structure **MP8** Look for and express regularity in repeated reasoning
3: Be Prepared **NGSS Topic Arrangements: Weather and Climate; Engineering Design** 	How do we observe weather and collect data to describe weather patterns over time?	What's the weather like? In this module, students find out by becoming amateur meteorologists! They observe weather patterns, learn to interpret weather forecasts, and use their knowledge to prepare for whatever the weather throws at them. Students explore the importance of staying protected from the Sun, build their own mini-umbrellas, and find out how meteorologists make and share their predictions about the weather. Finally, they create weather forecasts of their own—because whatever the weather, it pays to be prepared!	**K-ESS2-1** Use and share observations of local weather conditions to describe patterns over time. **K-ESS3-2** Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.* **K-PS3-1** Make observations to determine the effect of sunlight on the 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–2-ETS1-1** 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. **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.	**Crosscutting Concepts** **CCC-1** Patterns **CCC-2** Cause and Effect **CCC-3** Scale, Proportion, and Quantity **CCC-6** Structure and Function **Disciplinary Core Ideas** **PS3.B** Conservation of Energy and Energy Transfer **ESS2.D** Weather and Climate **ESS3.B** Natural Hazards **Engineering, Technology, and Applications of Science** **ETS1.A** Defining and Delimiting an Engineering Problem **ETS1.B** Developing Possible Solutions **ETS1.C** Optimizing the Design Solution **Science and Engineering Practices** **SEP-1** Asking Questions and Defining Problems	**Science and Engineering Practices** **SEP-1** Asking Questions and Defining Problems **SEP-2** Developing and Using Models **SEP-3** Planning and Carrying Out Investigations **SEP-4** Analyzing and Interpreting Data **SEP-6** Constructing Explanations and Designing Solutions **SEP-7** Engaging in Argument from Evidence **SEP-8** Obtaining, Evaluating, and Communicating Information **Environmental Principles and Concepts** **Principle I** People depend on natural systems **Principle III** Natural systems change in ways that people benefit from and can influence **Principle IV** There are no permanent or impermeable boundaries that prevent matter from flowing between systems	**Common Core English Language Arts** **RI.K.1–3** Key Ideas and Details **RI.K.4** Craft and Structure **RI.K.7–8** Integration of Knowledge and Ideas **RI.K.10** Range of Reading and Level of Text Complexity **L.K.6** Vocabulary Acquisition and Use **RF.K.1** Print Concepts **RF.K.4** Fluency **SL.K.1–3** Comprehension and Collaboration **SL.K.4–6** Presentation of Knowledge and Ideas **W.K.2** Text Types and Purposes **W.K.8** Research to Build and Present Knowledge **WIDA English Language Development** **Standard 1**: Social and Instructional Language **Standard 2**: The Language of Language Arts **Standard 3:** The Language of Mathematics **Standard 4:** The Language of Science **English Language Proficiency Domains** Speaking, Listening, Reading, Writing	**Common Core Math** **K.CC.A** Know number names and the count sequence **K.CC.B** Count to tell the number of objects **K.CC.C** Compare numbers **K.G.A** Identify and describe shapes **K.MD.B** Classify objects and count the number of objects in each category **K.OA.A** Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from **MP1** Make sense of problems and persevere in solving them **MP2** Reason abstractly and quantitatively **MP3** Construct viable arguments and critique the reasoning of others **MP5** Use appropriate tools strategically **MP7** Look for and make use of structure **MP8** Look for and express regularity in repeated reasoning
4: I Can **NGSS Topic Arrangements: Interdependent Relationships in Ecosystems** 	How can I protect the environment from changes that harm it?	Animals can, plants can—and I can! In this module, students discover how living things can change their environments to meet their basic needs. Using videos and texts, students explore examples, such as earthworms, beavers, and trees, and consider the positive and negative impacts of the changes they make. Students consider how humans can change the environment too—how we can harm it, and how we can protect it. Finally, students identify one way they can help to protect the natural world, and invite other students to do the same.	**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-ESS3-3** Communicate solutions that will reduce the impact of humans on land, water, air, and/or other living things in the local environment.* **K–2-ETS1-1** Ask questions, make observations, and gather information about a situation people want to change in order to define a simple problem that can be solved through the development of a new or improved object or tool.	**Crosscutting Concepts** **CCC-2** Cause and Effect **CCC-3** Scale, Proportion, and Quantity **CCC-4** System and System Models **Disciplinary Core Ideas** **ESS2.E** Biogeology **ESS3.A** Natural Resources **ESS3.C** Human Impacts on Earth Systems **Engineering, Technology, and Applications of Science** **ETS1.A** Defining and Delimiting an Engineering Problem **ETS1.B** Developing Possible Solutions **Science and Engineering Practices** **SEP-1** Asking Questions and Defining Problems **SEP-2** Developing and Using Models **SEP-3** Planning and Carrying Out Investigations **SEP-4** Analyzing and Interpreting Data	**Science and Engineering Practices** **SEP-6** Constructing Explanations and Designing Solutions **SEP-7** Engaging in Argument from Evidence **SEP-8** Obtaining, Evaluating, and Communicating Information **Environmental Principles and Concepts** **Principle I** People depend on natural systems **Principle II** People influence natural systems **Principle III** Natural systems change in ways that people benefit from and can influence **Principle IV** There are no permanent or impermeable boundaries that prevent matter from flowing between systems **Principle V** Decisions affecting resources and natural systems are complex and involve many factors	**Common Core English Language Arts** **RI.K.1–3** Key Ideas and Details **RI.K.4** Craft and Structure **RI.K.7–9** Integration of Knowledge and Ideas **RI.K.10** Range of Reading and Level of Text Complexity **L.K.6** Vocabulary Acquisition and Use **RF.K.1** Print Concepts **RF.K.3** Phonics and Word Recognition **RF.K.4** Fluency **RL.K.1** Key Ideas and Details **RL.K.10** Range of Reading and Level of Text Complexity **SL.K.1–3** Comprehension and Collaboration **SL.K.4–6** Presentation of Knowledge and Ideas **W.K.1–2** Text Types and Purposes **W.K.8** Research to Build and Present Knowledge	**WIDA English Language Development** **Standard 1**: Social and Instructional Language **Standard 2**: The Language of Language Arts **Standard 3:** The Language of Mathematics **Standard 4:** The Language of Science **English Language Proficiency Domains** Speaking, Listening, Reading, Writing **Common Core Math** **K.MD.A** Describe and compare measurable attributes **K.CC.A** Know number names and the count sequence **K.CC.C** Compare numbers **MP1** Make sense of problems and persevere in solving them **MP3** Construct viable arguments and critique the reasoning of others