Grade 1 Science

Course Description

First grade science curriculum expands on the concepts of the Earth's Place in the Universe, Waves and Their Applications in Technologies for Information Transfer, From Molecules to Organisms: Structures and Processes (animals and plants), and Heredity: Inheritance and Variation of Traits. Students will learn and practice science skills using primary and secondary sources, reading and writing non-fiction and studying concepts in science, technology, engineering and math. English, Language Arts, Mathematics, and Writing are embedded throughout each unit.

Hazelwood School District Science Curriculum

Grade Level: 1

Content: Science

Disciplinary Core Idea (DCI) Code and Title: K-2 Engineering Design

Standards

Know (Disciplinary Core Ideas)	Do (Performance Expectations)
ETS1.A: Defining and Delimiting Engineering Problems. • A situation that people want to change or create can be approached as a problem to be solved through engineering. • Asking questions, making observations, and gathering information are helpful in thinking about problems. • Before beginning to design a solution, it is important to clearly understand the problem.	**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.

Learning Targets (I can…)
I can recognize what objects are made of and how they are made. I can learn what technology is. I will understand how people use a process to design and build things that solve problems and make our lives better.

Essential Questions (Student Friendly)
How do you use your senses to identify objects? What questions do scientists ask? What skills do scientists use? How do scientists find answers?

Previous Knowledge Needed	Additional Concepts
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. **K-ESS3-2** Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.	

Hazelwood School District Science Curriculum

Grade Level: 1

Content: Science

Disciplinary Core Idea (DCI) Code and Title: K-2. Engineering Design

Standards

Know (Disciplinary Core Ideas)	Do (Performance Expectations)
ETS1.B: Developing Possible Solutions Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (K-2-ETS1-2)	**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.

Learning Targets (I can…)
I can conduct a test to illustrate how the shape of an object helps it function as needed to solve a problem. I can design an object and plan a test to see what its function is.

Essential Questions (Student Friendly)
How do scientist record and share data? What is the design process?

Previous Knowledge Needed	Additional Concepts
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.	Make sure the students have a clear understanding of the scientific method. • Ask a question • Make your hypothesis • Plan a fair test • Do your test • Collect and record your data • Draw a conclusion

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Know (Disciplinary Core Ideas)	Do (Performance Expectations)
ETS1.C: Optimizing the Design Solution Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (K-2-ETS1-3)	**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 Targets (I can…)
I will learn how scientists solve problems. I will identify how technology can help people solve problems. I will be able to explain what materials some objects are made of. I will be able to explain what materials some objects are made of.

Essential Questions (Student Friendly)
Can you explain what materials some objects are made of? What is technology? What are objects made of? What are objects made of?

Previous Knowledge Needed	Additional Concepts
• How to compare • Scientific method	

Hazelwood School District Science Curriculum

Grade Level: 1

Content: Science

Disciplinary Core Idea (DCI) Code and Title: 1. Space Systems: Patterns and Cycles

Standards

Know (Disciplinary Core Ideas)	Do (Performance Expectations)
ESS1.A: The Universe and its Stars Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1-ESS1-1)	**1-ESS1-1.** Use observations of the sun, moon, and stars to describe patterns that can be predicted. [Clarification Statement: Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set; and stars other than our sun are visible at night but not during the day.] [Assessment Boundary: Assessment of star patterns is limited to stars being seen at night and not during the day.]

Learning Targets (I can…)
I will understand ways the sun helps and harms things on Earth. I will explain what causes day and night.

Essential Questions (Student Friendly)
What is the sun? What causes day and night? What can you tell about the Earth and sky?

Previous Knowledge Needed	Additional Concepts
• What is a star? • What is the moon? • What is the sun? • Where are the sun, moon and stars located?	• Visit a website that shows the moon phases • Stress the concept: stars are visible at night but not during the day (other than the sun as a star) • relationship and rotation of the moon, sun, and earth (flashlight and globe or balloon)

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Content: Science

Disciplinary Core Idea (DCI) Code and Title: 1. Space Systems: Patterns and Cycles

Standards

Know (Disciplinary Core Ideas)	Do (Performance Expectations)
ESS1.B: Earth and the Solar System Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2)	**1-ESS1-2.** Make observations at different times of year to relate the amount of daylight to the time of year. [Clarification Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.] [Assessment Boundary: Assessment is limited to relative amounts of daylight, not quantifying the hours or time of daylight.]

Learning Targets (I can…)
I can correctly make observations to describe what is happening in the sky. I can describe the pattern or cycle I see in the sky using pictures or words.

Essential Questions (Student Friendly)
What is the sun? What causes day and night? Why does the moon look like it disappears? What are the phases of the moon?

Previous Knowledge Needed	Additional Concepts
• What is a sun? • What are the seasons? • Difference between day and night	• Moon phases

Hazelwood School District Science Curriculum

Grade Level: 1

Content: Disciplinary Core Idea (DCI) Code and Title: 1.Waves: Light and Sound

Standards

Know (Disciplinary Core Ideas)	Do (Performance Expectations)
PS4.A: Wave Properties - Sound can make matter vibrate, and vibrating matter can make sound.	**1-PS4-1.** Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.

Learning Targets (I can…)
Learning Target: I can experiment with materials to find out how vibrations create sound and how sound can cause things to vibrate. Learning Target: I can explain how sound and vibrations work together. Learning Target: I can demonstrate, using materials, different pitches that can be made from vibration.

Essential Questions (Student Friendly)
What is sound? How can you make sound?

Previous Knowledge Needed	Additional Concepts
-What is energy? -How do we use energy?	- Science investigations begin with a question. -Scientists use different ways to study the world. - Collaborate with music teacher - Vibrations of your voice - YOUTUBE vibrations video -Use geoboards from math with rubberbands to talk about vibrations

Hazelwood School District Science Curriculum

Grade Level: 1

Content: Disciplinary Core Idea (DCI) Code and Title: 1.Waves: Light and Sound

Standards

Know (Disciplinary Core Ideas)	Do (Performance Expectations)
PS4.B Electromagnetic Radiation - Objects can be seen if light is available to illuminate them or if they give off their own light.	**1-PS4-2.** Make observations to construct an evidence-based account that objects can be seen only when illuminated.

Learning Targets (I can…)
Learning Target: I can observe and explain why objects in the dark can only be seen when light shines on them. Learning Target: I can make observations about what happens when light is added to a situation.

Essential Questions (Student Friendly)
What does light do? What is light?

Previous Knowledge Needed	Additional Concepts
-What is energy? - How do we use energy?	- Science investigations begin with a question. - Scientists use different ways to study the world. - Different sources of light (sun, flashlights, fire, etc) - How does light effect how we see things?

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Content: Disciplinary Core Idea (DCI) Code and Title: 1. Waves: Light and Sound

Standards

Know (Disciplinary Core Ideas)	Do (Performance Expectations)
PS4.B: Electromagnetic Radiation - Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam.	**1-PS4-3**. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.

Learning Targets (I can…)
Learning Target: I can observe and explain how different objects affect light.

Essential Questions (Student Friendly)
What is light? What does light do?

Previous Knowledge Needed	Additional Concepts
	--Science investigations begin with a question. -Scientists use different ways to study the world. -What are shadows?

Content: Disciplinary Core Idea (DCI) Code and Title: Structure, Function, and Information Processing

Standards

Know (Disciplinary Core Ideas)	Do (Performance Expectations)
LS1.A. Structure and Function - All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. Plants also have different parts that help them survive and grow. **LS1.D Information Processing** - Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.	**1-LS1-1.** Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.

Learning Targets (I can…)
Learning Target: I can use diagrams and models to show how animals use their five senses to meet their needs, grow, and survive. Learning Target: I can use diagrams and models to show and explain how animals use their body parts for survival. Learning Target: I can use diagrams and models to show and explain how humans use tools like animals as a part of survival.

Essential Questions (Student Friendly)
What do plants and animals need? What do living things need? How do plants and animals live in land environments? How do plants and animals live in water environments?

Previous Knowledge Needed	Additional Concepts
- K.ETS1.A - What are nonliving and living things? - 5 senses	- Scientists look for patterns and order when making observations about the world. - How do we use our five senses to make

Content: Disciplinary Core Idea (DCI) Code and Title: 1. Structure, Function, and Information Processing

Standards

Know (Disciplinary Core Ideas)	Do (Performance Expectations)
LS1.B Growth and Development of Organisms - Adult plants and animals can have young. In many kinds of animals, parents and offspring engage in behaviors that help the offspring to survive.	**1.LS1-2.** Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive

Learning Targets (I can…)
Learning Target: I can make observations and record ways that plants and/or animals change as they grow. Learning Target: I can compare and contrast how animals, plants, and humans grow and change. Learning Target: I can sequence, through pictures or writing, how plants and/or animals grow and change. Learning Target: I can research, using technology, and explain animal behaviors and interactions between parents and offspring for survival.

Essential Questions (Student Friendly)
What is the role of adult animal in survival? How do adults help their offspring meet their needs and survive?

Previous Knowledge Needed	Additional Concepts
-Living vs. Nonliving -Making observations	Book: Growing Up (Macmillan Series) • Comparing stages of life Compare/contrast animals and/or plants Role of adult and how they help their young survive Different types of groups that animals form

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Content: Disciplinary Core Idea (DCI) Code and Title: 1. Structure, Function, and Information Processing

Standards

Know (Disciplinary Core Ideas)	Do (Performance Expectations)
LS3.A Inheritance of Traits **-** Young animals are very much, but not exactly, like their parents. Plants are also very much, but not exactly, like their parents. **LS3.B Variation of Traits** - Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.	**1.LS3-1.** Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

Learning Targets (I can…)
Learning Target: I can compare and contrast the characteristics of animals. Learning Target: I can compare and contrast the characteristics of plants. Learning Target: I can explain how animals and plants of the same type have similar and different traits.

Essential Questions (Student Friendly)
How are living things alike and different? How are flowers alike and different? How do plants grow? How do some animals grow? What are some groups of living things? What are some parts of plants? How are living things like their parents? How are groups of living things different?

Previous Knowledge Needed	Additional Concepts
- Living vs. nonliving - Making observations	- Compare/Contrast plants and/or animals - Compare/Contrast people/ animals - Use a variety of plant and animal pictures to compare body coverings/parts, young animal names, habitats, caring for their young and what they eat.