Science Standards Embedded in Beautiful Butterflies K-3

Kindergarten

Strand	Substrand	Standard Understand that...	Code	Benchmark
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different observable characteristics.	0.4.1.1.1	Observe and compare plants and animals.
			0.4.1.1.2	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.
			0.4.1.1.3	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.
	2. Interdepen-dence Among Living Systems	1. Natural systems have many components that interact to maintain the system.	0.4.2.1.1	Observe a natural system or its model, and identify living and nonliving components in that system. *For example:* A wetland, prairie, garden or aquarium.

1st Grade

Strand	**Substrand**	**Standard** Understand that...	**Code**	**Benchmark**
1. The Nature of Science and Engineering	1. The Practice of Science	1. Scientists work as individuals and in groups to investigate the natural world, emphasizing evidence and communicating with others.	1.1.1.1.1	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.
			1.1.1.1.2	Recognize that describing things as accurately as possible is important in science because it enables people to compare their observations with those of others.
	3. Interactions Among Science, Technology Engineering, Mathematics, and Society	1. 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.	1.1.3.1.1	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.

4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different observable characteristics.	1.4.1.1.1	Describe and sort animals into groups in many ways, according to their physical characteristics and behaviors.
	2. Interdepen-dence Among Living Systems	1. Natural systems have many components that interact to maintain the living system.	1.4.2.1.1	Recognize that animals need space, water, food, shelter and air.
			1.4.2.1.2	Describe ways in which an animal's habitat provides for its basic needs. *For example:* Compare students' houses with animal habitats.
	3. Evolution in Living Systems	1. Plants and animals undergo a series of orderly changes during their life cycles.	1.4.3.1.1	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.
			1.4.3.1.2	Recognize that animals pass through the same life cycle stages as their parents.

2nd Grade

Strand	Substrand	**Standard** Understand that...	Code	Benchmark
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different observable characteristics.	2.4.1.1.1	Describe and sort plants into groups in many ways, according to their physical characteristics and behaviors.
	2. Interdepen-dence Among Living Systems	1. Natural systems have many components that interact to maintain the system	2.4.2.1.1	Recognize that plants need space, water, nutrients and air, and that they fulfill these needs in different ways.
	3. Evolution in Living Systems	1. Plants and animals undergo a series of orderly changes during their life cycles.	2.4.3.1.1	Describe the characteristics of plants at different stages of their life cycles. *For example*: Use live organisms or pictures to observe the changes that occur during the life cycles of bean plants or marigolds.

3rd Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different characteristics that enable them to grow, reproduce and survive.	3.4.1.1.1	Compare how the different structures of plants and animals serve various functions of growth, survival and reproduction. *For example:* Skeletons in animals and stems in plants provide strength and stability.
			3.4.1.1.2	Identify common groups of plants and animals using observable physical characteristics, structures and behaviors. *For example:* Sort animals into groups such as mammals and amphibians based on physical characteristics. *Another example:* Sort and identify common Minnesota trees based on leaf/needle characteristics.
4. Life Science	3. Evolution in Living Systems	2. Offspring are generally similar to their parents, but may have variations that can be advantageous or disadvantageous in a particular environment.	3.4.3.2.1	Give examples of likenesses between adults and offspring in plants and animals that can be inherited or acquired. *For example:* Collect samples or pictures that show similarities between adults and their young offspring.
			3.4.3.2.2	Give examples of differences among individuals that can sometimes give an individual an advantage in survival and reproduction.

Science Standards Embedded in Birds and Habitat K-4

Kindergarten

Strand	Substrand	Standard Understand that...	Code	Benchmark
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different observable characteristics.	0.4.1.1.1	Observe and compare plants and animals.
			0.4.1.1.2	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.
			0.4.1.1.3	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.
	2. Interdepen-dence Among Living Systems	1. Natural systems have many components that interact to maintain the system.	0.4.2.1.1	Observe a natural system or its model, and identify living and nonliving components in that system. *For example:* A wetland, prairie, garden or aquarium.

1st Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark
1. The Nature of Science and Engineering	1. The Practice of Science	1. Scientists work as individuals and in groups to investigate the natural world, emphasizing evidence and communicating with others.	1.1.1.1.1	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.
			1.1.1.1.2	Recognize that describing things as accurately as possible is important in science because it enables people to compare their observations with those of others.
	3. Interactions Among Science, Technology Engineering, Mathematics, and Society	1. 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.	1.1.3.1.1	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.

4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different observable characteristics.	1.4.1.1.1	Describe and sort animals into groups in many ways, according to their physical characteristics and behaviors.
	2. Interdepen-dence Among Living Systems	1. Natural systems have many components that interact to maintain the living system.	1.4.2.1.1	Recognize that animals need space, water, food, shelter and air.
			1.4.2.1.2	Describe ways in which an animal's habitat provides for its basic needs. *For example:* Compare students' houses with animal habitats.
	3. Evolution in Living Systems	1. Plants and animals undergo a series of orderly changes during their life cycles.	1.4.3.1.1	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.
			1.4.3.1.2	Recognize that animals pass through the same life cycle stages as their parents.

2nd Grade

Strand	Substrand	**Standard** Understand that...	Code	Benchmark
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different observable characteristics.	2.4.1.1.1	Describe and sort plants into groups in many ways, according to their physical characteristics and behaviors.
	2. Interdepen-dence Among Living Systems	1. Natural systems have many components that interact to maintain the system	2.4.2.1.1	Recognize that plants need space, water, nutrients and air, and that they fulfill these needs in different ways.
	3. Evolution in Living Systems	1. Plants and animals undergo a series of orderly changes during their life cycles.	2.4.3.1.1	Describe the characteristics of plants at different stages of their life cycles. *For example*: Use live organisms or pictures to observe the changes that occur during the life cycles of bean plants or marigolds.

3rd Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different characteristics that enable them to grow, reproduce and survive.	3.4.1.1.1	Compare how the different structures of plants and animals serve various functions of growth, survival and reproduction. *For example:* Skeletons in animals and stems in plants provide strength and stability.
			3.4.1.1.2	Identify common groups of plants and animals using observable physical characteristics, structures and behaviors. *For example:* Sort animals into groups such as mammals and amphibians based on physical characteristics. *Another example:* Sort and identify common Minnesota trees based on leaf/needle characteristics.
4. Life Science	3. Evolution in Living Systems	2. Offspring are generally similar to their parents, but may have variations that can be advantageous or disadvantageous in a particular environment.	3.4.3.2.1	Give examples of likenesses between adults and offspring in plants and animals that can be inherited or acquired. *For example:* Collect samples or pictures that show similarities between adults and their young offspring.
			3.4.3.2.2	Give examples of differences among individuals that can sometimes give an individual an advantage in survival and reproduction.

4th Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark

No standards apply.

Science Standards Embedded in Buzzing Bees 1-5

1st Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark
1. The Nature of Science and Engineering	1. The Practice of Science	1. Scientists work as individuals and in groups to investigate the natural world, emphasizing evidence and communicating with others.	1.1.1.1.1	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.
			1.1.1.1.2	Recognize that describing things as accurately as possible is important in science because it enables people to compare their observations with those of others.
	3. Interactions Among Science, Technology Engineering, Mathematics, and Society	1. 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.	1.1.3.1.1	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.
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different observable characteristics.	1.4.1.1.1	Describe and sort animals into groups in many ways, according to their physical characteristics and behaviors.
	2. Interdepen-dence Among Living Systems	1. Natural systems have many components that interact to maintain the living system.	1.4.2.1.1	Recognize that animals need space, water, food, shelter and air.
			1.4.2.1.2	Describe ways in which an animal's habitat provides for its basic needs. *For example:* Compare students' houses with animal habitats.
	3. Evolution in Living Systems	1. Plants and animals undergo a series of orderly changes during their life cycles.	1.4.3.1.1	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.
			1.4.3.1.2	Recognize that animals pass through the same life cycle stages as their parents.

2nd Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different observable characteristics.	2.4.1.1.1	Describe and sort plants into groups in many ways, according to their physical characteristics and behaviors.
	2. Interdepen-dence Among Living Systems	1. Natural systems have many components that interact to maintain the system	2.4.2.1.1	Recognize that plants need space, water, nutrients and air, and that they fulfill these needs in different ways.
	3. Evolution in Living Systems	1. Plants and animals undergo a series of orderly changes during their life cycles.	2.4.3.1.1	Describe the characteristics of plants at different stages of their life cycles. *For example*: Use live organisms or pictures to observe the changes that occur during the life cycles of bean plants or marigolds.

3rd Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark
1. The Nature of Science and Engineering	1. The Practice of Science	1. Scientists work as individuals and in groups, emphasizing evidence, open communication and skepticism.	3.1.1.1.1	Provide evidence to support claims other than saying "Everyone knows that," or "I just know," and question such reasons when given by others.
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different characteristics that enable them to grow, reproduce and survive.	3.4.1.1.1	Compare how the different structures of plants and animals serve various functions of growth, survival and reproduction. *For example:* Skeletons in animals and stems in plants provide strength and stability.
			3.4.1.1.2	Identify common groups of plants and animals using observable physical characteristics, structures and behaviors. *For example:* Sort animals into groups such as mammals and amphibians based on physical characteristics. *Another example:* Sort and identify common Minnesota trees based on leaf/needle characteristics.
4. Life Science	3. Evolution in Living Systems	2. Offspring are generally similar to their parents, but may have variations that can be advantageous or disadvantageous in	3.4.3.2.1	Give examples of likenesses between adults and offspring in plants and animals that can be inherited or acquired. *For example:* Collect samples or pictures that show similarities between adults and their young offspring.

		a particular environment.	3.4.3.2.2	Give examples of differences among individuals that can sometimes give an individual an advantage in survival and reproduction.

4th Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark

No standards apply

5th Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different characteristics that enable them to grow, reproduce and survive.	5.4.1.1.1	Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system. *For example:* Compare the physical characteristics of plants or animals from widely different environments, such as desert versus tropical, and explore how each has adapted to its environment.
	2. Interdepen-dence Among Living Systems	1. Natural systems have many parts that interact to maintain the living system.	5.4.2.1.1	Describe a natural system in Minnesota, such as a wetland, prairie or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs. *For example:* Design and construct a habitat for a living organism that meets its need for food, air and water.
			5.4.2.1.2	Explain what would happen to a system such as a wetland, prairie or garden if one of its parts were changed. *For example:* Investigate how road salt runoff affects plants, insects and other parts of an ecosystem. *Another example:* Investigate how an invasive species changes an ecosystem.
	4. Human Interactions with Living Systems	1. Humans change environments in ways that can be either beneficial or harmful to themselves and other organisms.	5.4.4.1.1	Give examples of beneficial and harmful human interaction with natural systems. *For example:* Recreation, pollution, or wildlife management.

Science Standards Embedded in Lovely Ladybugs K-2

Kindergarten

Strand	Substrand	Standard Understand that...	Code	Benchmark
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different observable characteristics.	0.4.1.1.1	Observe and compare plants and animals.
			0.4.1.1.2	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.
			0.4.1.1.3	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.
	2. Interdepen-dence Among Living Systems	1. Natural systems have many components that interact to maintain the system.	0.4.2.1.1	Observe a natural system or its model, and identify living and nonliving components in that system. *For example:* A wetland, prairie, garden or aquarium.

1st Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark
1. The Nature of Science and Engineering	1. The Practice of Science	1. Scientists work as individuals and in groups to investigate the natural world, emphasizing evidence and communicating with others.	1.1.1.1.1	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.
			1.1.1.1.2	Recognize that describing things as accurately as possible is important in science because it enables people to compare their observations with those of others.
	3. Interactions Among Science, Technology Engineering, Mathematics, and Society	1. 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.	1.1.3.1.1	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.
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different observable characteristics.	1.4.1.1.1	Describe and sort animals into groups in many ways, according to their physical characteristics and behaviors.
	2. Interdepen-dence Among Living Systems	1. Natural systems have many components that interact to	1.4.2.1.1	Recognize that animals need space, water, food, shelter and air.

		maintain the living system.	1.4.2.1.2	Describe ways in which an animal's habitat provides for its basic needs. *For example:* Compare students' houses with animal habitats.
	3. Evolution in Living Systems	1. Plants and animals undergo a series of orderly changes during their life cycles.	1.4.3.1.1	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.
			1.4.3.1.2	Recognize that animals pass through the same life cycle stages as their parents.

2nd Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different observable characteristics.	2.4.1.1.1	Describe and sort plants into groups in many ways, according to their physical characteristics and behaviors.
	2. Interdepen-dence Among Living Systems	1. Natural systems have many components that interact to maintain the system	2.4.2.1.1	Recognize that plants need space, water, nutrients and air, and that they fulfill these needs in different ways.
	3. Evolution in Living Systems	1. Plants and animals undergo a series of orderly changes during their life cycles.	2.4.3.1.1	Describe the characteristics of plants at different stages of their life cycles. *For example*: Use live organisms or pictures to observe the changes that occur during the life cycles of bean plants or marigolds.

Science Standards Embedded in Schoolyard Composting 3-6

3rd Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark

No standards apply

4th Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark
2. Physical Science	3. Energy	1. Energy appears in different forms, including heat and electromagnetism.	4.2.3.1.1	Describe the transfer of heat energy when a warm and a cool object are touching or placed near each other.
			4.2.3.1.3	Compare materials that are conductors and insulators of heat and/or electricity. *For example:* Glass conducts heat well, but is a poor conductor of electricity.
		2. Energy can be transformed within a system or transferred to other systems or the environment.	4.2.3.2.1	Identify several ways to generate heat energy. *For example:* Burning a substance, rubbing hands together, or electricity flowing through wires.

5th Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark

No standards apply

6th Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark

No standards apply

Science Standards Embedded in Wondrous Worms 1-3

1st Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark
1. The Nature of Science and Engineering	1. The Practice of Science	1. Scientists work as individuals and in groups to investigate the natural world, emphasizing evidence and communicating with others.	1.1.1.1.1	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.
			1.1.1.1.2	Recognize that describing things as accurately as possible is important in science because it enables people to compare their observations with those of others.
	3. Interactions Among Science, Technology Engineering, Mathematics, and Society	1. 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.	1.1.3.1.1	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.
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different observable characteristics.	1.4.1.1.1	Describe and sort animals into groups in many ways, according to their physical characteristics and behaviors.
	2. Interdepen-dence Among Living Systems	1. Natural systems have many components that interact to maintain the living system.	1.4.2.1.1	Recognize that animals need space, water, food, shelter and air.
			1.4.2.1.2	Describe ways in which an animal's habitat provides for its basic needs. *For example:* Compare students' houses with animal habitats.
	3. Evolution in Living Systems	1. Plants and animals undergo a series of orderly changes during their life cycles.	1.4.3.1.1	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.
			1.4.3.1.2	Recognize that animals pass through the same life cycle stages as their parents.

2nd Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different observable characteristics.	2.4.1.1.1	Describe and sort plants into groups in many ways, according to their physical characteristics and behaviors.
	2. Interdepen-dence Among Living Systems	1. Natural systems have many components that interact to maintain the system	2.4.2.1.1	Recognize that plants need space, water, nutrients and air, and that they fulfill these needs in different ways.
	3. Evolution in Living Systems	1. Plants and animals undergo a series of orderly changes during their life cycles.	2.4.3.1.1	Describe the characteristics of plants at different stages of their life cycles. *For example*: Use live organisms or pictures to observe the changes that occur during the life cycles of bean plants or marigolds.

3rd Grade

Strand	Substrand	Standard Understand that...	Code	Benchmark
4. Life Science	1. Structure and Function in Living Systems	1. Living things are diverse with many different observable characteristics.	2.4.1.1.1	Describe and sort plants into groups in many ways, according to their physical characteristics and behaviors.
	2. Interdepen-dence Among Living Systems	1. Natural systems have many components that interact to maintain the system	2.4.2.1.1	Recognize that plants need space, water, nutrients and air, and that they fulfill these needs in different ways.
	3. Evolution in Living Systems	1. Plants and animals undergo a series of orderly changes during their life cycles.	2.4.3.1.1	Describe the characteristics of plants at different stages of their life cycles. *For example*: Use live organisms or pictures to observe the changes that occur during the life cycles of bean plants or marigolds.