Characteristics of Organisms

K-2 The student will demonstrate an understanding of the characteristics of organisms. (Life Science)

K-2.1 Recognize what organisms need to stay alive (including air, water, food and shelter).
Taxonomy level: 1.1-A Remember Factual Knowledge

Previous/Future knowledge: As with other indicators at this grade level, students will experience their first formal introduction to important science concepts. Students are introduced to air, water, food, and shelter at this grade level and will build upon this knowledge for plants in 1st grade (1-2.1) where these needs are related to energy and growth. In 2nd grade (2-2.1), students will be asked to recall the basic needs of animals (including air, water, food, and shelter) for energy, growth, and protection.

It is essential for students to know that *organisms*, or living things, have basic needs to stay alive.

- Plants need air, water, and food to stay alive.
- Animals need air, water, food, and shelter for protection.
- If an organism does not get everything that it needs to stay alive, it will die.

It is not essential for students to go beyond this level of knowledge at this time.

Assessment Guidelines:
The objective of this indicator is to *recognize* what organisms need to stay alive; therefore; the primary focus of assessment should be to remember that living things need food, shelter, water, and air to survive. However, appropriate assessments should also require students to *recognize* on a diagram or picture which of an animal's basic needs is missing.

Characteristics of Organisms

K-2 The student will demonstrate an understanding of the characteristics of organisms. (Life Science)

K-2.2 Identify examples of organisms and nonliving things.
Taxonomy level: 1.1-A Remember Factual Knowledge

Previous/Future knowledge: As with other indicators at this grade level, students will experience their first formal introduction to important science concepts. These concepts will be expanded as the students advance in their science education.

It is essential for students to know the difference between living things and nonliving things.

NOTE TO TEACHER: This is not directly mentioned again so it is essential for this concept to be fully understood at this grade level.

Organism
- Any living thing that needs food, water, air, shelter or space to survive and can make a new living thing like itself.
- It grows and changes during its life.
- Examples of organisms are plants or animals.

NOTE TO TEACHER: There are many misconceptions concerning living and nonliving things at this developmental level. To assist students in their understanding whether things are living or nonliving, they should ask one of these four essential questions:
- Does it need air?
- Does it need water?
- Does it need food?
- Does it need shelter/space?

Nonliving thing
- Any thing that does not need air, water, food, shelter, or space to survive.
- It cannot make new things like itself.
- Examples of nonliving things may be wood, rocks, soil, air, water, and clothes.

NOTE TO TEACHER: Another misconception may happen with objects made of wood. At one time the wood was a living tree. However, if you ask the four essential questions, the wood can now be categorized as nonliving.

It is not essential for students to go beyond this level of knowledge at this time.

Assessment Guidelines:
The objective of this indicator is to *identify* organisms as living or nonliving; therefore, the primary focus of assessment should be to recognize whether an object is an organism or nonliving thing based its characteristics.

Characteristics of Organisms

K-2 The student will demonstrate an understanding of the characteristics of organisms. (Life Science)

K-2.3 Match parents with their offspring to show that plants and animals closely resemble their parents.
Taxonomy level: 2.6-A Understand Factual Knowledge

Previous/Future knowledge: As with other indicators at this grade level, students will experience their first formal introduction to important science concepts. These concepts will be expanded as the students advance in their science education. Students will expand their knowledge in 1st grade (1-2.4) as they study life cycles of plants and in 2nd grade (2-2.5) as they study physical characteristics and life cycles of animals.

It is essential for students to know that parent plants or animals can look like the offspring they produce. Examples may be:

- Most plants closely resemble their parent plant after they are grown but they look very different as they are growing (for example, an acorn seed sprout compared to an oak tree that may be many years old).
- Some animals are born with a close resemblance to their parent (for example, kittens compared with the mother cat); they are just smaller.
- The offspring of both plants and animals have many characteristics that are the same and these characteristics will fully develop over time.

NOTE TO TEACHER: Keep the focus on plants and animals that closely resemble their parent rather than organisms that go through metamorphosis.

It is not essential for students to be able to choose animals that do not look like their parents.

Assessment Guidelines:
The objective of this indicator is to *match* parents with their offspring; therefore, the primary focus of assessment should be to detect similarities between a parent and its offspring.

Characteristics of Organisms

K-2 The student will demonstrate an understanding of the characteristics of organisms. (Life Science)

K-2.4 Compare individual examples of a particular type of plant or animal to determine that there are differences among individuals.
Taxonomy level: 2.6-A Understand Factual Knowledge

Previous/Future knowledge: As with other indicators at this grade level, students will experience their first formal introduction to important science concepts. These concepts will be expanded as the students advance in their science education.

It is essential for students to know that even though groups of plants or animals may look the same, there are differences between the individuals.

- For example, in a clover, most have three leaves but some have four or more. Some of the stems may be longer than others and some of the leaves may have more distinct patches of white than others.
- For example, all ladybugs have wings and antenna; however, there may be differences in the colors of or the number of spots on their bodies. Another example is when a cat has kittens or a dog has puppies, there are size and color differences among the offspring.

It is not essential for students to go beyond this level of knowledge at this time.

Assessment Guidelines:
The objective of this indicator is to *compare* individual plants or animals; therefore, the primary focus of assessment should be to detect differences within a group of the same type of plant or animal. However, appropriate assessments should also require students to *match* two or more plants or animals of the same type and describe the differences they see; or *compare* individual plants or animals to detect similarities.

Characteristics of Organisms

K-2 The student will demonstrate an understanding of the characteristics of organisms. (Life Science)

K-2.5 Recognize that all organisms go through stages of growth and change called life cycles.

Taxonomy level: 1.1-A Remember Factual Knowledge

Previous/Future knowledge: As with other indicators at this grade level, students will experience their first formal introduction to important science concepts. Students will expand on this knowledge with plants in 1st grade (1-2.4) where the stages of the life cycle are summarized, and animals in 2nd grade (2-2.5) where birth and stages of development are illustrated.

It is essential for students to know that all organisms change as they grow. The distinct stages of growth and change are called a *life cycle*. The life cycle begins when the organism is born and begins to develop and ends when the organism dies.

- Some plants, for example sunflowers, start as seeds. When the seeds have all of the things they needs to grow (air, water, and space), they begin to change into plants. The plants will grow into adult plants with distinct structures (for example roots and leaves).
- Some animals, for example chickens, are born from eggs. When the chicks hatch, they will grow into adult hens or roosters.
- Some animals, for example ladybugs, look different during the different stages their life cycle.

It is not essential for students to go beyond this level of knowledge at this time.

Assessment Guidelines:
The objective of this indicator is to *recognize* that all organisms have life cycles; therefore, the primary focus of assessment should be to remember that there are stages of growth during a life cycle of an organism.