

TEACHER'S GUIDE

SCIENCE LAB 1st Grade Diagnostic

(Criterion-Referenced, Objective-Based Exam)

Objective	# Out of:
Nature of Science	7
Life Science	6
Physical Science	6
Earth Science	6
TOTAL	25

Use of Diagnostics

- Diagnose student academic level at the beginning of the year.
- Track student progress for each objective covered and unit taught.
- Measure end of year gains through final mastery exam.

Diagnostic Administration

- The diagnostic should take about 40 minutes to administer.
- It should be administered orally (and if applicable the Spanish translations should be read with it as well).
- Make sure that the students completely bubble in their answer choice on their own student guide.
- Each group of questions for the 4 objectives can be used separately to measure student success at the end of the unit.

Questions

Objective	# of Questions
1. Nature of Science	7
2. Life Science	6
3. Physical Science	6
4. Earth Science	6
TOTAL	25

Texas Essential Knowledge & Skills 1st Grade Science

(1) Scientific processes. The student conducts classroom and field investigations following home and school safety procedures. The student is expected to:

(A) demonstrate safe practices during classroom and field investigations; and

(B) learn how to use and conserve resources and materials.

(2) Scientific processes. The student develops abilities necessary to do scientific inquiry in the field and the classroom. The student is expected to:

(A) ask questions about organisms, objects, and events;

- (B) plan and conduct simple descriptive investigations;
- (C) gather information using simple equipment and tools to extend the senses;
- (D) construct reasonable explanations and draw conclusions; and
- (E) communicate explanations about investigations.

(3) Scientific processes. The student knows that information and critical thinking are used in making decisions. The student is expected to:

- (A) make decisions using information;
- (B) discuss and justify the merits of decisions; and
- (C) explain a problem in his/her own words and identify a task and solution related to the problem.

(4) Scientific processes. The student uses age-appropriate tools and models to verify that organisms and objects and parts of organisms and objects can be observed, described, and measured. The student is expected to:

- (A) collect information using tools including hand lenses, clocks, computers, thermometers, and balances;
- (B) record and compare collected information; and
- (C) measure organisms and objects and parts of organisms and objects, using non-standard units such as paper clips, hands, and pencils.

(5) Science concepts. The student knows that organisms, objects, and events have properties and patterns. The student is expected to:

- (A) sort objects and events based on properties and patterns; and
- (B) identify, predict, and create patterns including those seen in charts, graphs, and numbers.

(6) Science concepts. The student knows that systems have parts and are composed of organisms and objects. The student is expected to:

- (A) sort organisms and objects according to their parts and characteristics;
- (B) observe and describe the parts of plants and animals;

(C) manipulate objects such as toys, vehicles, or construction sets so that the parts are separated from the whole which may result in the part or the whole not working; and

(D) identify parts that, when put together, can do things they cannot do by themselves, such as a working camera with film, a car moving with a motor, and an airplane flying with fuel.

(7) Science concepts. The student knows that many types of change occur. The student is expected to:

(A) observe, measure, and record changes in size, mass, color, position, quantity, sound, and movement;

(B) identify and test ways that heat may cause change such as when ice melts;

(C) observe and record changes in weather from day to day and over seasons; and

(D) observe and record changes in the life cycle of organisms.

(8) Science concepts. The student distinguishes between living organisms and nonliving objects. The student is expected to:

(A) group living organisms and nonliving objects; and

(B) compare living organisms and nonliving objects.

(9) Science concepts. The student knows that living organisms have basic needs. The student is expected to:

(A) identify characteristics of living organisms that allow their basic needs to be met; and

(B) compare and give examples of the ways living organisms depend on each other for their basic needs.

(10) Science concepts. The student knows that the natural world includes rocks, soil, and water. The student is expected to:

(A) identify and describe a variety of natural sources of water including streams, lakes, and oceans;

(B) observe and describe differences in rocks and soil samples; and

(C) identify how rocks, soil, and water are used and how they can be recycled.

Diagnostic Questions

Objective 1: Nature of Science

(7 Questions)

1. Here you see a ruler, a scale, and a thermometer. Which would you use to measure the weight of an object?
2. Here you see an elephant, a tall building, and a rowboat. Mark under the one that is taking up the most amount of space.
3. If you used a hand lens to observe this spider, how would it appear through the lens?
4. Which one of these tools would you use to find the temperature?
5. Look at the pictures. Which picture shows a student breaking a science rule if the student is in the science lab?
6. If you want to figure out whether a plant will grow better in sand or soil, what is the best way to do it?
7. Which safety tool should you use to protect your eyes?

Objective 2: Life Science

(6 Questions)

1. Here you see roots, leaves, and branches. Mark the part of the tree that takes in water.
2. Here is a toy truck, a plant, and a rabbit. Which one is not a living thing?
3. Look at the pictures. Which picture shows something that needs light and heat to grow?
4. Here you see wings, feet, and a beak. Mark under the body part that a bird uses to walk.
5. Which picture shows the right order of how a frog grows?
6. Look at the animals. Which one has scaly or smooth skin?

Objective 3: Physical Science

(6 Questions)

1. Here you see a candle, an ice cube, and a book. Which of these cannot become a liquid?
2. Which of these will sink in water?
3. Mark the one that is both light and soft?
4. Which of these objects cannot move on its own?
5. Which picture shows something that is whole?
6. Which picture shows something that rolls? Is it the sneaker, the box, or the wheel?

Objective 4: Earth Science

(6 Questions)

1. Look at the pictures. Which picture shows what the weather might look like in the fall?
2. Look at the pictures. If you were hot, which picture shows a place where you can cool off?
3. Which picture shows a full moon?
4. Look at the pictures. Which pictures shows that it rained earlier in the day?
5. Which picture shows what a tree looks like during the winter?
6. Look at the pictures. Which picture shows the natural resources that beavers use to build a home?

TEKS Correlation

Objective 1: Nature of Science

<i>Test Question</i>	<i>TEKS Objective</i>
1. Here you see a ruler, a scale, and a thermometer. Which would you use to measure the weight of an object?	1.2C 1.4A
2. Here you see an elephant, a tall building, and a rowboat. Mark under the one that is taking up the most amount of space.	1.7A
3. If you used a hand lens to observe this spider, how would it appear through the lens?	1.2C 1.4A
4. Which one of these tools would you use to find the temperature?	1.2C 1.4A
5. Look at the pictures. Which picture shows the student breaking a science rule if the student is in the science lab?	1.1A
6. If you want to figure out whether a plant will grow better in sand or soil, what is the best way to do it?	1.1A 1.2A,B,C,D,E 1.3 A,B,C
7. Which safety tool should you use to protect your eyes?	1.1A

Objective 2: Life Science

<i>Test Question</i>	<i>TEKS Objective</i>
1. Here you see roots, leaves, and branches. Mark the part of the tree that takes in water.	1.6A
2. Here is a toy truck, a plant, and a rabbit. Which one is not a living thing?	1.8A,B
3. Look at the pictures. Which picture shows something that needs light and heat to grow?	1.9A
4. Here you see wings, feet, and a beak. Mark under the body part that a bird uses to walk.	1.6A
5. Which picture shows the right order of how a frog grows?	1.7D
6. Look at the animals. Which one has scaly or smooth skin?	1.6B

Objective 3: Physical Science

<i>Test Question</i>	<i>TEKS Objective</i>
1. Here you see a candle, an ice cube, and a book. Which of these cannot become a liquid?	1.7A,B
2. Which of these will sink in water?	1.5A 1.7A
3. Mark the one that is both light and soft?	1.5A 1.6A 1.7A
4. Which of these objects cannot move on its own?	1.6A 1.7A
5. Which picture shows something that is whole?	1.7D
6. Which picture shows something that rolls? Is it the sneaker, the box, or the wheel?	1.6C,D

Objective 4: Earth Science

<i>Test Question</i>	<i>TEKS Objective</i>
1. Look at the pictures. Which picture shows what the weather might look like in the fall?	1.7C
2. Look at the pictures. If you were hot, which picture shows a place where you can cool off?	1.7B
3. Which picture shows a full moon?	1.7C
4. Look at the pictures. Which pictures shows that it rained earlier in the day?	1.7C 1.10A
5. Which picture shows what a tree looks like during the winter?	1.7C
6. Look at the pictures. Which picture shows the natural resources that beavers use to build a home?	1.9B, 1.10C