

TEACHER'S GUIDE

SCIENCE LAB 3rd 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

Diagnostic Exam:
Selected Grade 3

Criterion-Referenced Response Items
Understanding Elementary Science Assessment
The Charles A. Dana Center (University of Texas at Austin)

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 be able to be given within a science lab period. The diagnostic should not take longer than 45 minutes to complete.
- Make sure that the students completely bubble in their answer choice on their exam and on the scantron sheet as well.
- Remember to remind a student to do the best he or she can while not answering the questions he or she does NOT know. Remind the student NOT to guess.

Texas Essential Knowledge & Skills 3rd Grade Science

1. The student conducts field and laboratory investigations following home and school safety procedures and environmentally appropriate and ethical practices.
 - A. demonstrate safe practices during field and laboratory investigations
 - B. make wise choices in the use and conservation of resources and the disposal or recycling of materials
2. The student uses scientific inquiry methods during field and laboratory investigations.
 - A. plan and implement descriptive investigations including asking well-defined questions, formulating testable hypotheses, and selecting and using equipment and technology
 - B. collect information by observing and measuring
 - C. analyze and interpret information to construct reasonable explanations from direct and indirect evidence
 - D. communicate valid conclusions
 - E. construct simple graphs, tables, maps, and charts to organize, examine and evaluate information
3. The student knows that information, critical thinking, and scientific problem solving are used in making decisions.
 - A. analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information
 - B. draw inferences based on information related to promotional materials for products

and services

- C. represent the natural world using models and identify their limitations
 - D. evaluate the impact of research on scientific thought, society, and the environment
 - E. connect Grade 3 science concepts with the history of science and contributions of scientists
4. The student knows how to use a variety of tools and methods to conduct science inquiry.
- A. collect and analyze information using tools including calculators, microscopes, cameras, safety goggles, sound recorders, clocks, computers, thermometers, hand lenses, meter sticks, rulers, balances, magnets, and compasses
 - B. demonstrate that repeated investigations may increase the reliability of results
5. The student knows that systems exist in the world.
- A. observe and identify simple systems such as a sprouted seed and a wooden toy car
 - B. observe a simple system and describe the role of various parts such as a yo-yo and string
6. The student knows that forces cause change.
- A. measure and record changes in the position and direction of the motion of an object to which a force such as a push or pull has been applied
 - B. identify that the surface of the Earth can be changed by forces such as earthquakes and glaciers
7. The student knows that matter has physical properties.
- A. gather information including temperature, magnetism, hardness, and mass using appropriate tools to identify physical properties of matter
 - B. identify matter as liquids, solids, and gases
8. The student knows that living organisms need food, water, light, air, a way to dispose of waste, and an environment in which to live.
- A. observe and describe the habitats of organisms within an ecosystem
 - B. observe and identify organisms with similar needs that compete with one another for resources such as oxygen, water, food, or space
 - C. describe environmental changes in which some organisms would thrive, become ill, or perish
 - D. describe how living organisms modify their physical environment to meet their needs such as beavers building a dam or humans building a home
9. The student knows that species have different adaptations that help them survive and reproduce in their environment.
- A. observe and identify characteristics among species that allow each to survive and reproduce
 - B. analyze how adaptive characteristics help individuals within a species to survive and reproduce
10. The student knows that many likenesses between offspring and parents are inherited from the parents.
- A. identify some inherited traits of plants

B. identify some inherited traits of animals

11. The student knows that the natural world includes earth materials and objects in the sky.

A. identify and describe the importance of earth materials including rocks, soil, water, and gases of the atmosphere in the local area and classify them as renewable, nonrenewable, or inexhaustible resources

B. identify and record properties of soils such as color and texture, capacity to retain water, and ability to support the growth of plants

C. identify the planets in our solar system and their position in relation to the Sun

D. describe the characteristics of the Sun

TEKS Correlation

Objective 1: Nature of Science

<i>Test Question</i>	<i>TEKS Objective</i>
1	3.2A, 3.6A
2	3.2B, 4.6A
3	3.2C, 3.7A
4	3.4A
5	3.2B
6	3.4A
7	3.2A

Objective 2: Life Science

<i>Test Question</i>	<i>TEKS Objective</i>
1	3.5A, 3.10A
2	3.8A
3	3.8B
4	3.8C
5	3.9A, 3.9B
6	3.10B

Objective 3: Physical Science

<i>Test Question</i>	<i>TEKS Objective</i>
1	3.5B
2	3.6A
3	3.7A
4	3.7A
5	3.4A, 3.7B
6	3.7B

Objective 4: Earth Science

<i>Test Question</i>	<i>TEKS Objective</i>
1	3.11A
2	3.6B
3	3.11C
4	3.11C
5	3.11C
6	3.11D