Sixth Grade Nature of Science
Grade Standards, Supporting Skills, and Examples

Indicator 1: Understand the nature and origin of scientific knowledge.

Note: These skills should be taught and practiced in grade-level study of Physical, Life, and Earth/Space Science although mastery is not expected at these grade levels.

Bloom's Taxonomy Level	Standard, Supporting Skills, and Examples
	✓ Recognize scientific knowledge as not merely a set of static facts, but is dynamic and affords the best current explanations. Examples: flat Earth, spontaneous generation ✓ Identify important contributions to the advancement of science from people of differing cultures, genders, and ethnicity. Examples: George W. Carver-peanuts, Gregor Mendel-genetics, Sylvia Earle-oceanography, Darwin-evolution

Indicator 2: Apply the skills necessary to conduct scientific investigations.

Bloom's Taxonomy Level	Standard, Supporting Skills, and Examples
(Application)	**6.N.2.1. Students are able to pose questions that can be explored through scientific investigations.** **Example**: How does light affect plant growth? ✓ Conduct systematic scientific investigations. • Use appropriate supportive technologies. • Describe the limits of accuracy inherent in a particular measuring device or measurement procedure. • Manipulate one variable over time with many repeated trials to test a hypothesis. • Construct and interpret graphs from data to make predictions. • Use research methods to investigate practical and/or personal scientific problems and questions. ✓ Describe and demonstrate various safety factors associated with different types of scientific activity. • Use appropriate scientific equipment safely in all

	investigations. • Wear appropriate attire.

Sixth Grade Nature of Science
Performance Descriptors

Advanced	**Sixth grade students performing at the advanced level:** • pose a question and a hypothesis that can be explored through scientific exploration.
Proficient	**Sixth grade students performing at the proficient level:** • pose questions that can be explored through scientific investigations.
Basic	**Sixth Grade students performing at the basic level:** • given a prompt, pose one question that can be scientifically explored.

Sixth Grade Nature of Science
ELL Performance Descriptors

Proficient	**Sixth grade ELL students performing at the proficient level**: • given a prompt, pose one question that can be scientifically explored; • ask questions related to science topics.
Intermediate	**Sixth grade ELL students performing at the intermediate level:** • ask questions that can be scientifically explored; • give simple oral responses to questions on topics presented in class.
Basic	**Sixth grade ELL students performing at the basic level:** • participate in science activities and experiments with other students; • use correct pronunciation of science words; • respond correctly to yes or no questions on topics presented in class.
Emergent	**Sixth grade ELL students performing at the emergent level:** • use correct pronunciation of science words; • use non-verbal communication to express scientific ideas.
Pre-emergent	**Sixth grade ELL students performing at the pre-emergent level**: • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally.

Seventh Grade Nature of Science
Grade Standards, Supporting Skills, and Examples

Indicator 1: Understand the nature and origin of scientific knowledge.

Note: These skills should be taught and practiced in grade-level study of Physical, Life, and Earth/Space Science although mastery is not expected at these grade levels.

Bloom's Taxonomy Level	Standard, Supporting Skills, and Examples
	✓ Describe societal response to major scientific findings or theories. Examples: cloning, stem cell research, biotechnology ✓ Investigate important contributions to the advancement of science from people of differing cultures, genders, and ethnicity. Examples: Louis Pasteur-disease, Rachel Carson-ecology, Linnaeus- classification, Redi-biology, Darwin-evolution, Jane Goodall-zoology

Indicator 2: Apply the skills necessary to conduct scientific investigations.

Bloom's Taxonomy Level	Standard, Supporting Skills, and Examples
(Application)	**7.N.2.1. Students are able to conduct scientific investigations using given procedures**. • Use appropriate supportive technologies. • Determine the limits of accuracy inherent in a particular measuring device or procedure. • Control variables to test hypotheses by repeated trials. • Identify sources of experimental error. • Interpret to make predictions and/or justify conclusions. • Use research methods to investigate practical and/or personal scientific problems and questions. ✓ Describe and demonstrate various safety factors associated with different types of scientific activity. • Demonstrate appropriate use of apparatus and technologies for investigations. • Use proper safety procedures in all investigations. • Wear appropriate attire. ✓ Analyze the benefits and potential of scientific investigations.

Seventh Grade Nature of Science
Performance Descriptors

Advanced	**Seventh grade students performing at the advanced level:** • design a replicable scientific investigation.
Proficient	**Seventh grade students performing at the proficient level:** • conduct scientific investigations using given procedures.
Basic	**Seventh grade students performing at the basic level:** • identify steps necessary to conduct a replicable scientific investigation.

Seventh Grade Nature of Science
ELL Performance Descriptors

Proficient	**Seventh grade ELL students performing at the proficient level:** • identify steps necessary to conduct a replicable scientific investigation; • ask questions related to science topics.
Intermediate	**Seventh grade ELL students performing at the intermediate level**: • identify three steps necessary to conduct a replicable scientific investigation; • give simple oral responses to questions on topics presented in class.
Basic	**Seventh grade ELL students performing at the basic level:** • identify that steps are necessary to conduct a replicable scientific investigation; • participate in science activities and experiments with other students; • use correct pronunciation of science words; • respond correctly to yes or no questions on topics presented in class.
Emergent	**Seventh grade ELL students performing at the emergent level:** • use correct pronunciation of science words; • use non-verbal communication to express scientific ideas.
Pre-emergent	**Seventh grade ELL students performing at the pre-emergent level**: • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally.

Eighth Grade Nature of Science
Grade Standards, Supporting Skills, and Examples

Indicator 1: Understand the nature and origin of scientific knowledge.

Bloom's Taxonomy Level	Standard, Supporting Skills, and Examples
(Comprehension)	**8.N.1.1. Students are able to differentiate among facts, predictions, theory, and law/principles in scientific investigations.** • Define fact, predictions, theory, and law/principle. • Discuss how theory can become law. ✓ Evaluate important contributions to the advancement of science from people of differing cultures, genders, and ethnicity. Examples: Marie Curie-radiation, Hess, Galileo- astronomy, Kepler-astronomy, Newton-physics, Neil Tice-astronomy, Mendeleev-physics

Indicator 2: Apply the skills necessary to conduct scientific investigations.

Bloom's Taxonomy Level	Standard, Supporting Skills, and Examples
(Synthesis)	**8.N.2.1. Students are able to design a replicable scientific investigation.** • Use appropriate supportive technologies. • Assess the limits of accuracy inherent in a particular measuring device or procedure. • Control variables to test hypotheses by repeated trials and by identifying sources of experimental error. • Interpret data to justify predictions or conclusions. • Use research methods to investigate practical and/or personal scientific problems and questions. • Select appropriate scientific equipment and technologies for investigations and experiments. • Use proper safety procedures in all investigations. • Wear appropriate attire. ✓ Evaluate the benefits and potential of scientific investigations.

Eighth Grade Nature of Science
Performance Descriptors

Advanced	**Eighth grade students performing at the advanced level:** • justify facts, predictions, theory, and law/principles in scientific investigations; • design and conduct a replicable scientific investigation.
Proficient	**Eighth grade students performing at the proficient level:** • differentiate among facts, predictions, theory, and law/principles in scientific investigations; • design a replicable scientific investigation.
Basic	**Eighth grade students performing at the basic level:** • define fact, prediction, and theory; • follow instructions to conduct a systematic scientific investigation.

Eighth Grade Nature of Science
ELL Performance Descriptors

Proficient	**Eighth grade ELL students performing at the proficient level**: • define fact and prediction; • follow instructions to conduct a systematic scientific investigation; • ask questions related to science topics.
Intermediate	**Eighth grade ELL students performing at the intermediate level**: • recognize the difference between fact and prediction; • follow instructions to conduct a systematic scientific investigation with peers; • give simple oral responses to questions on topics presented in class.
Basic	**Eighth grade ELL students performing at the basic level**: • define fact; • observe a systematic scientific investigation; • participate in science activities and experiments with other students; • use correct pronunciation of science words; • respond correctly to yes or no questions on topics presented in class.
Emergent	**Eighth grade ELL students performing at the emergent level:** • use correct pronunciation of science words; • use non-verbal communication to express scientific ideas.

Pre-emergent	**Eighth grade ELL students performing at the pre-emergent level:** • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally.