

Grade 10 Science ISAT Proficiency Level Descriptors

Advanced

In the area of the Nature of Science, tenth grade students typically performing at the Advanced level demonstrate an **in-depth understanding** of grade-level skills. These students

- identify the scientific meaning and recognize the concepts of order and organization to complex systems.
- evaluate multiple observations, data, and logic as evidence on which to base scientific explanations, then identify appropriate models.
- select appropriate tools/technology to measure, calculate, and analyze scientific information using metric units.
- analyze complex changes that can occur in and among systems.
- identify and analyze the components of scientific problem solving.
- analyze complex diagrams, charts, graphs, and technical writing.

In the area of Physical Science, tenth grade students typically performing at the Advanced level demonstrate an **in-depth understanding** of grade-level skills. These students

- understand motion using Newton's laws of motion.
- recognize energy as potential and/or kinetic and as energy contained in a field.
- understand how energy can be transformed but cannot be created nor destroyed.
- compare the properties, functions, and processes of atomic particles and their relationships to electricity and magnetism.
- evaluate how chemical reactions may release or consume energy while the quantity of matter remains constant.

In the area of Biology, tenth grade students typically performing at the Advanced level demonstrate an **in-depth understanding** of grade-level skills. These students

- understand how to apply the theory of evolution to help explain how and why multiple species change over time.
- understand the relationships between matter and energy in and among living systems.
- identify the role of cellular structures, functions, differentiation, and interrelatedness.
- analyze the role, function, and complexity of DNA.

In the area of Earth Science, tenth grade students typically performing at the Advanced level demonstrate an **in-depth understanding** of grade-level skills. These students

- analyze current scientific theories and methods to help explain the formation of the solar system.
- understand how to explain complex and interdependent changes in Earth's system throughout geologic time.
- understand internal and external energy sources of Earth.

In the area of Personal and Social Perspectives and Technology, tenth grade students typically performing at the Advanced level demonstrate an **in-depth understanding** of grade-level skills. These students

- evaluate opposing positions on environmental issues.
- understand how science and technology influence each other and are pursued for different purposes.
- understand the differences between renewable and nonrenewable resources.

Grade 10 Science ISAT Proficiency Level Descriptors

Proficient

In the area of Nature of Science, tenth grade students typically performing at the Proficient level demonstrate an **understanding** of grade-level skills. These students

- understand how to explain the components in and among systems, their roles and interactions.
- understand how to use observations, data, and logic as evidence on which to base scientific explanations, and then develop models.
- understand how to use appropriate tools/technology to measure and calculate scientific information using metric units.
- analyze changes that can occur in and among systems.
- identify and utilize the components of scientific problem solving.
- analyze diagrams, charts, graphs, and technical writing.

In the area of Physical Science, tenth grade students typically performing at the Proficient level demonstrate an **understanding** of grade-level skills. These students

- understand how to explain motion using Newton's laws of motion.
- classify energy as potential and/or kinetic and as energy contained in a field.
- understand how to explain how energy can be transformed but cannot be created nor destroyed.
- identify the properties, functions, and processes of atomic particles and their relationships to electricity and magnetism.
- understand how to explain how chemical reactions may release or consume energy while the quantity of matter remains constant.

In the area of Biology, tenth grade students typically performing at the Proficient level demonstrate an **understanding** of grade-level skills. These students

- understand how to use the theory of evolution to help explain how and why species change over time.
- understand how to explain relationships between matter and energy in and among living systems.
- identify cellular structures and explain their specialized functions.
- understand how to explain the role and function of DNA.

In the area of Earth Science, tenth grade students typically performing at the Proficient level demonstrate an **understanding** of grade-level skills. These students

- understand how to use current scientific theories and methods to help explain the formation of the solar system.
- understand how to explain changes in Earth's system throughout geologic time.
- understand how to explain the internal and external energy sources of Earth.

In the area of Personal and Social Perspectives and Technology, tenth grade students typically performing at the Proficient level demonstrate an **understanding** of grade-level skills. These students

- analyze common environmental issues.
- understand how to explain that science and technology influence each other and are pursued for different purposes.
- identify the differences between renewable and nonrenewable resources.

Grade 10 Science ISAT Proficiency Level Descriptors

Basic

In the area of Nature of Science, tenth grade students typically performing at the Basic level demonstrate a **limited understanding** of grade-level skills. These students

- identify the components in and among systems and their roles.
- understand how to use simple observations, data, and logic as evidence on which to base limited scientific explanations.
- understand how to use tools/technology to measure scientific information using metric units.
- recognize changes that can occur in and among systems.
- understand how to use some components of scientific problem solving.
- analyze simple diagrams, charts, graphs, and technical writing.

In the area of Physical Science, tenth grade students typically performing at the Basic level demonstrate a **limited understanding** of grade-level skills. These students

- understand basic motions using Newton's laws of motion.
- understand that energy can be classified as potential and/or kinetic.
- recognize that energy can be transformed but cannot be created nor destroyed.
- identify some basic properties, functions, and processes of atomic particles and their simple relationships to electricity and magnetism.
- recognize that chemical reactions may release or consume energy while the quantity of matter remains constant.

In the area of Biology, tenth grade students typically performing at the Basic level demonstrate a **limited understanding** of grade-level skills. These students

- recognize that the theory of evolution is related to how and why species change over time.
- recognize simple relationships between matter and energy in and among living systems.
- identify some cellular structures and recognize their basic functions.
- identify the role and the primary function of DNA.

In the area of Earth Science, tenth grade students typically performing at the Basic level demonstrate a **limited understanding** of grade-level skills. These students

- recognize that current scientific theories and methods are related to the formation of the solar system.
- understand that changes have occurred in Earth's system throughout geologic time.
- understand some internal and external energy sources of Earth.

In the area of Personal and Social Perspectives and Technology, tenth grade students typically performing at the Basic level demonstrate a **limited understanding** of grade level skills. These students

- recognize common environmental issues.
- understand that science and technology influence each other.
- identify resources as renewable or nonrenewable.