Level 5: Advanced

Students who score at this level demonstrate an exceptional understanding of the scientific concepts and inquiry skills described in the Core Science Curriculum Framework for grades 6-8. Generally, these students demonstrate superior competency to analyze and evaluate the quality of data and apply content knowledge to effectively communicate their understanding of the natural world.

Content Knowledge

(Students at this level demonstrate a superior degree of knowledge to:)

Life Science

- Describe how an ecosystem is composed of all the populations that are living in a certain space and include the physical factors with which they interact.
- Describe how many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.
- Describe how technology allows us to improve food production and preservation, thus improving out ability to meet the nutritional needs of growing populations.
- Describe how reproduction is a characteristic of living systems and that it is essential for the continuation of every species.

Physical Science

- Classify materials as pure substances or mixtures, depending on their chemical and physical properties.
- Describe how energy provides the ability to do work and that it can exist in many forms.
- Describe how an object's inertia causes it to continue moving the way it is moving unless it is acted upon by another force.
- Describe how in the design of structures there is a need to consider factors such as function, materials, safety, cost and appearance.

Earth Science

- Describe how variations in the amount of the sun's energy hitting the Earth's surface affect daily and seasonal weather patterns.
- Describe how water moving across and through earth materials carries with it the products of human activities.
- Describe how landforms are the result of the interaction of constructive and destructive forces over time.
- Describe how the solar system is composed of planets and other objects that orbit the sun.

Scientific Inquiry

(Students at this level demonstrate a superior understanding of how to:)

- Identify questions that can be answered through scientific investigation.
- Identify attributes of credible scientific claims in different sources of information.
- Design and conduct appropriate types of scientific investigations to answer different questions.
- Identify independent and dependent variables, and those variables that are kept constant, when designing an experiment.
- Use appropriate tools and techniques to make observations and gather data.
- Use mathematical operations to analyze and interpret data.
- Identify and present relationships between variables in appropriate graphs.
- Draw conclusions and identify sources of error.
- Provide explanations to investigated problems or questions.

Level 4: Goal

Students who score at this level demonstrate a strong understanding of the scientific concepts and inquiry skills described in the Core Science Curriculum Framework for grades 6-8. Generally, these students demonstrate competency to analyze and evaluate the quality of data and apply content knowledge to effectively communicate their understanding of the natural world.

Content Knowledge

(Students at this level a strong degree of knowledge to:)

Life Science

- Describe how an ecosystem is composed of all the populations that are living in a certain space and include the physical factors with which they interact.
- Describe how many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.
- Describe how technology allows us to improve food production and preservation, thus improving out ability to meet the nutritional needs of growing populations.
- Describe how reproduction is a characteristic of living systems and that it is essential for the continuation of every species.

Physical Science

- Classify materials as pure substances or mixtures, depending on their chemical and physical properties.
- Describe how energy provides the ability to do work and that it can exist in many forms.
- Describe how an object's inertia causes it to continue moving the way it is moving unless it is acted upon by another force.
- Describe how in the design of structures there is a need to consider factors such as function, materials, safety, cost and appearance.

Earth Science

- Describe how variations in the amount of the sun's energy hitting the Earth's surface affect daily and seasonal weather patterns.
- Describe how water moving across and through earth materials carries with it the products of human activities.
- Describe how landforms are the result of the interaction of constructive and destructive forces over time.
- Describe how the solar system is composed of planets and other objects that orbit the sun.

Scientific Inquiry

(Students at this level demonstrate a strong understanding of how to:)

- Identify questions that can be answered through scientific investigation.
- Identify attributes of credible scientific claims in different sources of information.
- Design and conduct appropriate types of scientific investigations to answer different questions.
- Identify independent and dependent variables, and those variables that are kept constant, when designing an experiment.
- Use appropriate tools and techniques to make observations and gather data.
- Use mathematical operations to analyze and interpret data.
- Identify and present relationships between variables in appropriate graphs.
- Draw conclusions and identify sources of error.
- Provide explanations to investigated problems or questions.

Level 3: Proficient

Students who score at this level demonstrate an adequate understanding of the scientific concepts and inquiry skills described in the Core Science Frameworks for grades 6-8. Generally, these students show some competency to analyze and evaluate the quality of data and apply content knowledge to communicate their understanding of the natural world.

Content Knowledge

(Students at this level demonstrate an adequate degree of knowledge to:)

Life Science

- Describe how an ecosystem is composed of all the populations that are living in a certain space and include the physical factors with which they interact.
- Describe how many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.
- Describe how technology allows us to improve food production and preservation, thus improving out ability to meet the nutritional needs of growing populations.
- Describe how reproduction is a characteristic of living systems and that it is essential for the continuation of every species.

Physical Science

- Classify materials as pure substances or mixtures, depending on their chemical and physical properties.
- Describe how energy provides the ability to do work and that it can exist in many forms.
- Describe how an object's inertia causes it to continue moving the way it is moving unless it is acted upon by another force.
- Describe how in the design of structures there is a need to consider factors such as function, materials, safety, cost and appearance.

Earth Science

- Describe how variations in the amount of the sun's energy hitting the Earth's surface affect daily and seasonal weather patterns.
- Describe how water moving across and through earth materials carries with it the products of human activities.
- Describe how landforms are the result of the interaction of constructive and destructive forces over time.
- Describe how the solar system is composed of planets and other objects that orbit the sun.

Scientific Inquiry

(Students at this level demonstrate an adequate understanding of how to:)

- Identify questions that can be answered through scientific investigation.
- Identify attributes of credible scientific claims in different sources of information.
- Design and conduct appropriate types of scientific investigations to answer different questions.
- Identify independent and dependent variables, and those variables that are kept constant, when designing an experiment.
- Use appropriate tools and techniques to make observations and gather data.
- Use mathematical operations to analyze and interpret data.
- Draw conclusions and identify sources of error.
- Provide explanations to investigated problems or questions.

Level 2: Basic

Students who score at this level demonstrate partial understanding of the scientific concepts and inquiry skills described in the Core Science Curriculum Framework for grades 6-8. Generally, these students demonstrate limited competency to analyze and evaluate the quality of data and applying content knowledge to communicate their understanding of the natural world.

Content Knowledge

(Students at this level demonstrate a marginal degree of knowledge to:)

Life Science

- Describe how an ecosystem is composed of all the populations that are living in a certain space and include the physical factors with which they interact.
- Describe how many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.
- Describe how technology allows us to improve food production and preservation, thus improving out ability to meet the nutritional needs of growing populations.
- Describe how reproduction is a characteristic of living systems and that it is essential for the continuation of every species.

Physical Science

- Classify materials as pure substances or mixtures, depending on their chemical and physical properties.
- Describe how energy provides the ability to do work and that it can exist in many forms.
- Describe how an object's inertia causes it to continue moving the way it is moving unless it is acted upon by another force.
- Describe how in the design of structures there is a need to consider factors such as function, materials, safety, cost and appearance.

Earth Science

- Describe how variations in the amount of the sun's energy hitting the Earth's surface affect daily and seasonal weather patterns.
- Describe how water moving across and through earth materials carries with it the products of human activities.
- Describe how landforms are the result of the interaction of constructive and destructive forces over time.
- Describe how the solar system is composed of planets and other objects that orbit the sun.

Scientific Inquiry

(Students at this level demonstrate a marginal understanding of how to:)

- Identify questions that can be answered through scientific investigation.
- Identify attributes of credible scientific claims in different sources of information.
- Design and conduct appropriate types of scientific investigations to answer different questions.
- Identify independent and dependent variables, and those variables that are kept constant, when designing an experiment.
- Use appropriate tools and techniques to make observations and gather data.
- Use mathematical operations to analyze and interpret data.
- Identify and present relationships between variables in appropriate graphs.
- Draw conclusions and identify sources of error.
- Provide explanations to investigated problems or questions.

Level 1: Below Basic

Students who score at this level demonstrate a limited understanding of the scientific concepts and inquiry skills described in the Core Science Curriculum Framework for grades 6-8. Generally, these students do not demonstrate competency to analyze and evaluate the quality of data and apply content knowledge to communicate their understanding of the natural world.

Content Knowledge

(Students at this level demonstrate a limited degree of knowledge to:)

Life Science

- Describe how an ecosystem is composed of all the populations that are living in a certain space and include the physical factors with which they interact.
- Describe how many organisms, including humans, have specialized organ systems that interact with each other to maintain dynamic internal balance.
- Describe how technology allows us to improve food production and preservation, thus improving out ability to meet the nutritional needs of growing populations.
- Describe how reproduction is a characteristic of living systems and that it is essential for the continuation of every species.

Physical Science

- Classify materials as pure substances or mixtures, depending on their chemical and physical properties.
- Describe how energy provides the ability to do work and that it can exist in many forms.
- Describe how an object's inertia causes it to continue moving the way it is moving unless it is acted upon by another force.
- Describe how in the design of structures there is a need to consider factors such as function, materials, safety, cost and appearance.

Earth Science

- Describe how variations in the amount of the sun's energy hitting the Earth's surface affect daily and seasonal weather patterns.
- Describe how water moving across and through earth materials carries with it the products of human activities.
- Describe how landforms are the result of the interaction of constructive and destructive forces over time.
- Describe how the solar system is composed of planets and other objects that orbit the sun.

Scientific Inquiry

(Students at this level demonstrate limited understanding of how to:)

- Identify questions that can be answered through scientific investigation.
- Identify attributes of credible scientific claims in different sources of information.
- Design and conduct appropriate types of scientific investigations to answer different questions.
- Identify independent and dependent variables, and those variables that are kept constant, when designing an experiment.
- Use appropriate tools and techniques to make observations and gather data.
- Use mathematical operations to analyze and interpret data.
- Identify and present relationships between variables in appropriate graphs.
- Draw conclusions and identify sources of error.
- Provide explanations to investigated problems or questions.