MI-Access Participation Science Assessment

Physical Science - Grade 11 Performance Level Descriptors

Grade 11 Physical Science	EMERGING	ATTAINED	SURPASSED
	Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who are emerging toward the performance standard,** with or without assistance, are typically able to demonstrate a **limited*** ability to…	Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who attained the performance standard** are typically able to **independently***…	Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who surpassed the performance standard** are typically able to **consistently**** and **independently***…
TB: Structure and Properties of Matter	• recognize a real-world use of a familiar element when given the name and description of the element (limited to: Helium, Oxygen, or Aluminum), or • recognize a familiar substance as melting, or • recognize a given product made of metal or plastic.	• identify a real-world use of a familiar element when given the name and description of the element (familiar elements include: Helium, Oxygen, Copper, Nickel, Sodium, Calcium, Iron, Gold, Silver, Aluminum, or Neon), and/or • recognize a given familiar substance as boiling or melting, and/or • identify a material (such as metal, plastic, or plant material) used to make a given familiar product.	• identify two or more real-world uses of familiar elements when given the name and description of the element (familiar elements include: Helium, Oxygen, Copper, Nickel, Sodium, Calcium, Iron, Gold, Silver, Aluminum, or Neon), and • identify a familiar substance as boiling or melting, and • use an observation to identify materials (such as metals, plastics, or plant materials) used to make familiar products.
TB: Chemical Reactions	• recognize that a chemical reaction occurred, or	• identify a result of a chemical reaction, and/or	• use an observation of a familiar chemical reaction to identify one change that occurred as a result of a chemical reaction, and

Grade 11 **Physical Science**	**EMERGING** Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who are emerging toward the performance standard,** with or without assistance, are typically able to demonstrate a **limited*** ability to…	**ATTAINED** Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who attained the performance standard** are typically able to **independently***…	**SURPASSED** Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who surpassed the performance standard** are typically able to **consistently**** and **independently***…
TB: Chemical Reactions (continued)	• use a given real-world situation to recognize that a chemical reaction occurs more quickly when heat is added.	• identify the source of change (i.e., addition of heat) that causes a given chemical reaction to occur more quickly.	• use an observation of at least one familiar chemical reaction to recognize that a change in temperature (an increase) changes how fast a chemical reaction occurs (more quickly).
TB: Forces & Interactions	• recognize that a given object goes faster as it moves down a ramp after a push force is applied, or • recognize a moving object, or • recognize two objects that attract (stick together) due to electrostatic forces, or • recognize when a given appliance or device is on or off.	• identify which of two objects, one with a push/pull force applied and one without a force applied, goes faster as they move down a ramp or along a flat surface, and/or • identify the object that is moving when given objects with and without momentum, and/or • identify two objects that attract (stick together) or repel (push apart) due to electrostatic forces, and/or • identify that an electric current is flowing when a given appliance or device is turned on.	• identify which of two given objects, one with a push/pull force applied and one without a force applied, goes faster and which goes slower as they move down a ramp and along a flat surface, and • use a model or simulation to identify objects with momentum (moving) and without momentum (not moving), and • identify two objects that attract (stick together) and two objects that repel (push apart) due to electrostatic forces, and • use a simple electric circuit to identify when an electric current is flowing (such as when an appliance or device is on).

Grade 11 **Physical Science**	**EMERGING** Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who are emerging toward the performance standard,** with or without assistance, are typically able to demonstrate a **limited*** ability to…	**ATTAINED** Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who attained the performance standard** are typically able to **independently***…	**SURPASSED** Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who surpassed the performance standard** are typically able to **consistently**** and **independently***…
TB: Energy	• recognize there are different forms of energy, or • recognize if a material is hot or cold after a transfer of thermal energy, or • recognize that magnets attract certain materials.	• identify the form of energy used by a device, and/or • identify which of two materials with different temperatures is hotter or cooler before or after a transfer of thermal energy, and/or • identify one material that is attracted to a magnet.	• use demonstrations or models of energy to identify the form of energy being used by a given device, and • compare the temperatures of two substances before and after a transfer of thermal energy, and • use the results of an experiment to identify materials or objects that are attracted to magnets.
TB: Waves & Electromagnetic Radiation	• recognize that sound waves are used in a given device, or • recognize that a given device is digital.	• identify the type of wave (sound or light) used in a given device, and/or • identify which of two devices (one digital and one analog) is a digital device.	• use models or a demonstration to identify the type of wave (sound and/or light) used in devices, and • identify two or more digital devices.
***May include students using standard accommodations as determined by their Individualized Education Program** ****Consistently refers to students who would be able to demonstrate understanding about 80% of the time or better**			

MI-Access Participation Science Assessment

Life Science - Grade 11 Performance Level Descriptors

Grade 11 Life Science	EMERGING	ATTAINED	SURPASSED
	Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who are emerging toward the performance standard,** with or without assistance, are typically able to demonstrate a **limited*** ability to…	Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who attained the performance standard** are typically able to **independently***…	Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who surpassed the performance standard** are typically able to **consistently**** and **independently***…
TB: Structure & Function	• recognize a living thing is made of cells, or • recognize there are organs inside the human body that perform specific functions, or • recognize that a human can react to a given change so that it might survive.	• identify which is a living thing and made of cells, and/or • identify the organ that performs a specific function in a given human organ system, and/or • recognize one way a human would react to a given change in order to stay alive.	• identify which is a living thing and made of cells, and begin to recognize that certain cells have specific functions, and • use a model of a human organ system to identify one or more organs that perform specific functions, and • use given information about a change to identify one or more ways a human would react to stay alive.
TB: Matter & Energy in Organisms & Ecosystems	• recognize that a plant needs light to grow, or • recognize at least one of the major food groups (dairy, meat, grains, fruits, vegetables), or	• identify that light energy is needed for a plant to make and store food (sugar), and/or • sort foods into different food groups or identify one or more foods that belong to a given food group, and/or	• use a model to identify that a plant needs sunlight to make and store food (sugar), and • sort foods into different food groups and identify foods that belong to a given food group, and

Grade 11 Life Science	EMERGING	ATTAINED	SURPASSED
	Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who are emerging toward the performance standard,** with or without assistance, are typically able to demonstrate a **limited*** ability to…	Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who attained the performance standard** are typically able to **independently***…	Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who surpassed the performance standard** are typically able to **consistently**** and **independently***…
TB: Matter & Energy in Organisms & Ecosystems (continued)	• recognize that food gives humans energy, or • identify an animal in a simple food chain, or • recognize that humans need oxygen and/or plants need carbon dioxide to live.	• identify that food gives humans energy to grow and survive, and/or • identify one member of a given simple food chain that consumes another, and/or • recognize that plants provide oxygen humans breathe or humans can provide carbon dioxide used by plants.	• use a model to recognize that food provides energy for plants and animals to grow and survive, and • use a given food chain of a familiar ecosystem to identify an organism that is consumed by another, and • use a given familiar model to identify that plants provide oxygen humans breathe and humans can provide carbon dioxide used by plants.
TB: Interdependent Relationships in Ecosystems	• use a simple graph to recognize a change in the population of a given organism, or • recognize that a human activity can affect the environment, or • recognize that some animals live in a group.	• use a simple graph to identify a cause for the change in a given population of organisms, and/or • identify a human activity that helps the environment, and/or • identify a group behavior that increases an animal's chances for survival.	• use a simple graph to identify two possible causes for the change in a population of organisms, and • identify human activities that help the environment, and • identify group behaviors that increase an individual animal's chances for survival.

Grade 11 Life Science	EMERGING	ATTAINED	SURPASSED
	Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who are emerging toward the performance standard,** with or without assistance, are typically able to demonstrate a **limited*** ability to…	Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who attained the performance standard** are typically able to **independently***…	Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who surpassed the performance standard** are typically able to **consistently**** and **independently***…
TB: Inheritance & Variation of Traits	• recognize that a body is made up of cells, or • recognize an offspring of given parents.	• recognize that body growth or repair is a result of dividing cells, and/or • identify a given parent and offspring combination.	• identify that body growth and repair is a result of dividing cells, and • identify similarities between a parent and its offspring.
TB: Natural Selection & Evolution	• identify a fossil, or • recognize one organism that can survive in a given environment.	• match a given fossil to the organism that it is related to, and/or • identify which of two vastly different organisms can survive in a given environment.	• identify one or more similarities between a fossil and the organism it is related to, and begin to recognize a difference between a fossil and the organism it is related to, and • identify one physical trait of a given organism that helps that organism to survive in a given environment.
***May include students using standard accommodations as determined by their Individualized Education Program** ****Consistently refers to students who would be able to demonstrate understanding about 80% of the time or better**			

MI-Access Participation Science Assessment

Earth & Space Sciences - Grade 11 Performance Level Descriptors

Grade 11 Earth & Space Sciences	EMERGING	ATTAINED	SURPASSED
	Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who are emerging toward the performance standard,** with or without assistance, are typically able to demonstrate a **limited*** ability to…	Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who attained the performance standard** are typically able to **independently***…	Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who surpassed the performance standard** are typically able to **consistently**** and **independently***…
TB: Space Systems	• recognize that the Sun gives off heat and/or light, or • use given scaled models of Earth and the moon to recognize Earth and/or the moon.	• identify the Sun as the source of heat and/or light for Earth, and/or • use given scaled models of Earth and the moon to identify the moon as the object orbiting Earth.	• use a model of the solar system (Earth-sun-moon) to identify the Sun as the source of heat and light for Earth, and • use scaled models of Earth and the moon to identify that the moon orbits Earth because Earth is larger than the moon.
TB: History of Earth	• recognize a volcano as a past effect of tectonic plate collisions, or • recognize that Earth is made of layers.	• identify a past effect of tectonic plate collision (i.e., a volcano) and/or • identify the layer of Earth on which people live.	• use models to identify one or more past effects of tectonic plate collisions (i.e., a volcano, earthquakes), and • use a model to identify the layer of Earth on which people live and indicate that it is the top layer.
TB: Earth's Systems	• recognize that water movement can affect soil or gravel, or	• use observations of a demonstration of water's effect on soil or gravel to identify which material acted on the other (i.e., water washed away the soil), and/or	• use observations of a demonstration of water's effect on soil or gravel to identify the effects, and

Grade 11 **Earth & Space Sciences**	**EMERGING** Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who are emerging toward the performance standard,** with or without assistance, are typically able to demonstrate a **limited*** ability to…	**ATTAINED** Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who attained the performance standard** are typically able to **independently***…	**SURPASSED** Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who surpassed the performance standard** are typically able to **consistently**** and **independently***…
TB: Earth's Systems (continued)	• recognize that people need oxygen (air) to breathe.	• identify that people breathe in oxygen provided by plants.	• use a model or illustration of the interdependency between plants and people to recognize that people breathe in oxygen provided by plants and breathe out carbon dioxide.
TB: Weather & Climate	• recognize that weather data can be used to describe conditions outside of the school building.	• identify the weather data when given weather and non-weather data.	• identify weather data for the student's location and begin to recognize simple local weather patterns.
TB: Human Sustainability	• recognize a natural resource or a natural hazard, or • recognize a natural resource or a human behavior/activity intended to conserve a given natural resource, or • recognize that a human population uses a given natural resource.	• identify a natural resource and/or a natural hazard, and/or • match a human activity or a human behavior to a natural resource it is intended to conserve, and/or • identify that a human population uses a given natural resource.	• use a model to identify a natural resource and a natural hazard, and • identify human activities or behaviors that are intended to conserve a given natural resource, and • use data about a human population to identify one or more natural resources that are being used.
***May include students using standard accommodations as determined by their Individualized Education Program** ****Consistently refers to students who would be able to demonstrate understanding about 80% of the time or better**			

MI-Access Participation Science Assessment
ETS - Grade 11 Performance Level Descriptors

Grade 11 **Engineering, Technology, and Applications of Science**	**EMERGING** Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who are emerging toward the performance standard,** with or without assistance, are typically able to demonstrate a **limited*** ability to…	**ATTAINED** Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who attained the performance standard** are typically able to **independently***…	**SURPASSED** Based on the Essential Elements using the Low level of the Michigan Range of Complexity, across all content expectations, students **who surpassed the performance standard** are typically able to **consistently**** and **independently***…
TB: Engineering Design	• recognize a common familiar challenge that impacts the student, or • recognize a common, familiar problem that impacts the student or the student's environment, or • recognize a possible solution to a common, familiar problem.	• identify who or what is impacted (hurt) by a given common familiar challenge, and/or • use information about a student's direct experience (such as within the classroom, school, family, or community) to identify a small problem that is related to a larger problem, and/or • identify a given possible solution to a common, familiar problem, given a solution and a non-solution.	• use a common familiar challenge to identify who and/or what is most impacted (hurt by it), and • use class investigations of common, familiar problems related to the student's direct experience (such as within the school or local community) to identify one or more smaller problems that are related to a larger problem, and • recognize the better of two possible solutions to use to solve a common, familiar problem.

***May include students using standard accommodations as determined by their Individualized Education Program**
****Consistently refers to students who would be able to demonstrate understanding about 80% of the time or better**