

MI-Access Supported Independence Science Assessment

Physical Science - Grade 11 Performance Level Descriptors

Grade 11	EMERGING	ATTAINED	SURPASSED
Physical Science	Based on the Essential Elements using the Medium 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 Medium level of the Michigan Range of Complexity, across all content expectations, students who attained the performance standard are typically able to independently* ...	Base on the Essential Elements using the Medium 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	<ul style="list-style-type: none"> use a model to identify one way a familiar element is used in a real-world situation (limited to: Helium, Oxygen, Iron, Gold, Silver, Aluminum, or Neon), or observe a demonstration to recognize the melting or boiling point of a familiar substance based on the state of matter, or identify one observable structural property (e.g., strength, weight) of a given natural material or one made by humans. 	<ul style="list-style-type: none"> use models to identify how familiar elements are used in real-world situations (limited to: Helium, Oxygen, Copper, Tin, Nickel, Carbon, Sodium, Potassium, Calcium, Lead, Iron, Gold, Silver, Aluminum, Neon), and/or observe a demonstration to recognize the melting and/or boiling point of a familiar substance based on the state of matter, and/or identify one or more observable structural properties (e.g., strength, weight, durability, flexibility, buoyancy) of a given natural material or one made by humans. 	<ul style="list-style-type: none"> use illustrations or models to identify how familiar elements are used in real-world situations (e.g., Helium, Oxygen, Copper, Tin, Nickel, Carbon, Sodium, Potassium, Calcium, Lead, Iron, Gold, Silver, Aluminum, Neon), and participate in an investigation to recognize the melting and/or boiling points of a familiar substance, and begin to associate the melting or boiling points with changes in temperature, and use evidence to identify two or more structural properties (e.g., strength, weight, heat conductivity, durability, flexibility, magnetism, buoyancy) of a given natural material and a material made by humans.

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TB: Chemical Reactions	<p>Based on the Essential Elements using the Medium 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...</p> <ul style="list-style-type: none"> • identify one observable change that occurs during a familiar or real-world chemical reaction, or • use an observation to recognize that increasing heat makes a given real-world chemical reaction happen faster. 	<p>Based on the Essential Elements using the Medium level of the Michigan Range of Complexity, across all content expectations, students who attained the performance standard are typically able to independently*...</p> <ul style="list-style-type: none"> • use a simulation or model to identify a change that occurs during a chemical reaction, and/or • use an observation to identify that increasing the temperature (heat) makes a chemical reaction happen faster. 	<p>Base on the Essential Elements using the Medium level of the Michigan Range of Complexity, across all content expectations, students who surpassed the performance standard are typically able to consistently** and independently*...</p> <ul style="list-style-type: none"> • use illustrations, models, or simulations to identify changes that occur during a chemical reaction, and • use observations of chemical reactions to identify that increasing the temperature makes reactions happen faster.
TB: Forces & Interactions	<ul style="list-style-type: none"> • use a simulation to recognize that a given force (i.e., push, pull) acting on an object changes the speed of the object (limited to faster, slower, or stops), or • use a simulation to recognize that two given objects move in different directions after a collision, or 	<ul style="list-style-type: none"> • use simulations to identify how a force (e.g., push, pull, gravity, friction) acting on an object changes the speed of an object (faster, slower, stays the same, or stops), and/or • use simulations to identify that after a given collision between two objects, the force of movement (momentum) for each object is in the opposite direction of the original movement, and/or 	<ul style="list-style-type: none"> • use data or simulations to determine how a force acting on an object changes the speed of an object, and • use models, illustrations, or simulations to describe that, after a collision between two objects, the force of movement (momentum) for each object is in the opposite direction of the original movement, and

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TB: Forces & Interactions (continued)	<ul style="list-style-type: none"> recognize that size or distance between objects affects the electrostatic force between the objects, or recognize when an observable magnetic field is flowing. 	<ul style="list-style-type: none"> identify that a factor, such as charge of particles or relative distance between objects, affects the electrostatic force between the objects, and/or use a demonstration to identify when a magnetic field and/or an electric current is flowing. 	<ul style="list-style-type: none"> use illustrations, models, or simulations to determine how factors, such as charge of particles and/or relative distance between objects, affect the electrostatic force between the objects, and use given evidence to identify when a magnetic field and/or an electric current is flowing and begin to recognize that an electric current produces a magnetic field.
TB: Energy	<ul style="list-style-type: none"> recognize a form of energy used by a given familiar device or appliance, or recognize that heat (thermal energy) causes the temperature of an object or a substance to increase, or use a demonstration to recognize whether a magnet attracts or repels a familiar classroom object. 	<ul style="list-style-type: none"> identify one or more forms of energy used by a given familiar device, and/or compare the temperatures of two given substances of different temperatures before and after combining them, and/or use magnets to identify that objects with opposite charges attract and/or that objects with like charges repel. 	<ul style="list-style-type: none"> use evidence to identify two or more forms of energy used by a device, and use evidence from an investigation to compare the temperatures of two substances of different temperatures before and after combining them, and use magnets to demonstrate that objects with opposite charges attract and objects with like charges repel.

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TB: Waves & Electromagnetic Radiation	<ul style="list-style-type: none"> • identify a familiar device that uses sound or light waves to send information, or • identify one benefit of a given familiar digital device. 	<ul style="list-style-type: none"> • compare effects of sound or light traveling through media or recognize that a device uses waves to transmit information, and/or • identify how given familiar digital devices are beneficial. 	<ul style="list-style-type: none"> • use evidence to compare effects of sound and light traveling through media and recognize that devices use waves to transmit information, and • use evidence to identify how digital devices are beneficial.
<p style="text-align: center;">*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</p>			

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Life Science - Grade 11 Performance Level Descriptors

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Life Science	Based on the Essential Elements using the Medium 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 Medium 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 Medium 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	<ul style="list-style-type: none"> recognize that all living things have genetic material in their cells, or use a model to identify a main organ or an organ system of a given familiar animal, or identify one way that a given familiar animal regulates its internal conditions to stay alive. 	<ul style="list-style-type: none"> identify that the cell has a specific structure called DNA which contains information to perform cellular functions, and/or use models to identify the main organs or organ systems of familiar animals, and/or use evidence to identify one way that animals regulate their internal conditions needed to stay alive. 	<ul style="list-style-type: none"> demonstrate that the cell has a specific structure called DNA which contains information to perform cellular functions, and use models to identify the main organs and organ systems of familiar animals, and use evidence to identify ways that animals regulate their internal conditions needed to stay alive.
TB: Matter & Energy in Organisms & Ecosystems	<ul style="list-style-type: none"> use a model to recognize that plants have a process for making their own food or that water and sunlight are needed for plants to make their own food, or identify a food that is high in carbohydrates (carbs), or 	<ul style="list-style-type: none"> use a model to identify that sunlight, carbon dioxide, and water transform into sugar for plants to use as food, and/or identify foods that are classified as sources of carbohydrates (carbs) or sources of proteins, and/or 	<ul style="list-style-type: none"> use a model to describe that sunlight, carbon dioxide, and water transform into sugar for plants to use as food, and identify foods that are classified as sources of carbohydrates (carbs) and sources of proteins, and

Grade 11 Life Science	EMERGING Based on the Essential Elements using the Medium 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 Medium 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 Medium 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)	<ul style="list-style-type: none"> • use a model to recognize that cells change food into energy for plants or animals to grow and survive, or • identify an animal in a simple food chain model that eats another animal, or • use a simple illustration to recognize that humans add carbon to the air when breathing or that plants need carbon to live and grow. 	<ul style="list-style-type: none"> • use a model to identify that cells break down food into new substances to provide energy for plants or animals to grow and survive, and/or • use a simple model to describe a simple food chain, and/or • use a simple carbon cycle model to identify the flow of carbon between air and living organisms. 	<ul style="list-style-type: none"> • use a model to describe that cells break down food into new substances to provide energy for plants and animals to grow and survive, and • use a model to identify the flow of energy in an increasingly complex food chain (limited to six organisms), and • use a simple carbon cycle model to identify the flow of carbon between air, water, and living organisms.
TB: Interdependent Relationships in Ecosystems	<ul style="list-style-type: none"> • use given data to identify one cause of a change in population of a given organism, or • recognize a human activity that harms or benefits the environment, or 	<ul style="list-style-type: none"> • use a simple graph to identify a possible cause of a change in population of organisms (food, shelter, water), and/or • identify human activities that are harmful or beneficial to the environment, and/or 	<ul style="list-style-type: none"> • use a simple graph to identify possible causes or effects of a change in population of organisms (food, shelter, water), and • differentiate between human activities that are harmful and human activities that are beneficial to the environment, and

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TB: Interdependent Relationships in Ecosystems (continued)	<ul style="list-style-type: none"> use a model to recognize that a given group behavior increases the chances for a group of animals to survive. 	<ul style="list-style-type: none"> use given information to identify a group behavior that is beneficial to groups of animals and/or individual animals. 	<ul style="list-style-type: none"> use given information or a scenario to describe a group behavior that is beneficial to groups of animals and individual animals.
TB: Inheritance & Variation of Traits	<ul style="list-style-type: none"> use a picture to recognize that cell division increases the number of body cells, or use a model to identify one physical trait passed from parent to offspring in a given animal. 	<ul style="list-style-type: none"> use a model to identify the role of cellular division in growing or maintaining the body, and/or use a model to identify or predict physical traits passed from parent to offspring. 	<ul style="list-style-type: none"> use a model to describe the role of cellular division in growing and maintaining the body, and use models or illustrations to identify and predict physical traits passed from parent to offspring.
TB: Natural Selection & Evolution	<ul style="list-style-type: none"> use a picture to identify a similar physical trait shared between a given fossil and its modern descendant, or use a picture to identify one beneficial trait that will be passed from parent to offspring in a given organism. 	<ul style="list-style-type: none"> use pictures to identify similarities or differences in the traits of fossils and their modern descendants, and/or use given information to identify a beneficial trait of an organism (that will also be passed on to offspring) that makes it more likely to survive in a particular environment or as an environment changes. 	<ul style="list-style-type: none"> use pictures of fossils and their modern descendants to identify similarities and differences in their traits, and use data to identify beneficial traits of an organism (that will also be passed on to offspring) that make it more likely to survive in a particular environment or as an environment changes.
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Earth & Space Sciences - Grade 11 Performance Level Descriptors

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Earth & Space Sciences	Based on the Essential Elements using the Medium 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 Medium 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 Medium 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	<ul style="list-style-type: none"> use a picture to identify that the Sun provides heat and light to Earth, or use a picture to recognize that the mass of the Sun keeps the planets in their orbits. 	<ul style="list-style-type: none"> use a model to identify the path of solar radiation (as heat and light) from the Sun to Earth, and/or use a model to identify that planets orbit the Sun because it has greater mass or exerts greater gravitational force. 	<ul style="list-style-type: none"> use a model to describe the path of solar radiation (as heat and light) from the Sun to Earth, and use scaled models or illustrations to identify that planets orbit the Sun because it has greater mass and exerts greater gravitational force.
TB: History of Earth	<ul style="list-style-type: none"> use a demonstration to recognize that tectonic plates move slowly and change position over time, or use a simple model to recognize that Earth is made up of four distinct layers. 	<ul style="list-style-type: none"> use a model to identify the effects of tectonic plates colliding (volcano eruptions, earthquakes, etc.), and/or use a model to identify Earth's crust, mantle, outer core, or inner core. 	<ul style="list-style-type: none"> use a simulation or demonstration to describe the effects of tectonic plates colliding (volcano eruptions, earthquakes, etc.), and use a model to identify Earth's crust, mantle, outer core, and inner core, and begin to recognize that they formed over a long period of time.
TB: Earth's Systems	<ul style="list-style-type: none"> use a demonstration to recognize that water as a liquid or solid causes changes to Earth's surface, or 	<ul style="list-style-type: none"> use a model or demonstration to identify erosion as the interaction of water and earth materials (such as soil or gravel), and/or 	<ul style="list-style-type: none"> use a model or simulation to describe erosion as the interaction of water and earth materials (such as soil or gravel), and

Grade 11 Earth & Space Sciences	EMERGING	ATTAINED	SURPASSED
TB: Earth's Systems (continued)	<ul style="list-style-type: none"> use a picture to identify that people breathe in oxygen and breathe out carbon dioxide. 	<ul style="list-style-type: none"> use a model to identify the dependence on oxygen and/or carbon dioxide between people and plants. 	<ul style="list-style-type: none"> use a model or illustration to describe the dependence on oxygen and carbon dioxide between people and plants.
TB: Weather & Climate	<ul style="list-style-type: none"> use weather information to identify a weather pattern in the local (student's) region in a given season. 	<ul style="list-style-type: none"> use weather information or illustrations to identify weather patterns in a given region. 	<ul style="list-style-type: none"> use descriptions and illustrations to identify weather patterns in a given region.
TB: Human Sustainability	<ul style="list-style-type: none"> identify one positive way humans may be affected by a given natural resource, or one negative way humans may be affected by a given natural hazard, or identify a human activity that conserves a given natural resource, or use an illustration to identify that an increase in population can result in an increased use of a given natural resource. 	<ul style="list-style-type: none"> use given evidence about natural resources or natural hazards in an area to identify one positive and one negative way that humans may be affected, and/or identify a human activity that shows conservation or a reduced human impact on a given natural resource, and/or identify whether a given natural resource used by a given human population will increase, decrease, or remain the same (sustainable use). 	<ul style="list-style-type: none"> use given evidence about natural resources and natural hazards in an area to identify one or more positive and one or more negative ways that humans may be affected, and identify two or more human activities that show conservation or a reduced human impact on natural resources, and use evidence about how a human population uses a natural resource to explain whether the resource will increase, decrease, or remain the same (sustainable use).
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ETS - Grade 11 Performance Level Descriptor

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Engineering, Technology, and Applications of Science	Based on the Essential Elements using the Medium 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 Medium 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 Medium 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	<ul style="list-style-type: none"> identify one harmful effect to the environment if a solution is not found for a given common or familiar challenge, or participate in a class investigation to recognize a problem in the student's local community, or identify a solution to a common or familiar problem that best meets a specific criterion. 	<ul style="list-style-type: none"> use given evidence to identify one or more effect(s) to humans or the environment if solutions are not developed for a given common challenge, and/or participate in a class investigation to identify a smaller problem related to a larger common or familiar problem that is in the student's local community or within Michigan, and/or identify which of two given solutions to a common or familiar problem best meets a specific criteria or constraint. 	<ul style="list-style-type: none"> use evidence about a common challenge to identify two or more effects to humans and the environment if solutions are not developed, and participate in a class investigation of a common or familiar problem limited to the student's local community or within the state of Michigan to identify a smaller problem that is related to a larger problem, and use more than two given solutions to a common or familiar problem to identify the solution that best meets a specific criteria or constraint (e.g., cost, safety, aesthetics).
<p>*May include students using standard accommodations as determined by their Individualized Education Program</p> <p>**Consistently refers to students who would be able to demonstrate understanding about 80% of the time or better</p>			