



***Matter Factory* is aligned to the Science TEKS for grades Kindergarten through Grade 8.**

**Science, Kindergarten**

**(3) Scientific investigation and reasoning.** The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:

(C) explore that scientists investigate different things in the natural world and use tools to help in their investigations

**(4) Scientific investigation and reasoning.** The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:

(B) use senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment

**(5) Matter and energy.** The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:

(A) observe and record properties of objects, including relative size and mass, such as bigger or smaller and heavier or lighter, shape, color, and texture; and

(B) observe record, and discuss how materials can be changed by heating or cooling

**(6) Force, motion, and energy.** The student knows that energy, force, and motion are related and are a part of their everyday life. The student is expected to:

(B) explore interactions between magnets and various materials

**Science, Grade 1**

**(2) Scientific investigation and reasoning.** The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:

(A) ask questions about organisms, objects, and events observed in the natural world

(B) plan and conduct simple descriptive investigations such as ways objects move

(E) communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations

**(3) Scientific investigation and reasoning.** The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:

(B) make predictions based on observable patterns

(C) describe what scientist do

**(4) Scientific investigation and reasoning.** The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:

(B) measure and compare organisms and objects using non-standard units

**(5) Matter and energy.** The student knows that objects have properties and patterns. The student is expected to:

(A) classify objects by observable properties of the materials from which they are made such as larger and smaller, heavier and lighter, shape, color, and texture

(B) predict and identify changes in materials caused by heating and cooling such as ice melting, water freezing, and water evaporating

**(6) Force, motion, and energy.** The student knows that energy, force, and motion are related and are a part of their everyday life. The student is expected to:

(B) predict and describe how a magnet can be used to push or pull an object

## **Science, Grade 2**

**(2) Scientific investigation and reasoning.** The student develops abilities necessary to do scientific inquiry in classroom and outdoor investigations. The student is expected to:

(A) ask questions about organisms, objects, and events during observations and investigations

(E) communicate observations and justify explanations using student-generated data from simple descriptive investigations

(F) compare results of investigations with what students and scientist know about the world

**(3) Scientific investigation and reasoning.** The student knows that information and critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:

(B) make predictions based on observable patterns

(C) identify what a scientist is and explore what different scientist do

**(4) Scientific investigation and reasoning.** The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:

(B) measure and compare organisms and objects using non-standard units that approximate metric units

**(5) Matter and energy.** The student knows that matter has physical properties and those properties determine how it is described, classified, changed, and used. The student is expected to:

(A) classify matter by physical properties, including shape, relative mass, relative, temperature, flexibility, and whether material is a solid or liquid

(B) compare changes in materials caused by heating and cooling

### **Science, Grade 3**

**(5) Matter and energy.** The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:

(A) measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float

**(6) Force, motion, and energy.** The student knows that forces cause change and that energy exists in many forms. The student is expected to:

(C) observe forces such as magnetism and gravity acting on objects

### **Science, Grade 4**

**(5) Matter and energy.** The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:

(A) measure, compare, and contrast physical properties of matter, including size, mass, volume, states (solid, liquid, gas), temperature, magnetism, and the ability to sink or float

(C) compare and contrast a variety of mixtures and solutions such as rocks in sand, sand in water, or sugar in water

**(6) Force, motion, and energy.** The student knows that energy exists in many forms and can be observed in cycles, patterns, and systems. The student is expected to:

(B) differentiate between conductors and insulators

### **Science, Grade 5**

**(5) Matter and energy.** The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:

(A) classify matter based on physical properties, including mass, magnetism, physical state (solid, liquid, gas), relative density (sinking and floating), solubility in water, and the ability to conduct or insulate thermal energy or electric energy

### **Science, Grade 6**

**(5) Matter and energy.** The student knows the differences between elements and compounds. The student is expected to:

(A) know that an element is a pure substance represented by a chemical symbol

(B) recognize that a limited number of the many known elements comprise the largest portion of solid Earth, living matter, oceans, and the atmosphere

(C) differentiate between elements and compounds on the most basic level

**(6) Matter and energy.** The student knows matter has physical properties that can be used for classification. The student is expected to:

(A) compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability

### **Science, Grade 7**

**(6) Matter and energy.** The student knows matter has physical and chemical properties and can undergo physical and chemical change. The student is expected to:

(A) identify that organic compounds contain carbon and other elements such as hydrogen, oxygen, phosphorus, nitrogen, or sulfur

(C) recognize how large molecules are broken down into smaller molecules such as carbohydrates can be broken down into sugars

## **Science, Grade 8**

**(3) Scientific investigation and reasoning.** The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientist. The student is expected to:

(B) use models to represent aspects of the natural world such as an atom, a molecule, space, or geologic features

(C) identify advantages and limitations of models such as size, scale, properties, and materials

**(5) Matter and energy.** The student knows that matter is composed of atoms and has chemical and physical properties. The student is expected to:

(A) describe the structure of atoms, including the masses, electrical charges, and locations, of protons and neutrons in the nucleus and electrons in the electron cloud

(C) interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements

(D) recognize that chemical formulas are used to identify substances and determine the number of atoms of each element in chemical formulas containing subscripts