TEKS IN FOCUS

TEKS in Focus highlights key concepts and student expectations to assist educators in implementing the science Texas Essential Knowledge and Skills (TEKS). The vertical progression of a concept within the science TEKS is provided with a side-by-side view of the changes being implemented in 2024.

Focus: Vertical Alignment of Physical and Chemical Changes Elementary

Level of Study	Prior TEKS	TEKS Implemented in 2024
Grade 1	1.5.B predict and **identify** changes in materials caused by heating and cooling;	1.6.B **explain** and predict changes in materials caused by heating and cooling; and 1.8.B **describe how some changes caused by heat may be reversed such as melting butter and other changes cannot be reversed such as cooking an egg or baking a cake.**
Grade 2	2.5.B **compare changes in materials caused by heating and cooling** 2.5.C **demonstrate that things can be done to materials** such as cutting, folding, sanding, and melting to change their physical properties;	2.6.B **conduct a descriptive investigation to explain how** physical properties **can be** changed **through processes** such as cutting, folding, sanding, melting, or **freezing**; and
Grade 3	3.5.C predict, observe, and record changes in the state of matter caused by heating or cooling such as ice becoming liquid water, condensation forming on the outside of a glass of ice water, or liquid water being heated to the point of becoming water vapor; 3.5.D **explore and recognize that a mixture is created when two materials are combined such as gravel and sand or metal and plastic paper clips.**	**3.6.C** predict, observe, and record changes in the state of matter caused by heating or cooling **in a variety of substances** such as ice becoming liquid water, condensation forming on the outside of a glass, or liquid water being heated to the point of becoming water vapor **(gas)**; and
Grade 4	--------	4.6.B investigate and compare a variety of mixtures, including solutions that are composed of liquids in liquids and solids in liquids; and 4.6.C **demonstrate that matter is conserved when mixtures such as soil and water or oil and water are formed.**
Grade 5	5.5.B demonstrate that some mixtures maintain physical properties of their **ingredients** such as iron filings **and** sand and sand and water; 5.5.C **identify changes that can occur in the physical** properties of the **ingredients of** solutions **such as dissolving salt in water or adding lemon juice to water;**	5.6.B demonstrate **and explain** that some mixtures maintain physical properties of their **substances** such as iron filings and sand **or** sand and water; 5.6.C **compare the** properties of **substances before and after they are combined into a** solution **and demonstrate that matter is conserved in solutions**; and

Key Changes in Physical and Chemical Changes: Elementary

- **Grade 1:** Changing objects by heating and cooling moved down from grade 2 to align with grade 1 study of heat energy.
- **Grades 3–5:** Combining substances may or may not cause changes to physical properties. The study of mixtures moved from grade 3 to grade 4, and grade 4 students observe no change to the physical property of mass when mixtures are formed. Grade 5 students study which physical properties change and stay the same when solutions are formed.

Focus: Vertical Alignment of Physical and Chemical Changes Middle School

Level of Study	Prior TEKS	TEKS Implemented in 2024
Grade 6	6.5.C identify the formation of a new substance by using the evidence of a possible chemical change **such as** production of a gas, change in temperature, production of a precipitate, or color change.	6.6.E identify the formation of a new substance by using the evidence of a possible chemical change, **including** production of a gas, change in thermal energy, production of a precipitate, and color change.
Grade 7	7.6.A distinguish between physical and chemical changes in matter;	7.6.C distinguish between physical and chemical changes in matter;
Grade 8	**8.5.B identify that protons determine an element's identity and valence electrons determine its chemical properties, including reactivity;** 8.5.E investigate how **indirect evidence of** chemical reactions i**ndicates that new substances with different properties are formed and how that relates to the law of** conservation of mass.	**8.6.B use the periodic table to identify the atoms involved in chemical reactions;** 8.6.E investigate how **mass is conserved** in chemical reactions **and relate** conservation of mass **to the rearrangement of atoms using chemical equations, including photosynthesis**.

Key Changes in Physical and Chemical Changes: Middle School

- **Grade 8:** Students in grade 8 no longer use atomic properties to determine the reactivity of elements. Students are expected to understand how balanced chemical equations describe the conservation of mass in chemical reactions and identify which atoms are involved.

Focus: Vertical Alignment of Physical and Chemical Changes High School

Level of Study	Prior TEKS	TEKS Implemented in 2024
Chemistry	Chem.8.E write and balance chemical equations using the law of conservation of mass;	Chem.9.A **interpret**, write, and balance chemical equations, **including synthesis, decomposition, single replacement, double replacement, and combustion reactions** using the law of conservation of mass;
	Chem.8.F differentiate among **double replacement reactions**, including acid-base reactions and precipitation reactions, and oxidation-reduction reactions **such as synthesis, decomposition, single replacement, and combustion reactions**;	Chem.9.B differentiate among acid-base reactions, precipitation reactions, and oxidation-reduction reactions;
	Chem 10.G **define acids and bases and distinguish between Arrhenius and Bronsted-Lowry definitions and** predict products in acid-base reactions that form water; and	Chem.12.D predict products in acid-base reactions that form water; and
	Chem.11.C classify **reactions** as exothermic or endothermic and represent energy changes that occur in chemical reactions using thermochemical equations or graphical analysis; and	Chem.13.C classify **processes** as exothermic or endothermic and represent energy changes that occur in chemical reactions using thermochemical equations or graphical analysis; and

Key Changes in Physical and Chemical Changes: Chemistry

- Chem.8.E and Chem.8.F were revised as Chem.9.A and Chem.9.B. This clarifies that all types of reactions should be interpreted, written, and balanced and requires students to distinguish among the types of double-displacement reactions.
- Defining acids and bases and predicting the products of reactions were split into two separate Student Expectations, C.12.B and C.12.D.
- Chem 12.B was part of the physical and chemical properties TEKS In Focus.

TEKS in Focus spotlights concepts or student expectations to bolster TEKS alignment, rigor, and collective understanding monthly. It does not suggest an order or timing, but helps with the comprehension of TEKS changes, serving as a guide when relevant to classroom instruction.