

<p style="text-align: center;">GRADE 5 <i>Overview of the Science Standards</i></p>
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I. PHYSICAL SCIENCE

- *Elements and their combinations account for all the varied types of matter in the world.*
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II. LIFE SCIENCES

- *Plants and animals have structures for respiration, digestion, waste disposal, and transport of materials.*
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III. EARTH SCIENCES

- *Water on Earth moves between the oceans and land through the processes of evaporation and condensation.*
-

IV. EARTH SCIENCES

- *Energy from the Sun heats Earth unevenly, causing air movements that result in changing weather patterns.*
-

V. EARTH SCIENCES

- *The solar system consists of planets and other bodies that orbit the Sun in predictable paths.*
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VI. INVESTIGATION AND EXPERIMENTATION

- *Scientific progress is made by asking meaningful questions and conducting careful investigations.*
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Aligning the Instructional Program with the Grade Level Standards and Benchmarks

In order to align the instructional program with the prescribed content standards for the grade, it is critical that the standards and their affiliated benchmarks are reviewed regularly so as to become very familiar with them. At the outset of each quarter/trimester an initial decision must be made as to which standards and benchmark proficiencies will be included in the instructional program. At the end of each quarter/trimester the teacher should fill out the **response section next to each benchmark**. This activity will serve as a checkpoint and will help gauge what still needs to be taught or what should be re-taught.

Complete the Response Section

ST/B = Standard and Benchmark **P**: Priority benchmark **Q**: Quarter 1 or 2 or 3 or 4

At the start of the quarter/trimester, select the benchmarks you consider to be your “priority benchmarks.” Mark the box under the “P” code.

At the end of each quarter/trimester complete the response section **of the standard/benchmark listings, indicating to what extent students have mastered the benchmark.**

A: More than 75% of the students are proficient

B: About half of the students are proficient

C: fewer than 25% of the students are proficient

Sample Recording of the Response Form GRADE 2

I. PHYSICAL SCIENCE

The motion of objects can be observed and measured. As a basis for understanding this concept, students in the SECOND GRADE will ...

ST/B	P	ST/B: Standard/Benchmark P: Priority Benchmark Degree of Mastery: % of students at end of each Q: Quarter A= 75% or more B=about half C=fewer than 25%	Q 1	Q 2	Q 3	Q 4
ST1.A	P	know that the position of an object can be described by locating it in relation to another object or to the background.	A	B	B	C
ST1.B		know that an object's motion can be described by recording the change in position of the object over time.	A	A	B	B

GRADE 5

Science Standards and Benchmark Proficiencies

I. PHYSICAL SCIENCE

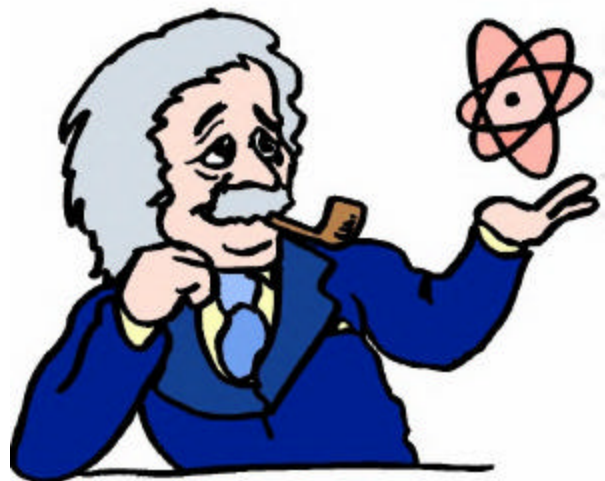
Elements and their combinations account for all the varied types of matter in the world. As a basis for understanding this concept, students in the FIFTH GRADE will ...

ST/B	P	ST/B: Standard/Benchmark Degree of Mastery: % of students at end of each Q: Quarter A= 75% or more B=about half C=fewer than 25%	Q 1	Q 2	Q 3	Q 4
ST1.A		<i>know</i> that during chemical reactions the atoms in the reactants rearrange to form products with different properties.				
ST1.B		<i>know</i> that all matter is made of atoms, which may combine to form molecules.				
ST1.C		<i>know</i> that metals have properties in common, such as high electrical and thermal conductivity. Some metals, such as aluminum (Al), iron (Fe), nickel (Ni), copper (Cu), silver (Ag), and gold (Au), are pure elements; others, such as steel and brass, are composed of a combination of elemental metals.				
ST1.D		<i>know</i> that each element is made of one kind of atom and that the elements are organized in the periodic table by their chemical properties.				
ST1.E		<i>know</i> that scientists have developed instruments that can create discrete images of atoms and molecules that show that the atoms and molecules often occur in well-ordered arrays.				
ST1.F		<i>know</i> that differences in chemical and physical properties of substances are used to separate mixtures and identify compounds.				
ST1.G		<i>know</i> the properties of solid, liquid, and gaseous substances, such as sugar (C ₆ H ₁₂ O ₆), water (H ₂ O), helium (He), oxygen (O ₂), nitrogen (N ₂), and carbon dioxide (CO ₂).				
ST1.H		<i>know</i> that living organisms and most materials are composed of just a few elements.				
ST1.I		<i>know</i> the common properties of salts, such as sodium chloride (NaCl).				

II. LIFE SCIENCES

Plants and animals have structures for respiration, digestion, waste disposal, and transport of materials. As a basis for understanding this concept, students in the FIFTH GRADE will ...

ST/B.	P	ST/B: Standard/Benchmark P: Priority Benchmark Degree of Mastery: % of students at end of each Q: Quarter A= 75% or more B=about half C=fewer than 25%	Q 1	Q 2	Q 3	Q 4
ST2.A		<i>know</i> that many multicellular organisms have specialized structures to support the transport of materials.				
ST2.B		<i>know</i> how blood circulates through the heart chambers, lungs, and body and how carbon dioxide (CO ₂) and oxygen (O ₂) are exchanged in the lungs and tissues.				
ST2.C		<i>know</i> the sequential steps of digestion and the roles of teeth and the mouth, esophagus, stomach, small intestine, large intestine, and colon in the function of the digestive system.				
ST2.D		<i>know</i> the role of the kidney in removing cellular waste from blood and converting it into urine, which is stored in the bladder.				
ST2.E		<i>know</i> how sugar, water, and minerals are transported in a vascular plant.				
ST2.F		<i>know</i> that plants use carbon dioxide (CO ₂) and energy from sunlight to build molecules of sugar and release oxygen.				
ST2.G		<i>know</i> that plant and animal cells break down sugar to obtain energy, a process resulting in carbon dioxide (CO ₂) and water (H ₂ O) (respiration).				



III. EARTH SCIENCES

Water on Earth moves between the oceans and land through the processes of evaporation and condensation. As a basis for understanding this concept, students in the FIFTH GRADE will ...

ST/B	P	ST/B: Standard/Benchmark P: Priority Benchmark Degree of Mastery: % of students at end of each Q: Quarter A= 75% or more B=about half C=fewer than 25%	Q 1	Q 2	Q 3	Q 4
ST3.A		<i>know</i> that most of Earth's water is present as salt water in the oceans, which cover most of Earth's surface.				
ST3.B		<i>know</i> that when liquid water evaporates, it turns into water vapor in the air and can reappear as a liquid when cooled or as a solid if cooled below the freezing point of water.				
ST3.C		<i>know</i> that water vapor in the air moves from one place to another and can form fog or clouds, which are tiny droplets of water or ice, and can fall to Earth as rain, hail, sleet, or snow.				
ST3.D		<i>know</i> that the amount of fresh water located in rivers, lakes, underground sources, and glaciers is limited and that its availability can be extended by recycling and decreasing the use of water.				
ST3.E		<i>know</i> the origin of the water used by their local communities.				

IV. EARTH SCIENCES

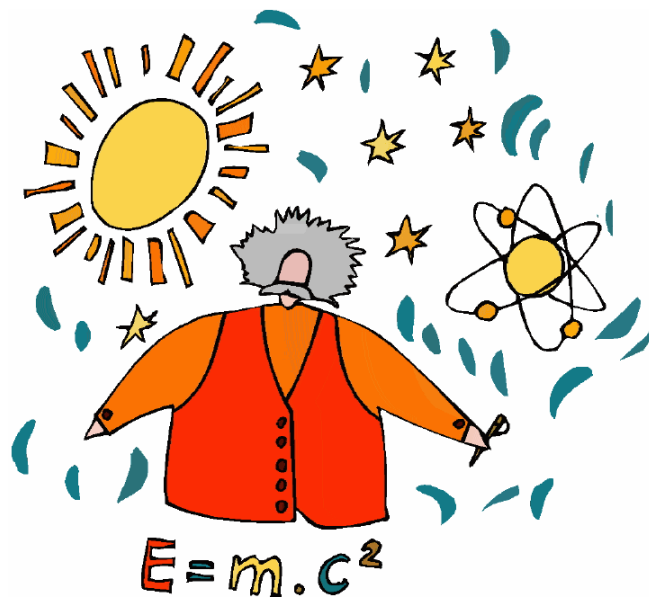
Energy from the Sun heats Earth unevenly, causing air movements that result in changing weather patterns. As a basis for understanding this concept, students in the FIFTH GRADE will ...

ST/B	P	ST/B: Standard/Benchmark P: Priority Benchmark Degree of Mastery: % of students at end of each Q: Quarter A= 75% or more B=about half C=fewer than 25%	Q 1	Q 2	Q 3	Q 4
ST4.A		<i>know</i> that uneven heating of Earth causes air movements (convection currents).				
ST4.B		<i>know</i> the influence that the ocean has on the weather and the role that the water cycle plays in weather patterns.				
ST4.C		<i>know</i> the causes and effects of different types of severe weather.				
ST4.D		<i>know</i> how to use weather maps and data to predict local weather and know that weather forecasts depend on many variables.				
ST4.E		<i>know</i> that the Earth's atmosphere exerts a pressure that decreases with distance above Earth's surface and that at any point it exerts this pressure equally in all directions.				

V. EARTH SCIENCES

The solar system consists of planets and other bodies that orbit the Sun in predict-able paths. As a basis for understanding this concept, students in the FIFTH GRADE will...

ST/B	P	ST/B: Standard/Benchmark P: Priority Benchmark Degree of Mastery: % of students at end of each Q: Quarter A= 75% or more B=about half C=fewer than 25%	Q 1	Q 2	Q 3	Q 4
ST5.A		<i>know</i> that the Sun, an average star, is the central and largest body in the solar system and is composed primarily of hydrogen and helium.				
ST5.B		<i>know</i> that the solar system includes the planet Earth, the Moon, the Sun, eight other planets and their satellites, and smaller objects, such as asteroids and comets.				
ST5.C		<i>know</i> that the path of a planet around the Sun is due to the gravitational attraction between the Sun and the planet.				

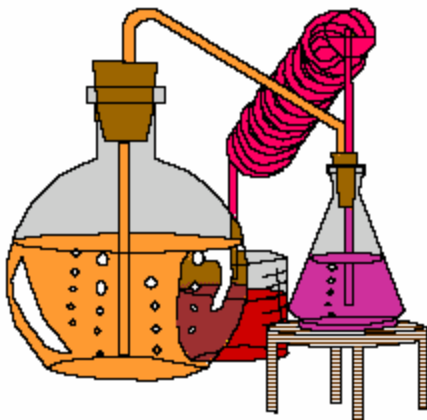


VI. INVESTIGATION AND EXPERIMENTATION

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations.

Students in the FIFTH GRADE will...

ST/B.	P	ST/B: Standard/Benchmark P: Priority Benchmark	Q 1	Q 2	Q 4	Q 4
		Degree of Mastery: % of students at end of each Q: Quarter A= 75% or more B=about half C=fewer than 25%				
ST6.A		<i>classify</i> objects (e.g., rocks, plants, leaves) in accordance with appropriate criteria.				
ST6.B		<i>develop</i> a testable question.				
ST6.C		<i>plan</i> and conduct a simple investigation based on a student-developed question and write instructions others can follow to carry out the procedure.				
ST6.D		<i>identify</i> the dependent and controlled variables in an investigation.				
ST6.E		<i>identify</i> a single independent variable in a scientific investigation and explain how this variable can be used to collect information to answer a question about the results of the experiment.				
ST6.F		<i>select</i> appropriate tools (e.g., thermometers, meter sticks, balances, and graduated cylinders) and make quantitative observations.				
ST6.G		<i>record</i> data by using appropriate graphic representations (including charts, graphs, and labeled diagrams) and make inferences based on those data.				
ST6.H		<i>draw</i> conclusions from scientific evidence and indicate whether further information is needed to support a specific conclusion.				
ST6.I		<i>write</i> a report of an investigation that includes conducting tests, collecting data or examining evidence, and drawing conclusions.				



GRADE FIVE

Standards Based Vocabulary for Science

Physical Sciences

chemical change	compound	conductivity
freezing point	mass	metal
mixture	molecule	physical change
pressure	property	quantitative
qualitative observation	reactant	thermal
variable	periodic table	

Life Sciences

bladder	circulatory	CO ₂
colon	digestive	esophagus
excretory	heart chamber	multicellular
nervous	photosynthesis	respiratory
skeleton	tissue	intestine
kidney	Urine	vascular
muscular		

Earth Sciences

asteroid	comet	condensation
convection	current	evaporation
glacier	groundwater	hail
inference	planet	water vapor
precipitation	sleet	solar
satellite	system	water cycle
hydrogen	helium	