

## Science Content Standards Assignment Sheet

### Content Area: Science Fundamentals

Standard Statement	Assignment:	Completed:
1. The learner will understand and apply the concept of <b>scientific thinking</b> by: <ul style="list-style-type: none"> <li>a) Distinguishing facts from <b>hypotheses</b> and <b>opinions</b></li> <li>b) Recognizing <b>unstated assumptions</b></li> <li>c) Identifying <b>cause-and-effect</b> relationships</li> <li>d) Distinguishing a <b>conclusion</b> from <b>supporting statements</b></li> </ul>		
2. The learner will evaluate <b>scientific information</b> by: <ul style="list-style-type: none"> <li>a) Distinguishing <b>relevant</b> from <b>irrelevant</b> information</li> <li>b) Determining if there is enough information to support a conclusion</li> </ul>		
3. The learner will objectively evaluate evidence using the <b>scientific method</b> . Steps in the scientific method include: <ul style="list-style-type: none"> <li>a) Identifying “the” problem</li> <li>b) Collecting information</li> <li>c) Forming a hypothesis</li> <li>d) Testing the hypothesis</li> <li>e) Analyzing results and drawing conclusions</li> </ul>		

### Content Area: Earth and Space Science

Standard Statement	Assignment:	Completed:
1. The learner will gather, analyze, and interpret information from maps, models, charts, graphs, and other geographical and informational representations. Key concepts include: <ul style="list-style-type: none"> <li>a) Maps</li> <li>b) Directions, measurements, and distances on any map</li> <li>c) Understanding the concept of <b>latitude &amp; longitude</b></li> <li>d) Two- and three-dimensional representations of scientific theories, properties, or principles, such as line graphs, bar graphs, and globes</li> </ul>		

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### Content Area: Earth and Space Science

Standard Statement	Assignment:	Completed:
2. The learner will examine and comprehend the structure of the Earth, including the <b>geosphere, hydrosphere, and atmosphere.</b>		
3. The learner will describe basic geologic processes and predict how these processes are factors in the ever-changing face of the Earth. Key concepts include: a) The <b>rock cycle</b> b) <b>Fossils</b> and the changing Earth Geologic processes including <b>continental drift</b> , volcanoes, earthquakes, weathering, and erosion		
4. The learner will interpret basic information from weather maps, charts, & imagery & recognize the effects of <b>weather phenomenon</b> and climate on human activities. Key concepts include: a) Influence of the sun on weather b) The water cycle c) Factors affecting climate d) Earth's season		
5. The learner will understand that oceans are complex, interactive systems that have a major impact on the <b>climate, environment,</b> and life of humankind. Key concepts include: a) Effects of the oceans on weather, climate, and the environment b) Tides and currents, such as <b>El Nino</b> c) Effects of the oceans on human activities d) Effects of human activities on the oceans		
6. The learner will comprehend the basic theories of the origin & characteristics of the Earth & <b>Solar System.</b> Key concepts include: a) Formation of the <b>Universe</b> , including the <b>Big Bang Theory</b> b) Position of the Earth, planets, and other <b>spatial bodies</b> in the Solar System c) Relationships among the Sun, Earth, and moon ( <b>tides, eclipses, seasons</b> )		

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### Content Area: Earth and Space Science

Standard Statement	Assignment:	Completed:
<p>7. The learner will compare and differentiate <b>renewable resources</b> from <b>non-renewable resources</b>. Key concepts include:</p> <ul style="list-style-type: none"> <li>a) <b>Fossil fuels</b></li> <li>b) Alternative energy sources</li> <li>c) Water &amp; soil conservation, including <b>watershed</b> systems such as the Chesapeake Bay</li> <li>d) Recycling, pollution, and <b>depletion</b></li> </ul>		

### Content Area: Life Science

Standard Statement	Assignment:	Completed:
<p>1. The learner will identify the components of <b>cells</b>, comprehend the organization of cells, and understand how cellular components function. Key concepts include:</p> <ul style="list-style-type: none"> <li>a) Structure of cell and its <b>organelles</b></li> <li>b) <b>Meiosis &amp; mitosis</b></li> <li>c) Difference between plant &amp; animal cells</li> <li>d) Life functions that are the end result of cellular functions</li> </ul>		
<p>2. The learner will know the characteristics of living things and recognize the basic needs of organisms that must be met to supply energy needed for life processes. Key concepts include:</p> <ul style="list-style-type: none"> <li>a) <b>Photosynthesis</b></li> <li>b) <b>Respiration</b></li> </ul>		
<p>3. The learner will understand how and why <b>organisms</b> are classified, and will apply that knowledge in using a <b>dichotomous key</b>. Key concepts include:</p> <ul style="list-style-type: none"> <li>a) Comparing &amp; contrasting physical traits that scientists use to classify organisms</li> <li>b) Using a simple dichotomous key</li> </ul>		

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### Content Area: Life Science

Standard Statement	Assignment:	Completed:
<p>4. The learner will analyze the complex relationship between the living and non-living elements of Earth’s environment by looking at the basic cycles that take place in <b>ecosystems</b>. Key concepts include:</p> <ul style="list-style-type: none"> <li>a) Concept of an ecosystem</li> <li>b) Energy flow that keeps an ecosystem</li> <li>c) Interlinked cycles of nitrogen, water, &amp; carbon</li> </ul>		
<p>5. The learner will understand that organisms within an ecosystem are dependent upon one another and on the non-living components of the environment, and apply this information to become aware of how man fits into this complex relationship. Key concepts include:</p> <ul style="list-style-type: none"> <li>a) <b>Food webs</b></li> <li>b) Energy flow in ecosystems</li> </ul>		
<p>6. The learner will comprehend the complex relationship between humans and the world they live in, and assess the impact that humans have on the ecosystem. Key concepts include:</p> <ul style="list-style-type: none"> <li>a) Overpopulation</li> <li>b) Environmental quality</li> <li>c) Human impact and interdependence on other organisms</li> </ul>		
<p>7. The learner will examine how organisms pass their <b>traits</b> on to new generations, and identify the connection between <b>genes</b> and the traits expressed by those genes. Key concepts include:</p> <ul style="list-style-type: none"> <li>a) <b>Mendelian laws</b> of inheritance</li> <li>b) The role of <b>DNA &amp; RNA</b> in the makeup of genes &amp; <b>chromosomes</b></li> <li>c) The role of <b>dominant &amp; recessive</b> genes in the expression of physical traits</li> </ul>		

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### Content Area: Life Science

Standard Statement	Assignment:	Completed:
8. The learner will examine & evaluate the various factors that cause organisms to change over time. Key concepts include: <ul style="list-style-type: none"> <li>a) Mutation</li> <li>b) Adaptation</li> <li>c) Natural selection</li> <li>d) Extinction</li> </ul>		
9. The learner will understand basic <b>human anatomy</b> & identify the connection between healthy habits and physical & mental well-being. Key concepts include: <ul style="list-style-type: none"> <li>a) Basic human biology</li> <li>b) Wellness/ fitness</li> <li>c) Nutrition</li> <li>d) Disease</li> <li>e) Safety</li> <li>f) Affect of choices on human health</li> </ul>		

### Content Area: Physical Science

Standard Statement	Assignment:	Completed:
1. The learner will explore the composition & interactions of the modern model of <b>atomic &amp; molecular structure</b> , and apply that knowledge in understanding how molecular structure affects every aspect of our lives. Key concepts include: <ul style="list-style-type: none"> <li>a) The <b>Periodic Table</b></li> <li>b) <b>Protons, neutrons, &amp; electrons</b></li> <li>c) The <b>Law of Conservation of Matter</b></li> <li>d) Basic <b>chemical bonds &amp; formulas</b></li> </ul>		
2. The learner will utilize the concept of the <b>modern model of atomic &amp; molecular structure</b> to demonstrate comprehension of the basic nature of <b>matter, reactions, &amp; energy</b> . Key concepts include: <ul style="list-style-type: none"> <li>a) States of matter</li> <li>b) Types of reactions, <b>reactants, &amp; products</b></li> <li>c) <b>Law of Conservation of Energy</b></li> </ul>		

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### Content Area: Physical Science

Standard Statement	Assignment:	Completed:
3. The learner will define the <b>Laws of Motion</b> & apply these laws in everyday life situations. Key concepts include: a) <b>Newton's 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> Laws of Motion</b> b) How these laws relate to <b>mass, work, &amp; force</b>		
4. The learner will compare & contrast the basic types of <b>waves</b> , their characteristics, and functions. Key concepts include: a) <b>Amplitude</b> b) <b>Wavelength</b> c) <b>Crest</b> d) <b>Longitudinal, transverse, &amp; electromagnetic waves</b>		
5. The learner will understand the basic principles of electricity and magnetism, and apply this knowledge to daily life situations. Key concepts include: a) <b>Static electricity</b> b) <b>Current electricity</b> c) <b>Circuits</b> d) <b>Voltage</b> e) <b>Magnetic fields</b> f) <b>Conductors</b>		