

**COMMUNITY UNIT SCHOOL DISTRICT 200**  
**ESSENTIAL LEARNINGS**  
**SCIENCE**  
**GRADE - 2**

1. Subject expectation (State Goal 11)      The student will understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.

Essential Learning 1 (Learning Standard A)	Explore and apply the concepts, principles and processes of scientific inquiry
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| <b>Critical Content</b> | <p><b>11.A.1a</b>    a. describe an observed event</p> <ul style="list-style-type: none"> <li>• use senses and measurements</li> <li>• use observations to make predictions</li> </ul> <p><b>11.A.1b</b>    b. develop questions on scientific topics using observations, prior knowledge, and related inferences</p> <p><b>11.A.1c</b>    c. collect data for investigations</p> <ul style="list-style-type: none"> <li>• select and use appropriate measuring and technological instruments <i>such as</i> rulers, thermometers, calculators, balances, and magnifiers</li> <li>• use standard and non-standard units of measurement</li> <li>• read data from collecting instrument</li> </ul> <p><b>11.A.1d</b>    d. record and store data</p> <ul style="list-style-type: none"> <li>• use available technologies <i>such as</i> manipulatives, drawings, journals, charts, and computers</li> </ul> <p><b>11.A.1e</b>    e. arrange data into logical patterns and describe the patterns</p> <ul style="list-style-type: none"> <li>• display data using various methods <i>such as</i> manipulatives, lists, charts and graphs</li> <li>• interpret data noting similarities and differences</li> <li>• use appropriate comparative terminology to describe patterns <i>such as</i> most, least, more than, less than, and the same as</li> <li>• use data to predict future events when appropriate</li> </ul> <p><b>11.A.1f</b>    f. compare observations of individual and group results</p> <ul style="list-style-type: none"> <li>• analyze data from other groups, noting similarities and differences</li> <li>• suggest possible reasons for differences or discrepancies in data</li> </ul> <p>g. communicate results using appropriate methods <i>such as</i> discussions, drawings and journals</p> <p>h. demonstrate connections to other events and experiences</p> |
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Essential Learning 2  
(Learning Standard B)

Explore and apply the concepts, principles and processes of technological design.

**Critical Content**

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| <b>11.B.1a</b> | <b>a. brainstorm and explore possible solutions when given a design problem <i>such as</i> a musical instrument with varying pitches</b>  |
| <b>11.B.1b</b> | <b>b. design a device that will be useful in solving a problem</b>  |
| <b>11.B.1c</b> | <b>c. build the device following the design plan</b>  |
| <b>11.B.1d</b> | <b>d. test the device and record results</b> <ul style="list-style-type: none"><li>• develop a strategy for testing the device</li><li>• use given instruments, techniques, and measurement methods to test the device</li><li>• collect and record data from the test</li><li>• make necessary modifications based on test results</li></ul> |
| <b>11.B.1e</b> | <b>e. report the design of the device, the test process, and the results in solving a problem</b> <ul style="list-style-type: none"><li>• explain how to build and test the device</li><li>• share experiences and data to support the explanation</li></ul>  |

2. Subject expectation (State Goal 12) The student will understand the fundamental concepts, principles and interconnections of the life, physical, and earth/space sciences.

Essential Learning 1 (Learning Standard A)	Know and apply concepts that explain how living things function, adapt and change (Biology)
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| Critical Content | 12.A.1a | <p>a. identify and describe the component parts of living things</p> <ul style="list-style-type: none"> <li>• match parts of living things with functions <i>such as</i> butterflies and moths (<i>Lepidoptera</i>) : wings for movement, proboscis for eating</li> <li>• compare and contrast the physical features and stages in life cycles <i>such as</i> illustrating the stages of metamorphoses in the life cycle of butterflies and moths</li> </ul> |
|                  | 12.A.1b | <p>b. categorize living organisms using a variety of observable attributes <i>such as</i> size, color, shape, and body covering</p> <ul style="list-style-type: none"> <li>• communicate the rule for grouping</li> </ul>  |

Essential Learning 2 (Learning Standard B)	Know and apply concepts that describe how living things interact with each other and with their environment (Ecology)
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| Critical Content | 12.B.1a | a. describe and compare characteristics of two related living things in relationship to their environments  |
|                  | 12.B.1a | <p>b. identify physical characteristics of living things</p> <ul style="list-style-type: none"> <li>• predict and describe how these characteristics help the organism survive in its environment</li> <li>• identify needs of living things and match them to the appropriate habitat</li> </ul> |
|                  | 12.B.1b | <p>c. describe how living things depend on one another for survival</p> <ul style="list-style-type: none"> <li>• identify environmental needs of living things and how they are met</li> <li>• recognize that the life of living things impact other parts of the larger ecosystem</li> </ul>     |

Essential Learning 3 (Learning Standard C)	Know and apply concepts that describe properties of matter and energy and the interaction between them (Matter and Energy)
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| Critical Content | 12.C.1a | a. identify and compare sources of sound and heat energy <i>such as</i> the sun  |
|                  | 12.C.1a | b. match energy sources with things that need energy to function <i>such as</i> plants need sun and voices need vibrating vocal chords |

Essential Learning 4 (Learning Standard D)	Know and apply the concepts that describe force and motion and the principles that explain them (Force and Motion)
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| <b>Critical Content</b> | <b>12.D.1a</b> | <b>a. identify examples of motion</b> <ul style="list-style-type: none"> <li>• describe how vibrating objects produce sound and name objects that vibrate</li> <li>• describe the motion of rotation <i>such as</i> earth on its axis</li> <li>• describe the motion of revolution <i>such as</i> planets around the sun</li> </ul> |
|                         | <b>12.D.1b</b> | <b>b. identify observable forces in nature</b> <ul style="list-style-type: none"> <li>• make observations and describe the effects of gravity related to space</li> </ul>   |

Essential Learning 5 (Learning Standard E)	Know and apply concepts that describe the features and processes of the Earth and its resources (Earth Science)
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Essential Learning 6 (Learning Standard F)	Observe and explore concepts that explain the composition and structure of the universe and Earth's place in it (Space Science)
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| <b>Critical Content</b> | <b>12.F.1a</b> | <b>a. identify and describe characteristics of the sun, Earth as a planet and the moon as familiar objects in the solar system</b> <ul style="list-style-type: none"> <li>• compare the size of the sun, Earth and moon</li> <li>• identify features of the Earth's moon <i>such as</i> craters, mountains, seas</li> <li>• identify components of the solar system including the sun, Earth as a planet and the moon</li> <li>• identify Earth's positional relationship to the sun and the other planets</li> <li>• recognize that Earth is the only known planet that can sustain life in our solar system</li> </ul> |
|                         | <b>12.F.1b</b> | <b>b. define rotation and revolution and relate them to Earth's daily, seasonal, and annual patterns</b> <ul style="list-style-type: none"> <li>• observe and record moon phases as a continuing pattern</li> <li>• compare shadows at different times of the day</li> <li>• compare the summer sun's path with the winter sun's path</li> <li>• describe Earth's rotation and how it causes day/night</li> </ul>  |
|                         | <b>12.F.2b</b> | <b>c. observe the apparent motion of the sun and stars</b> <ul style="list-style-type: none"> <li>▪ observe the sky changes including the sun rising and setting and movement of constellations around the North Star</li> </ul>   |
|                         | <b>12.F.2c</b> | <b>d. explore easily recognizable stars and star patterns including the North Star and the sun</b>   |

3. Subject expectation (State Goal 13) The student will understand the relationships among science, technology and society in historical and contemporary contexts.

Essential Learning 1 (Learning Standard A)		Know and apply the accepted practices of science (Safety and Ethics)
Critical Content	13.A.1a	a. identify and reduce potential hazards in science activities <ul style="list-style-type: none"> <li>• describe what to do in a fire</li> <li>• demonstrate the responsible use of equipment</li> <li>• explain why it is dangerous to play with electricity</li> </ul>
	13.A.1b	b. explain why similar results are expected when procedures are done the same way
	13.A.1c	c. explain how knowledge can be gained by careful observations <ul style="list-style-type: none"> <li>• compare observations made with and without scientific tools</li> </ul>

Essential Learning 2 (Learning Standard B)		Know and apply concepts that describe the interaction between science, technology and society (Science, Technology, and Society)
Critical Content	13.B.1a	a. explain the use of common scientific instruments <i>such as</i> ruler, thermometer, balance, scale, magnifier, probe, calculator, and computer
		b. select the appropriate instrument to measure length, temperature, volume, time and mass
	13.B.1b	c. explain how using measuring tools improves the accuracy of estimates <ul style="list-style-type: none"> <li>• compare estimates with actual measurements</li> </ul>
	13.B.1c	d. describe contributions men and women have made to science and technology
	13.B.1d	e. identify and describe ways that science and technology affect people's everyday lives <ul style="list-style-type: none"> <li>• identify careers that are affected by science and technology</li> </ul>
13.B.1e	e. describe and identify ways to reduce, reuse and recycle resources	

