

**COURSE/SUBJECT:** Science

**LEVEL/GRADE:** 7<sup>th</sup> Grade

**UNIT/FOCUS:** Structure, Function, & Information Processing

**TIMEFRAME:** 7 weeks

### Transfer

*Students will be able to independently use their learning to...*

- Develop and use a model to describe phenomena. (MS-LS1-2)
- Conduct an investigation to produce data to serve as the basis for evidence that meet the goals of an investigation. (MS-LS1-1)
- Use an oral and written argument supported by evidence to support or refute an explanation or a model for a phenomenon. (MS-LS1-3)
- Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or not supported by evidence. (MS-LS1-8)

### Meaning

#### Enduring Understandings (EUs)

*Students will understand that...*

- Cause and effect relationships may be used to predict phenomena in natural systems. (MS-LS1-8)
- Phenomena that can be observed at one scale may not be observable at another scale. (MS-LS1-1)
- Systems may interact with other systems; they may have sub-systems and be a part of larger complex systems. (MS-LS1-3)
- Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function. (MS-LS1-2)

#### Essential Questions (EQs)

*Students will keep considering...*

- How do the structures of organisms enable life's functions?
- How do organisms detect, process, and use information about the environment?

### Acquisition

#### Knowledge

*Students will know...*

- All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). (MS-LS1-1)
- Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. (MS-LS1-2)
- In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body functions. (MS-LS1-3)
- Each sense receptor responds to different inputs (electromagnetic, mechanical, chemical), transmitting them as signals that travel along nerve cells to the brain. The signals are then processed in the brain, resulting in immediate behaviors or memories. (MS-LS1-8)

#### Skills

*Students will be able to...*

- MS-LS1-1. Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.
- MS-LS1-2. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.
- MS-LS1-3. Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.
- MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

| Aligned Concepts, Topics, and Skills   | Pacing Guide  |
|--|---|
| <p>Topics</p> <ul style="list-style-type: none"> <li>• Cells</li> <li>• Living and Non-living</li> <li>• Types of cells</li> <li>• Unicellular and multicellular organisms</li> <li>• Different parts of a cell contribute to how the cell functions as a whole</li> <li>• Body Systems</li> <li>• Organization: cells-tissues-organs- organ systems</li> <li>• Sense receptors</li> </ul> <p>Phenomenon</p> <ul style="list-style-type: none"> <li>• Living things are made up of cells</li> <li>• The cell is the smallest unit that can be said to be alive</li> <li>• Plants use cell walls to provide structure to the plant.</li> <li>• Chloroplasts allow plants to make the food they need to live using photosynthesis.</li> <li>• A body is a system of specialized organs that interact with each other and their subsystems to carry out the functions necessary for life.</li> </ul>  | <ul style="list-style-type: none"> <li>• Approximately 7 weeks</li> </ul>   |
| 21 <sup>st</sup> Century Life and Career Ready Practices   | Interdisciplinary Connections   |
| <ul style="list-style-type: none"> <li>• CRP1. Act as a responsible and contributing citizen and employee.</li> <li>• CRP2. Apply appropriate academic and technical skills.</li> <li>• CRP3. Attend to personal health and financial well-being.</li> <li>• CRP4. Communicate clearly and effectively and with reason.</li> <li>• CRP5. Consider the environmental, social and economic impacts of decisions.</li> <li>• CRP6. Demonstrate creativity and innovation.</li> <li>• CRP7. Employ valid and reliable research strategies.</li> <li>• CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>• CRP9. Model integrity, ethical leadership and effective management.</li> <li>• CRP10. Plan education and career paths aligned to personal goals.</li> <li>• CRP11. Use technology to enhance productivity.</li> <li>• CRP12. Work productively in teams while using cultural global competence.</li> </ul>   | <ul style="list-style-type: none"> <li>• Science and Engineering Practices</li> <li>• Cross-Cutting Concepts</li> </ul>   |
| Instructional Resources  | Benchmark / Summative Assessments   |
| <ul style="list-style-type: none"> <li>• Living vs. Non Living:<br/><a href="https://www.exploratorium.edu/imaging_station/activities/classroom/characteristics/ca_c_haracteristics.php">https://www.exploratorium.edu/imaging_station/activities/classroom/characteristics/ca_c_haracteristics.php</a></li> <li>• Cells: <a href="http://www.sheppardsoftware.com/health/anatomy/cell/index.htm">http://www.sheppardsoftware.com/health/anatomy/cell/index.htm</a></li> <li>• Cells Introduction Video: <a href="https://www.youtube.com/watch?v=gFuEo2ccTPA">https://www.youtube.com/watch?v=gFuEo2ccTPA</a></li> <li>• Cell Structure Video: <a href="https://www.youtube.com/watch?v=URUJD5NEXC8">https://www.youtube.com/watch?v=URUJD5NEXC8</a></li> <li>• Cell Interactives: <a href="http://learn.genetics.utah.edu/content/cells/">http://learn.genetics.utah.edu/content/cells/</a></li> <li>• Gizmos- <a href="https://www.explorelarning.com/">https://www.explorelarning.com/</a></li> <li>• Microscope Mania: <a href="http://sciencespot.net/Pages/classbio.html#micro">http://sciencespot.net/Pages/classbio.html#micro</a></li> </ul> | <p>Teacher created</p> <ul style="list-style-type: none"> <li>• An investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.</li> <li>• Development and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.</li> <li>• Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.</li> <li>• Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.</li> </ul> |

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Microscope Simultaion: <a href="http://www1.udel.edu/biology/ketcham/microscope/">http://www1.udel.edu/biology/ketcham/microscope/</a></li> <li>• Interactive Online Cells: <a href="http://www.ibiblio.org/virtualcell/tour/cell/cell.htm">http://www.ibiblio.org/virtualcell/tour/cell/cell.htm</a></li> <li>• Interactive Online Cells: <a href="http://www.cellsalive.com/cells/cell_model.htm">http://www.cellsalive.com/cells/cell_model.htm</a></li> <li>• Ozone Damage Links: <a href="https://aura.gsfc.nasa.gov/outreach/ozonegarden.html">https://aura.gsfc.nasa.gov/outreach/ozonegarden.html</a></li> <li>• Ozone Information: <a href="http://science-edu.larc.nasa.gov/ozonegarden/">http://science-edu.larc.nasa.gov/ozonegarden/</a></li> <li>• Body Systems- heart function: <a href="https://www.smm.org/heart/heart/top.html">https://www.smm.org/heart/heart/top.html</a></li> <li>• Body Systems- lung function: <a href="https://www.smm.org/heart/lungs/top.html">https://www.smm.org/heart/lungs/top.html</a></li> <li>• Body Systems: <a href="https://www.sophia.org/ngss-standard-ms-ls1-3-pathway?standard=middle-school-life-science">https://www.sophia.org/ngss-standard-ms-ls1-3-pathway?standard=middle-school-life-science</a></li> <li>• Sensory: <a href="https://www.sophia.org/ngss-standard-ms-ls1-8-pathway?standard=middle-school-life-science">https://www.sophia.org/ngss-standard-ms-ls1-8-pathway?standard=middle-school-life-science</a></li> <li>• Body Systems: <a href="http://www.ck12.org/book/CK-12-Life-Science-Concepts-For-Middle-School/section/11.0/">http://www.ck12.org/book/CK-12-Life-Science-Concepts-For-Middle-School/section/11.0/</a></li> </ul> |  |
|--|--|

|  |   |
|--|---|
| <p style="text-align: center;"><b>Supports / Modifications for ELLs</b></p>  | <p style="text-align: center;"><b>Supports / Modifications for Students w/ 504s and or IEPs</b></p>   |
| <ul style="list-style-type: none"> <li>• Preview content</li> <li>• Utilize visuals, images, actions, and talk</li> <li>• Scaffold development of comprehension process vocabulary AND content-specific vocabulary</li> <li>• Display anchor charts for language structures</li> <li>• Provide assessments with graphic supports</li> <li>• Utilize prepared sentence stems</li> <li>• Graphic organizers</li> <li>• Flexible grouping</li> <li>• Additional time for processing and assessment</li> </ul>   | <ul style="list-style-type: none"> <li>• Differentiate content, process, product, and learning environment</li> <li>• Provide alternative or high interest text at student’s reading level.</li> <li>• Provide summaries of materials for student.</li> <li>• Shorten assignments and assessments to focus on mastery of key concepts.</li> <li>• Substitute alternatives for written assignments.</li> <li>• Specify and review often exactly what the student will need to learn to pass.</li> <li>• Modify expectations based on student needs.</li> <li>• Provide a “designated notetaker” or photocopy of other student or teacher notes.</li> <li>• Provide a print copy of assignments or notes.</li> <li>• Go over directions orally.</li> <li>• Provide additional time on tests.</li> <li>• Read test materials to the student, and allow oral responses.</li> <li>• Use enlarged graph paper to write problems to help the student keep numbers in columns.</li> <li>• Break long-term assignments into small steps, with daily monitoring and frequent grading.</li> <li>• Use both oral and printed directions.</li> </ul> |
| <p style="text-align: center;"><b>Supports / Modifications for At Risk Students</b></p>  | <p style="text-align: center;"><b>Supports / Modifications for Gifted &amp; Talented Students</b></p>   |
| <ul style="list-style-type: none"> <li>• Review the classroom rules frequently.</li> <li>• Evaluate classroom structure against the student’s needs (flexible structure, firm limits, etc.).</li> <li>• Keep workspace clear of unrelated materials.</li> <li>• Keep classroom quiet during intense learning times.</li> <li>• Reduce visual distractions in the classroom (mobiles, etc.).</li> <li>• Seat the student close to the teacher / instruction, and away from distractions.</li> <li>• Keep extra supplies of classroom materials (pencils, books) on hand.</li> <li>• Alert student several minutes before a transition from one activity to another is planned; give several reminders.</li> <li>• Reinforce (often) when a student displays positive behavior.</li> </ul> | <ul style="list-style-type: none"> <li>• Provide opportunities to pursue advanced level work</li> <li>• Expose students to higher level thinking skills</li> <li>• Provide enrichment centers</li> <li>• pursue a self-selected interest</li> <li>• work in groups with students having common interests</li> <li>• move to a higher grade for specific subject area instruction</li> <li>• work with students of comparable ability across classrooms at the same grade level</li> <li>• work on an advanced curriculum unit on a teacher-selected topic</li> <li>• participate in competitive programs focusing on thinking skills/problem solving</li> <li>• receive concentrated instruction in critical thinking and creative problem solving</li> </ul>   |

COURSE/SUBJECT: Science

LEVEL/GRADE: 7<sup>th</sup> Grade

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>• Develop an individualized behavior intervention plan that consistent with the student's ability and skills.</li><li>• Arrange for a student to leave the classroom for a designated "safe place" when highly stressed.</li><li>• Develop a system or a code word to let a student know when behavior is not appropriate.</li><li>• Ignore behaviors that are not seriously disruptive.</li></ul> |  |
|--|--|

**COURSE/SUBJECT:** Science

**LEVEL/GRADE:** 7<sup>th</sup> Grade

**UNIT/FOCUS:** Growth, Development, &  
Reproduction of Organisms

**TIMEFRAME:** 7 weeks

### Transfer

*Students will be able to independently use their learning to...*

- Develop and use a model to describe phenomena. (MSLS3-1),(MS-LS3-2)
- Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. (MS-LS1-5)
- Use an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. (MS-LS1-4)
- Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or not supported by evidence. (MS-LS4-5)

### Meaning

#### Enduring Understandings (EUs)

*Students will understand that...*

- Cause and effect relationships may be used to predict phenomena in natural systems. (MSLS3-2)
- Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability. (MS-LS1-4),(MS-LS1-5),(MS-LS4-5)
- Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the shapes, composition, and relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function. (MS-LS3-1)

#### Essential Questions (EQs)

*Students will keep considering...*

- How do organisms grow and develop?
- How are the characteristics of one generation related to the previous generation?
- Why do individuals of the same species vary in how they look, function, and behave?
- How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?
- How does biodiversity affect humans?
- How does genetic variation among organisms affect survival and reproduction?

### Acquisition

#### Knowledge

*Students will know...*

- Organisms reproduce, either sexually or asexually, and transfer their genetic information to their offspring. (secondary to MS-LS3-2)
- Animals engage in characteristic behaviors that increase the odds of reproduction. (MS-LS1-4)
- Plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction. (MS-LS1-4)
- Genetic factors as well as local conditions affect the growth of the adult plant. (MS-LS1-5)
- Genes are located in the chromosomes of cells, with each chromosome pair containing two variants of each of many distinct genes. Each distinct gene chiefly controls the production of specific proteins, which in turn affects the traits of the individual. Changes (mutations) to genes can result in changes to proteins, which can affect the structures and functions of the organism and thereby change traits. (MS-LS3-1)
- Variations of inherited traits between parent and offspring arise from genetic differences that result from the subset of chromosomes (and therefore genes) inherited. (MS-LS3-2)

#### Skills

*Students will be able to...*

- MS-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.
- MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.
- MS-LS3-1. Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.
- MS-LS3-2. Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.
- MS-LS4-5. Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>• In sexually reproducing organisms, each parent contributes half of the genes acquired (at random) by the offspring. Individuals have two of each chromosome and hence two alleles of each gene, one acquired from each parent. These versions may be identical or may differ from each other. (MS-LS3-2)</li><li>• In addition to variations that arise from sexual reproduction, genetic information can be altered because of mutations. Though rare, mutations may result in changes to the structure and function of proteins. Some changes are beneficial, others harmful, and some neutral to the organism. (MS-LS3-1)</li><li>• In artificial selection, humans have the capacity to influence certain characteristics of organisms by selective breeding. One can choose desired parental traits determined by genes, which are then passed onto offspring. (MS-LS4-5)</li></ul> |  |
|--|--|

| <p align="center"><b>Aligned Concepts, Topics, and Skills</b></p>   | <p align="center"><b>Pacing Guide</b></p>  |
|---|--|
| <p>Topics</p> <ul style="list-style-type: none"> <li>• Animal Behavior and how it helps an animal survive</li> <li>• Understand instinctive and learned behaviors</li> <li>• Natural behavior patterns in animals (stimulus -response)</li> <li>• Observe the animals learning over time (learning - result from an experience)</li> <li>• Conditioning: learning associated with connected to an experience</li> <li>• Trial and error learning: learning through repeated practice</li> <li>• Insight learning: learning how to do something without a period of trial and error</li> <li>• Artificial intelligence: using technology to perform complex tasks</li> <li>• Abilities to learn new behaviors</li> <li>• Imprinting: behavior that involves instinctive and learned behaviors</li> <li>• Patterns of Behavior: Competition/Aggression, Territorial, Mating, Raising young, Living in groups, Communication, Behavior cycles, Migration.</li> <li>• Environmental and genetic factors influencing the growth of organisms.</li> </ul> <p>Phenomenon</p> <ul style="list-style-type: none"> <li>• Pavlov’s conditioning of dogs</li> <li>• Bird songs are repeated</li> <li>• Seasonal migration</li> <li>• Rescue dogs</li> </ul> | <ul style="list-style-type: none"> <li>• Approximately 7 weeks</li> </ul>  |
| <p align="center"><b>21<sup>st</sup> Century Life and Career Ready Practices</b></p>  | <p align="center"><b>Interdisciplinary Connections</b></p>   |
| <ul style="list-style-type: none"> <li>• CRP1. Act as a responsible and contributing citizen and employee.</li> <li>• CRP2. Apply appropriate academic and technical skills.</li> <li>• CRP3. Attend to personal health and financial well-being.</li> <li>• CRP4. Communicate clearly and effectively and with reason.</li> <li>• CRP5. Consider the environmental, social and economic impacts of decisions.</li> <li>• CRP6. Demonstrate creativity and innovation.</li> <li>• CRP7. Employ valid and reliable research strategies.</li> <li>• CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>• CRP9. Model integrity, ethical leadership and effective management.</li> <li>• CRP10. Plan education and career paths aligned to personal goals.</li> <li>• CRP11. Use technology to enhance productivity.</li> <li>• CRP12. Work productively in teams while using cultural global competence.</li> </ul>  | <ul style="list-style-type: none"> <li>• Science and Engineering Practices</li> <li>• Cross-Cutting Concepts</li> </ul>  |
| <p align="center"><b>Instructional Resources</b></p>  | <p align="center"><b>Benchmark / Summative Assessments</b></p>   |
| <ul style="list-style-type: none"> <li>• <a href="https://www.explorellearning.com/">https://www.explorellearning.com/</a></li> </ul>   | <p>Teacher created</p> <ul style="list-style-type: none"> <li>• Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.</li> <li>• Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.</li> </ul> |

COURSE/SUBJECT: Science

LEVEL/GRADE: 7<sup>th</sup> Grade

- |  |   |
|--|---|
|  | <ul style="list-style-type: none"><li>• Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.</li><li>• Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.</li><li>• Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.</li></ul> |
|--|---|

| <p align="center"><b>Supports / Modifications for ELLs</b></p>  | <p align="center"><b>Supports / Modifications for Students w/ 504s and or IEPs</b></p>  |
|---|---|
| <ul style="list-style-type: none"> <li>• Preview content</li> <li>• Utilize visuals, images, actions, and talk</li> <li>• Scaffold development of comprehension process vocabulary AND content-specific vocabulary</li> <li>• Display anchor charts for language structures</li> <li>• Provide assessments with graphic supports</li> <li>• Utilize prepared sentence stems</li> <li>• Graphic organizers</li> <li>• Flexible grouping</li> <li>• Additional time for processing and assessment</li> </ul>  | <ul style="list-style-type: none"> <li>• Differentiate content, process, product, and learning environment</li> <li>• Provide alternative or high interest text at student’s reading level.</li> <li>• Provide summaries of materials for student.</li> <li>• Shorten assignments and assessments to focus on mastery of key concepts.</li> <li>• Substitute alternatives for written assignments.</li> <li>• Specify and review often exactly what the student will need to learn to pass.</li> <li>• Modify expectations based on student needs.</li> <li>• Provide a “designated notetaker” or photocopy of other student or teacher notes.</li> <li>• Provide a print copy of assignments or notes.</li> <li>• Go over directions orally.</li> <li>• Provide additional time on tests.</li> <li>• Read test materials to the student, and allow oral responses.</li> <li>• Use enlarged graph paper to write problems to help the student keep numbers in columns.</li> <li>• Break long-term assignments into small steps, with daily monitoring and frequent grading.</li> <li>• Use both oral and printed directions.</li> </ul> |
| <p align="center"><b>Supports / Modifications for At Risk Students</b></p>  | <p align="center"><b>Supports / Modifications for Gifted &amp; Talented Students</b></p>  |
| <ul style="list-style-type: none"> <li>• Review the classroom rules frequently.</li> <li>• Evaluate classroom structure against the student’s needs (flexible structure, firm limits, etc.).</li> <li>• Keep workspace clear of unrelated materials.</li> <li>• Keep classroom quiet during intense learning times.</li> <li>• Reduce visual distractions in the classroom (mobiles, etc.).</li> <li>• Seat the student close to the teacher / instruction, and away from distractions.</li> <li>• Keep extra supplies of classroom materials (pencils, books) on hand.</li> <li>• Alert student several minutes before a transition from one activity to another is planned; give several reminders.</li> <li>• Reinforce (often) when a student displays positive behavior.</li> <li>• Develop an individualized behavior intervention plan that consistent with the student’s ability and skills.</li> <li>• Arrange for a student to leave the classroom for a designated “safe place” when highly stressed.</li> <li>• Develop a system or a code word to let a student know when behavior is not appropriate.</li> <li>• Ignore behaviors that are not seriously disruptive.</li> </ul> | <ul style="list-style-type: none"> <li>• Provide opportunities to pursue advanced level work</li> <li>• Expose students to higher level thinking skills</li> <li>• Provide enrichment centers</li> <li>• pursue a self-selected interest</li> <li>• work in groups with students having common interests</li> <li>• move to a higher grade for specific subject area instruction</li> <li>• work with students of comparable ability across classrooms at the same grade level</li> <li>• work on an advanced curriculum unit on a teacher-selected topic</li> <li>• participate in competitive programs focusing on thinking skills/problem solving</li> <li>• receive concentrated instruction in critical thinking and creative problem solving</li> </ul>   |

**COURSE/SUBJECT:** Science

**LEVEL/GRADE:** 7<sup>th</sup> Grade

**UNIT/FOCUS:** Matter & Energy in  
Organisms and Ecosystems

**TIMEFRAME:** 7 weeks

### Transfer

*Students will be able to independently use their learning to...*

- Develop a model to describe phenomena. (MS-LS2-3)
- Develop a model to describe unobservable mechanisms. (MS-LS1-7)
- Analyze and interpret data to provide evidence for phenomena. (MS-LS2-1)
- Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. (MS-LS1-6)
- Construct an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. (MS-LS2-4)

### Meaning

#### Enduring Understandings (EUs)

*Students will understand that...*

- Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-LS2-1)
- Matter is conserved because atoms are conserved in physical and chemical processes. (MS-LS1-7)
- Within a natural system, the transfer of energy drives the motion and/or cycling of matter. (MS-LS1-6)
- The transfer of energy can be tracked as energy flows through a natural system. (MS-LS2-3)
- Small changes in one part of a system might cause large changes in another part. (MS-LS2-4)

#### Essential Questions (EQs)

*Students will keep considering...*

- How do organisms obtain and use the matter and energy they need to live and grow?
- How do organisms interact with the living and nonliving environments to obtain matter and energy?
- How do matter and energy move through an ecosystem?
- What happens to ecosystems when the environment changes?
- How do food and fuel provide energy?

### Acquisition

#### Knowledge

*Students will know...*

- Plants, algae (including phytoplankton), and many microorganisms use the energy from light to make sugars (food) from carbon dioxide from the atmosphere and water through the process of photosynthesis, which also releases oxygen. These sugars can be used immediately or stored for growth or later use. (MS-LS1-6)
- Within individual organisms, food moves through a series of chemical reactions in which it is broken down and rearranged to form new molecules, to support growth, or to release energy. (MS-LS1-7)
- Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors. (MS-LS2-1)
- In any ecosystem, organisms and populations with similar requirements for food, water, oxygen, or other resources may compete with each other for limited resources, access to which consequently constrains their growth and reproduction. (MS-LS2-1)
- Growth of organisms and population increases are limited by access to resources. (MS-LS2-1)

#### Skills

*Students will be able to...*

- MS-LS1-6 Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.
- MS-LS1-7 Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.
- MS-LS2-1 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
- MS-LS2-3 Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
- MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

|   |  |
|---|--|
| <ul style="list-style-type: none"><li>• Food webs are models that demonstrate how matter and energy is transferred between producers, consumers, and decomposers as the three groups interact within an ecosystem. Transfers of matter into and out of the physical environment occur at every level. Decomposers recycle nutrients from dead plant or animal matter back to the soil in terrestrial environments or to the water in aquatic environments. The atoms that make up the organisms in an ecosystem are cycled repeatedly between the living and nonliving parts of the ecosystem. (MS-LS2-3)</li><li>• Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations. (MS-LS2-4)</li><li>• The chemical reaction by which plants produce complex food molecules (sugars) requires an energy input (i.e., from sunlight) to occur. In this reaction, carbon dioxide and water combine to form carbon-based organic molecules and release oxygen. (secondary to MS-LS1-6)</li><li>• Cellular respiration in plants and animals involve chemical reactions with oxygen that release stored energy. In these processes, complex molecules containing carbon react with oxygen to produce carbon dioxide and other materials. (secondary to MS-LS1-7)</li></ul> |  |
|---|--|

| <p align="center"><b>Aligned Concepts, Topics, and Skills</b></p>   | <p align="center"><b>Pacing Guide</b></p>  |
|---|--|
| <p>Topics</p> <ul style="list-style-type: none"> <li>• Explore how living things obtain the things they need from their surroundings/ changes in environment-cause and effect.</li> <li>• Learn and understand how living things interact with the living and nonliving things around them.</li> <li>• Energy flow in ecosystems</li> <li>• Cycles of matter - water cycle, carbon and oxygen cycle, nitrogen cycle</li> <li>• Understand habitats and the effects biotic factors/abiotic factors</li> <li>• Levels of organizations - populations/communities/ecosystems</li> <li>• Changes in populations - births and deaths/immigration and emigration/population density/limiting factors(food and water, space, weather)</li> <li>• Photosynthetic organisms/ cellular respiration- chemical reactions</li> </ul> <p>Phenomenon</p> <ul style="list-style-type: none"> <li>• Composting</li> <li>• Expedition to different Biomes</li> <li>• Management of forest and fisheries</li> <li>• Eco-schools</li> </ul> | <ul style="list-style-type: none"> <li>• Approximately 7 weeks</li> </ul>  |
| <p align="center"><b>21<sup>st</sup> Century Life and Career Ready Practices</b></p>  | <p align="center"><b>Interdisciplinary Connections</b></p>   |
| <ul style="list-style-type: none"> <li>• CRP1. Act as a responsible and contributing citizen and employee.</li> <li>• CRP2. Apply appropriate academic and technical skills.</li> <li>• CRP3. Attend to personal health and financial well-being.</li> <li>• CRP4. Communicate clearly and effectively and with reason.</li> <li>• CRP5. Consider the environmental, social and economic impacts of decisions.</li> <li>• CRP6. Demonstrate creativity and innovation.</li> <li>• CRP7. Employ valid and reliable research strategies.</li> <li>• CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>• CRP9. Model integrity, ethical leadership and effective management.</li> <li>• CRP10. Plan education and career paths aligned to personal goals.</li> <li>• CRP11. Use technology to enhance productivity.</li> <li>• CRP12. Work productively in teams while using cultural global competence.</li> </ul>  | <ul style="list-style-type: none"> <li>• Science and Engineering Practices</li> <li>• Cross-Cutting Concepts</li> </ul>  |
| <p align="center"><b>Instructional Resources</b></p>  | <p align="center"><b>Benchmark / Summative Assessments</b></p>   |
|   | <p>Teacher created</p> <ul style="list-style-type: none"> <li>• Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.</li> <li>• Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.</li> <li>• Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.</li> <li>• Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.</li> </ul> |

COURSE/SUBJECT: Science

LEVEL/GRADE: 7<sup>th</sup> Grade

|  |   |
|--|---|
|  | <ul style="list-style-type: none"><li>• Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.</li></ul> |
|--|---|

| Supports / Modifications for ELLs   | Supports / Modifications for Students w/ 504s and or IEPs   |
|---|---|
| <ul style="list-style-type: none"> <li>• Preview content</li> <li>• Utilize visuals, images, actions, and talk</li> <li>• Scaffold development of comprehension process vocabulary AND content-specific vocabulary</li> <li>• Display anchor charts for language structures</li> <li>• Provide assessments with graphic supports</li> <li>• Utilize prepared sentence stems</li> <li>• Graphic organizers</li> <li>• Flexible grouping</li> <li>• Additional time for processing and assessment</li> </ul>  | <ul style="list-style-type: none"> <li>• Differentiate content, process, product, and learning environment</li> <li>• Provide alternative or high interest text at student’s reading level.</li> <li>• Provide summaries of materials for student.</li> <li>• Shorten assignments and assessments to focus on mastery of key concepts.</li> <li>• Substitute alternatives for written assignments.</li> <li>• Specify and review often exactly what the student will need to learn to pass.</li> <li>• Modify expectations based on student needs.</li> <li>• Provide a “designated notetaker” or photocopy of other student or teacher notes.</li> <li>• Provide a print copy of assignments or notes.</li> <li>• Go over directions orally.</li> <li>• Provide additional time on tests.</li> <li>• Read test materials to the student, and allow oral responses.</li> <li>• Use enlarged graph paper to write problems to help the student keep numbers in columns.</li> <li>• Break long-term assignments into small steps, with daily monitoring and frequent grading.</li> <li>• Use both oral and printed directions.</li> </ul> |
| Supports / Modifications for At Risk Students   | Supports / Modifications for Gifted & Talented Students   |
| <ul style="list-style-type: none"> <li>• Review the classroom rules frequently.</li> <li>• Evaluate classroom structure against the student’s needs (flexible structure, firm limits, etc.).</li> <li>• Keep workspace clear of unrelated materials.</li> <li>• Keep classroom quiet during intense learning times.</li> <li>• Reduce visual distractions in the classroom (mobiles, etc.).</li> <li>• Seat the student close to the teacher / instruction, and away from distractions.</li> <li>• Keep extra supplies of classroom materials (pencils, books) on hand.</li> <li>• Alert student several minutes before a transition from one activity to another is planned; give several reminders.</li> <li>• Reinforce (often) when a student displays positive behavior.</li> <li>• Develop an individualized behavior intervention plan that consistent with the student’s ability and skills.</li> <li>• Arrange for a student to leave the classroom for a designated “safe place” when highly stressed.</li> <li>• Develop a system or a code word to let a student know when behavior is not appropriate.</li> <li>• Ignore behaviors that are not seriously disruptive.</li> </ul> | <ul style="list-style-type: none"> <li>• Provide opportunities to pursue advanced level work</li> <li>• Expose students to higher level thinking skills</li> <li>• Provide enrichment centers</li> <li>• pursue a self-selected interest</li> <li>• work in groups with students having common interests</li> <li>• move to a higher grade for specific subject area instruction</li> <li>• work with students of comparable ability across classrooms at the same grade level</li> <li>• work on an advanced curriculum unit on a teacher-selected topic</li> <li>• participate in competitive programs focusing on thinking skills/problem solving</li> <li>• receive concentrated instruction in critical thinking and creative problem solving</li> </ul>   |

**COURSE/SUBJECT:** Science

**LEVEL/GRADE:** 7<sup>th</sup> Grade

**UNIT/FOCUS:** Interdependent  
Relationships in Ecosystems

**TIMEFRAME:** 7 weeks

**Transfer**

*Students will be able to independently use their learning to...*

- Construct an explanation that includes qualitative or quantitative relationships between variables that predict phenomena. (MS-LS2-2)
- Evaluate competing design solutions based on jointly developed and agreed-upon design criteria. (MS-LS2-5)

**Meaning**

**Enduring Understandings (EUs)**

*Students will understand that...*

- Patterns can be used to identify cause and effect relationships. (MS-LS2-2)
- Small changes in one part of a system might cause large changes in another part. (MS-LS2-5)

**Essential Questions (EQs)**

*Students will keep considering...*

- How do organisms interact with the living and nonliving environments to obtain matter and energy?
- What happens to ecosystems when the environment changes?
- What is biodiversity, how do humans affect it, and how does it affect humans?
- What is the process for developing potential design solutions?

**Acquisition**

**Knowledge**

*Students will know...*

- Similarly, predatory interactions may reduce the number of organisms or eliminate whole populations of organisms. Mutually beneficial interactions, in contrast, may become so interdependent that each organism requires the other for survival. Although the species involved in these competitive, predatory, and mutually beneficial interactions vary across ecosystems, the patterns of interactions of organisms with their environments, both living and nonliving, are shared. (MS-LS2-2)
- Biodiversity describes the variety of species found in Earth's terrestrial and oceanic ecosystems. The completeness or integrity of an ecosystem's biodiversity is often used as a measure of its health. (MS-LS2-5)
- Changes in biodiversity can influence humans' resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on—for example, water purification and recycling. (secondary to MS-LS2-5)
- There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. (secondary to MS-LS2-5)

**Skills**

*Students will be able to...*

- MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
- MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

| <p align="center"><b>Aligned Concepts, Topics, and Skills</b></p>  | <p align="center"><b>Pacing Guide</b></p>  |
|--|--|
| <p>Topics</p> <ul style="list-style-type: none"> <li>• Patterns in different ecosystems</li> <li>• Relationship between biotic and abiotic in an ecosystem</li> <li>• Compare and contrast between competitive, predatory and mutually beneficial relationships</li> <li>• Variation of species and biodiversity in terrestrial and oceanic ecosystems</li> <li>• Effect of human resources (food, energy, medicines, water purification, recycling) on ecosystems</li> </ul> <p>Phenomenon</p> <ul style="list-style-type: none"> <li>• Testing of effect of human impact on Earth’s resources within an ecosystem</li> <li>• Example from NGSS workshop - predator/prey data driven</li> </ul>   | <ul style="list-style-type: none"> <li>• Approximately 7 weeks</li> </ul>  |
| <p align="center"><b>21<sup>st</sup> Century Life and Career Ready Practices</b></p>   | <p align="center"><b>Interdisciplinary Connections</b></p>   |
| <ul style="list-style-type: none"> <li>• CRP1. Act as a responsible and contributing citizen and employee.</li> <li>• CRP2. Apply appropriate academic and technical skills.</li> <li>• CRP3. Attend to personal health and financial well-being.</li> <li>• CRP4. Communicate clearly and effectively and with reason.</li> <li>• CRP5. Consider the environmental, social and economic impacts of decisions.</li> <li>• CRP6. Demonstrate creativity and innovation.</li> <li>• CRP7. Employ valid and reliable research strategies.</li> <li>• CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>• CRP9. Model integrity, ethical leadership and effective management.</li> <li>• CRP10. Plan education and career paths aligned to personal goals.</li> <li>• CRP11. Use technology to enhance productivity.</li> <li>• CRP12. Work productively in teams while using cultural global competence.</li> </ul> | <ul style="list-style-type: none"> <li>• Science and Engineering Practices</li> <li>• Cross-Cutting Concepts</li> </ul>  |
| <p align="center"><b>Instructional Resources</b></p>   | <p align="center"><b>Benchmark / Summative Assessments</b></p>   |
| <ul style="list-style-type: none"> <li>• <a href="https://www.explorellearning.com/">https://www.explorellearning.com/</a></li> </ul>  | <p>Teacher created</p> <ul style="list-style-type: none"> <li>• Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.</li> <li>• Evaluate competing design solutions for maintaining biodiversity and ecosystem services.</li> </ul> |

| <p align="center"><b>Supports / Modifications for ELLs</b></p>  | <p align="center"><b>Supports / Modifications for Students w/ 504s and or IEPs</b></p>  |
|---|---|
| <ul style="list-style-type: none"> <li>• Preview content</li> <li>• Utilize visuals, images, actions, and talk</li> <li>• Scaffold development of comprehension process vocabulary AND content-specific vocabulary</li> <li>• Display anchor charts for language structures</li> <li>• Provide assessments with graphic supports</li> <li>• Utilize prepared sentence stems</li> <li>• Graphic organizers</li> <li>• Flexible grouping</li> <li>• Additional time for processing and assessment</li> </ul>  | <ul style="list-style-type: none"> <li>• Differentiate content, process, product, and learning environment</li> <li>• Provide alternative or high interest text at student’s reading level.</li> <li>• Provide summaries of materials for student.</li> <li>• Shorten assignments and assessments to focus on mastery of key concepts.</li> <li>• Substitute alternatives for written assignments.</li> <li>• Specify and review often exactly what the student will need to learn to pass.</li> <li>• Modify expectations based on student needs.</li> <li>• Provide a “designated notetaker” or photocopy of other student or teacher notes.</li> <li>• Provide a print copy of assignments or notes.</li> <li>• Go over directions orally.</li> <li>• Provide additional time on tests.</li> <li>• Read test materials to the student, and allow oral responses.</li> <li>• Use enlarged graph paper to write problems to help the student keep numbers in columns.</li> <li>• Break long-term assignments into small steps, with daily monitoring and frequent grading.</li> <li>• Use both oral and printed directions.</li> </ul> |
| <p align="center"><b>Supports / Modifications for At Risk Students</b></p>  | <p align="center"><b>Supports / Modifications for Gifted &amp; Talented Students</b></p>  |
| <ul style="list-style-type: none"> <li>• Review the classroom rules frequently.</li> <li>• Evaluate classroom structure against the student’s needs (flexible structure, firm limits, etc.).</li> <li>• Keep workspace clear of unrelated materials.</li> <li>• Keep classroom quiet during intense learning times.</li> <li>• Reduce visual distractions in the classroom (mobiles, etc.).</li> <li>• Seat the student close to the teacher / instruction, and away from distractions.</li> <li>• Keep extra supplies of classroom materials (pencils, books) on hand.</li> <li>• Alert student several minutes before a transition from one activity to another is planned; give several reminders.</li> <li>• Reinforce (often) when a student displays positive behavior.</li> <li>• Develop an individualized behavior intervention plan that consistent with the student’s ability and skills.</li> <li>• Arrange for a student to leave the classroom for a designated “safe place” when highly stressed.</li> <li>• Develop a system or a code word to let a student know when behavior is not appropriate.</li> <li>• Ignore behaviors that are not seriously disruptive.</li> </ul> | <ul style="list-style-type: none"> <li>• Provide opportunities to pursue advanced level work</li> <li>• Expose students to higher level thinking skills</li> <li>• Provide enrichment centers</li> <li>• pursue a self-selected interest</li> <li>• work in groups with students having common interests</li> <li>• move to a higher grade for specific subject area instruction</li> <li>• work with students of comparable ability across classrooms at the same grade level</li> <li>• work on an advanced curriculum unit on a teacher-selected topic</li> <li>• participate in competitive programs focusing on thinking skills/problem solving</li> <li>• receive concentrated instruction in critical thinking and creative problem solving</li> </ul>   |

**COURSE/SUBJECT:** Science

**LEVEL/GRADE:** 7<sup>th</sup> Grade

**UNIT/FOCUS:** Natural Selection and Adaptations

**TIMEFRAME:** 7 weeks

**Transfer**

*Students will be able to independently use their learning to...*

- Analyze displays of data to identify linear and nonlinear relationships. (MS-LS4-3)
- Analyze and interpret data to determine similarities and differences in findings. (MS-LS4-1)
- Use mathematical representations to support scientific conclusions and design solutions. (MS-LS4-6)
- Apply scientific ideas to construct an explanation for real-world phenomena, examples, or events. (MS-LS4-2)
- Construct an explanation that includes qualitative or quantitative relationships between variables that describe phenomena. (MS-LS4-4)

**Meaning**

**Enduring Understandings (EUs)**

*Students will understand that...*

- Patterns can be used to identify cause and effect relationships. (MS-LS4-2)
- Graphs, charts, and images can be used to identify patterns in data. (MS-LS4-1), (MS-LS4-3)
- Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability. (MS-LS4-4), (MS-LS4-6)

**Essential Questions (EQs)**

*Students will keep considering...*

- What evidence shows that different species are related?
- How does genetic variation among organisms affect survival and reproduction?
- How does the environment influence populations of organisms over multiple generations?

**Acquisition**

**Knowledge**

*Students will know...*

- The collection of fossils and their placement in chronological order (e.g., through the location of the sedimentary layers in which they are found or through radioactive dating) is known as the fossil record. It documents the existence, diversity, extinction, and change of many life forms throughout the history of life on Earth. (MS-LS4-1)
- Anatomical similarities and differences between various organisms living today and between them and organisms in the fossil record, enable the reconstruction of evolutionary history and the inference of lines of evolutionary descent. (MS-LS4-2)
- Comparison of the embryological development of different species also reveals similarities that show relationships not evident in the fully-formed anatomy. (MS-LS4-3)
- Natural selection leads to the predominance of certain traits in a population, and the suppression of others. (MS-LS4-4)
- Adaptation by natural selection acting over generations is one important process by which species change over time in response to changes in environmental conditions. Traits that support successful survival and reproduction in the new environment become more common; those that do not become less common. Thus, the distribution of traits in a population changes. (MS-LS4-6)

**Skills**

*Students will be able to...*

- MS-LS4-1. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.
- MS-LS4-2. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.
- MS-LS4-3. Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.
- MS-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.
- MS-LS4-6. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.

| <p align="center"><b>Aligned Concepts, Topics, and Skills</b></p>  | <p align="center"><b>Pacing Guide</b></p>   |
|--|---|
| <p>Topics</p> <ul style="list-style-type: none"> <li>• Tracing the changes of anatomical structures through fossil records</li> <li>• Patterns in fossil records</li> <li>• Similarities and differences of gross anatomical structures</li> <li>• Patterns in embryonic development</li> <li>• Similarities and differences of various species</li> <li>• Natural Selection</li> <li>• Survival and reproduction rates</li> <li>• Trends and changes over time to populations</li> <li>• Traits in a given population</li> <li>• Changes over time</li> </ul> <p>Phenomenon</p> <ul style="list-style-type: none"> <li>• Embryos of vertebrates resemble each other (at early stages)</li> <li>• Fossils with shells are found in mountains miles from the shore</li> <li>• Dogs came from wolves</li> <li>• Darwin’s Finches</li> <li>• Punnett Square</li> </ul>  | <ul style="list-style-type: none"> <li>• Approximately 7 weeks</li> </ul>   |
| <p align="center"><b>21<sup>st</sup> Century Life and Career Ready Practices</b></p>   | <p align="center"><b>Interdisciplinary Connections</b></p>  |
| <ul style="list-style-type: none"> <li>• CRP1. Act as a responsible and contributing citizen and employee.</li> <li>• CRP2. Apply appropriate academic and technical skills.</li> <li>• CRP3. Attend to personal health and financial well-being.</li> <li>• CRP4. Communicate clearly and effectively and with reason.</li> <li>• CRP5. Consider the environmental, social and economic impacts of decisions.</li> <li>• CRP6. Demonstrate creativity and innovation.</li> <li>• CRP7. Employ valid and reliable research strategies.</li> <li>• CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</li> <li>• CRP9. Model integrity, ethical leadership and effective management.</li> <li>• CRP10. Plan education and career paths aligned to personal goals.</li> <li>• CRP11. Use technology to enhance productivity.</li> <li>• CRP12. Work productively in teams while using cultural global competence.</li> </ul> | <ul style="list-style-type: none"> <li>• Science and Engineering Practices</li> <li>• Cross-Cutting Concepts</li> </ul>   |
| <p align="center"><b>Instructional Resources</b></p>   | <p align="center"><b>Benchmark / Summative Assessments</b></p>  |
| <ul style="list-style-type: none"> <li>• <a href="https://www.explorellearning.com/">https://www.explorellearning.com/</a></li> <li>•</li> </ul>   | <p>Teacher created</p> <ul style="list-style-type: none"> <li>• Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.</li> <li>• Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.</li> <li>• Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.</li> </ul> |

COURSE/SUBJECT: Science

LEVEL/GRADE: 7<sup>th</sup> Grade

- |  |  |
|--|--|
|  | <ul style="list-style-type: none"><li>• Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.</li><li>• Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.</li></ul> |
|--|--|

| <p align="center"><b>Supports / Modifications for ELLs</b></p>  | <p align="center"><b>Supports / Modifications for Students w/ 504s and or IEPs</b></p>  |
|---|---|
| <ul style="list-style-type: none"> <li>• Preview content</li> <li>• Utilize visuals, images, actions, and talk</li> <li>• Scaffold development of comprehension process vocabulary AND content-specific vocabulary</li> <li>• Display anchor charts for language structures</li> <li>• Provide assessments with graphic supports</li> <li>• Utilize prepared sentence stems</li> <li>• Graphic organizers</li> <li>• Flexible grouping</li> <li>• Additional time for processing and assessment</li> </ul>  | <ul style="list-style-type: none"> <li>• Differentiate content, process, product, and learning environment</li> <li>• Provide alternative or high interest text at student’s reading level.</li> <li>• Provide summaries of materials for student.</li> <li>• Shorten assignments and assessments to focus on mastery of key concepts.</li> <li>• Substitute alternatives for written assignments.</li> <li>• Specify and review often exactly what the student will need to learn to pass.</li> <li>• Modify expectations based on student needs.</li> <li>• Provide a “designated notetaker” or photocopy of other student or teacher notes.</li> <li>• Provide a print copy of assignments or notes.</li> <li>• Go over directions orally.</li> <li>• Provide additional time on tests.</li> <li>• Read test materials to the student, and allow oral responses.</li> <li>• Use enlarged graph paper to write problems to help the student keep numbers in columns.</li> <li>• Break long-term assignments into small steps, with daily monitoring and frequent grading.</li> <li>• Use both oral and printed directions.</li> </ul> |
| <p align="center"><b>Supports / Modifications for At Risk Students</b></p>  | <p align="center"><b>Supports / Modifications for Gifted &amp; Talented Students</b></p>  |
| <ul style="list-style-type: none"> <li>• Review the classroom rules frequently.</li> <li>• Evaluate classroom structure against the student’s needs (flexible structure, firm limits, etc.).</li> <li>• Keep workspace clear of unrelated materials.</li> <li>• Keep classroom quiet during intense learning times.</li> <li>• Reduce visual distractions in the classroom (mobiles, etc.).</li> <li>• Seat the student close to the teacher / instruction, and away from distractions.</li> <li>• Keep extra supplies of classroom materials (pencils, books) on hand.</li> <li>• Alert student several minutes before a transition from one activity to another is planned; give several reminders.</li> <li>• Reinforce (often) when a student displays positive behavior.</li> <li>• Develop an individualized behavior intervention plan that consistent with the student’s ability and skills.</li> <li>• Arrange for a student to leave the classroom for a designated “safe place” when highly stressed.</li> <li>• Develop a system or a code word to let a student know when behavior is not appropriate.</li> <li>• Ignore behaviors that are not seriously disruptive.</li> </ul> | <ul style="list-style-type: none"> <li>• Provide opportunities to pursue advanced level work</li> <li>• Expose students to higher level thinking skills</li> <li>• Provide enrichment centers</li> <li>• pursue a self-selected interest</li> <li>• work in groups with students having common interests</li> <li>• move to a higher grade for specific subject area instruction</li> <li>• work with students of comparable ability across classrooms at the same grade level</li> <li>• work on an advanced curriculum unit on a teacher-selected topic</li> <li>• participate in competitive programs focusing on thinking skills/problem solving</li> <li>• receive concentrated instruction in critical thinking and creative problem solving</li> </ul>   |