SCN212 - ESL Science II
A Course Outline for Science

Approved by the Board of Education
May 25, 2017
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STATEMENT OF PURPOSE

The purpose of this course . . .

The ESL 2 Curriculum is designed as a full year science course offered to students with more advanced ability to read or write in the English language than students in ESL 1 Science. It is open to students of all grade levels and is intended as a general science course focusing on developing skill with laboratory equipment and advanced laboratory procedures in a sheltered environment at the high school level. The program will introduce the student to the basic concepts of science including lab safety and skills in Biology, Earth Science, Chemistry and Physics while focusing on improving their writing skills in science. This course will emphasize skills used in other ESL programs to strengthen each student’s vocabulary skills in both written and verbal form.

The curriculum is designed to incorporate strategies that facilitate the learning process for both visual and kinesthetic learners. Students will participate in authentic experiences that strengthen their ability to reason, write and problem solve in the areas related to science and technological literacy.

The ESL Science course will serve as a transition to help students develop the proficiencies they need to succeed in other science courses they will take at the high school level.

Separately we assess students to gauge progress and inform instruction. Benchmark assessments for students in grades 9 through 12 are administered in the form of a midterm and final exam for full year courses. *Special Note: Only final exams are administered at the end of quarter courses and semester courses.
THE LIVING CURRICULUM

Curriculum guides are designed to be working documents. Teachers are encouraged to make notes in the margins. Written comments can serve as the basis for future revisions. In addition, the teachers and administrators are invited to discuss elements of the guides as implemented in the classroom and to work collaboratively to develop recommendations for curriculum reforms as needed.

AFFIRMATIVE ACTION

During the development of this course of study, particular attention was paid to material, which might discriminate on the basis of sex, race, religion, national origin, or creed. Every effort has been made to uphold both the letter and spirit of affirmative action mandates as applied to the content, the texts and the instruction inherent in this course.

MODIFICATIONS AND ADAPTATIONS

For guidelines on how to modify and adapt curricula to best meet the needs of all students, instructional staff should refer to the Curriculum Modifications and Adaptations included as an Appendix in this curriculum. Instructional staff of students with Individualized Education Plans (IEPs) must adhere to the recommended modifications outlined in each individual plan.
GENERAL GOALS

The students will:

1. develop a strong proficiency in using the English language especially in terms of science vocabulary and laboratory skills.

2. be able to develop a deeper understanding of the major topics of science including Biology, Earth Science, Chemistry and Physics.

3. examine the impact that science has on their daily lives as well as on the world them.

4. learn to communicate scientific information and understanding in the English language, both in written and verbal form.

5. prepare themselves for transition into non-ESL science classes and develop the skill sets needed to be successful in the course.
GRADING PROCEDURES

Student grades are based on the following:

Marking Period Grades

Long and Short Term Assessments which may include: 90%
- Tests, quizzes, and/or worksheets
- Authentic assessments
- Technology applications
- Projects, reports, presentations
- Laboratory investigations
- Data Analysis
- Analysis of assigned readings

Daily Assessments which may include: 10%
- Active engagement in class activities
- Demonstration of knowledge and understanding of course material
- Skills and safety practices during lab investigations
- Do Now/Exit Questions
- Homework
PARSIPPANY-TROY HILLS TOWNSHIP SCHOOLS
COURSE PROFICIENCIES

Course: SCN212
Title: ESL Science II

In accordance with district policy as mandated by the New Jersey Administrative Code and the New Jersey Student Learning Standards, the following are proficiencies required for the successful completion of the above named course.

The student will:

1. Plan and conduct an investigation to gather and analyze evidence
2. Apply scientific principles to understand the structure and function of tools used in a science laboratory.
3. Demonstrate and analyze the use of scale, proportion, and quantity when applied to scientific concepts.
4. Use mathematical representations to support and communicate scientific information.
5. Identify and evaluate the use of safety equipment in a science laboratory.
6. Develop a model to illustrate the structure and function of the cell identifying its parts.
7. Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.
8. Develop a model to illustrate the essential functions of life through the systems of the human body and the necessity of cellular respiration.
9. Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.
10. Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins and amino acids and the role of chromosomes in heredity.
11. Communicate scientific information that biological evolution is suggested by multiple lines of empirical evidence and construct an explanation on how natural selection leads to adaptations.
12. Use a model to illustrate the reasoning behind the standard classification system of living organisms.
13. Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population. (Punnett squares and genetic variations)
14. Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem. (trophic levels)
15. Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity, biodiversity, and populations in ecosystems of different scales. Construct an explanation of the Big Bang Theory based on astronomical evidence of universe expansion and communicate scientific ideas about the way stars, over their life cycles, produce elements. Use a mathematical representation to demonstrate the motion and effects on Earth (i.e. tides /seasons) of orbiting objects in the solar system.
16. Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth’s formation and early history.
17. Develop a model based on evidence of Earth’s interior to describe the cycling of matter by thermal convection.
18. Evaluate evidence of the past and current movements of Continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.
19. Plan and conduct an investigation of how water and weathering have an effect on water on Earth materials and surface processes.
20. Construct an argument based on evidence about the simultaneous coevolution of the Earth’s systems and life on Earth.
21. Use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate.
22. Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity. (global warming, acid rain, and ozone depletion)
23. Evaluate solutions for developing and managing the natural resources of the Earth based on cost-benefit ratios and in such a way that promote sustainability for future generations. (renewable and nonrenewable energy).
24. Differentiate between states of matter, physical and chemical properties, and physical and chemical changes.
25. Plan and conduct an investigation to gather evidence to observe matter and how it changes between states.
26. Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.
27. Compare and contrast pure substances vs. mixtures, heterogeneous vs. homogeneous mixtures, elements vs. compounds, and solvent vs. solute.
28. Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties. (acids and bases)
29. Develop a model to illustrate that the release or absorption of energy from a chemical reaction results in equilibrium thus proving the law of conservation of mass.
30. Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.
31. Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.

32. Use mathematical representations to support the claim that forces can be measured and that net forces can be calculated.

33. Analyze data to support the Claim that Newton’s 3 Laws of Motion can demonstrate the effect forces have on objects in motion, including the use of simple machines.

34. Use mathematical representation to support a claim regarding the relationships among frequency, wavelength and speed of waves traveling in various media. (electromagnetic spectrum)

35. Design, build and refine a device that works within given constraints to convert one form of energy into another form of energy and identify each form as the change takes place.

36. Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that changing magnetic fields can produce an electric current.
I. **SCIENCE BASICS/BIOLOGY– 9 weeks:**

**Essential Question(s):**

a) How do Scientists conduct scientific investigations safely?
b) How do the building blocks of organisms facilitate the life’s necessities?
c) How does a generation pass on its characteristics to another generation?
d) How do organisms interact and use energy in an ecosystem?
e) What is the relationship between biodiversity of an ecosystem and the health and individual carrying Capacity of individuals within that ecosystem?

**Enduring Understanding(s):**

a) Understanding and respect for the safety rules in a laboratory are vital to a successful Science experience. Safety guidelines are designed to prevent accidents from occurring, and yield quality results.
b) Cells are the basic units of life. Systems of cells work together to enable life’s functions.
c) During the process of cellular division, DNA and chromosomes pass traits to the next generation. Variation among populations is crucial for survival and evolution.
d) Matter is cycled within organisms and ecosystems.
e) Natural selection and the process of evolution result in biodiversity.

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**SCIENCE BASICS/BIOLOGY**

<table>
<thead>
<tr>
<th>PROFICIENCY / OBJECTIVE</th>
<th>Standards</th>
<th>SUGGESTED ACTIVITY</th>
<th>EVALUATION/ ASSESSMENT</th>
<th>TEACHER NOTES</th>
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<tbody>
<tr>
<td><strong>The student will be able to:</strong></td>
<td>Students will:</td>
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<tr>
<td>1. plan and conduct an investigation to gather and analyze evidence</td>
<td>SEP1-8 CRP2,4</td>
<td>● students will design a lab to determine how many recycling cans in the school are being used properly. They should collaborate in groups first to develop an hypothesis.</td>
<td>Make a list of what information you will need to find out. (location of cans, frequency of use, what is acceptable) Students should incorporate the terms problem, hypothesis,</td>
<td>This lab will let students work in cooperative groups and allow the newer students to learn more about the school.</td>
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</tbody>
</table>
2. apply scientific principles to understand the structure and function of tools used in a science laboratory.  
   **SEP1-8**  
   - Identifying Lab Equipment (Miller)  
   - Laboratory Techniques (Miller)  
   Go over answers as a class  
   Lab Manual A p.3  

3. demonstrate and analyze the use of scale, proportion, and quantity when applied to scientific concepts.  
   **SEP1-8**  
   - measurements and Calculations (Miller)  
   Go over answers as a class  
   Lab Manual A p.315-7

4. use mathematical representations to support and communicate scientific information.  
   **SEP4,5 CCC3**  
   - presenting Data (Miller)  
   Go over answers as a class  
   Lab Manual A p.310-4

5. identify and evaluate the use of safety equipment in a science laboratory.  
   **SEP1-8**  
   - safety Contract  
   - lab Equipment and Safety  
   Quiz on identify and correctly spelling lab equipment.  
   Lab Manual A p.1-2, 4

6. develop a model to illustrate the structure and function of the cell identifying its parts.  
   **HS-LS1.A**  
   - complete coloring plate, *Animal Cell/Plant Cell* (Griffin).  
   - view cell structure using a microslide viewer. They will then answer teacher-generated questions.  
   Accuracy of organelle identification  
   Accuracy of written answers/drawings

7. use a model to illustrate how photosynthesis transforms light  
   **HS-LS1-5 SEP3,4,6**  
   - perform iodine (starch indicator) test on plant  
   Scientific explanations will be assessed for
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<th></th>
<th>Energy into stored chemical energy.</th>
<th>Leaves, both light exposed and non light exposed. Work in pairs/groups and determine possible explanations for results.</th>
<th>Accuracy and understanding</th>
</tr>
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</table>
| 8. | Develop a model to illustrate the essential functions of life through the systems of the human body and the necessity of cellular respiration. | **HS-LS1-1 SEP3,4,6**  
- conduct lab, *Relating Cell Structure to Function* (Holt)  
- group project on choice of human body system  
- Conduct lab, *Photosynthesis and Cellular Respiration* (Miller) | Teacher assessment for accuracy  
Rubric  
Questions assessed for accuracy. |
| 9. | Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms. | **HS-LS1-4 SEP2**  
- generate drawings of each stage of mitosis using microslide viewer/microscope.  
- given models, place cells in proper sequence. | Drawings will be assessed for accuracy  
Peer assessment for accuracy |
| 10. | Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins and amino acids and the role of chromosomes in heredity. | **HS-LS1-1**  
- create a flowchart showing the steps involved in making a protein  
- Conduct lab, *From DNA to Protein Synthesis* (Miller) | Chart will be assessed for accuracy  
Answers will be checked for accuracy |
| 11. | Communicate scientific information that biological evolution is suggested by multiple lines of empirical evidence and construct an explanation based on evidence for how the structure of DNA determines the structure of proteins and amino acids and the role of chromosomes in heredity. | **HS-LS4-1 SEP1-6**  
- conduct lab, *Competing for Resources* (Miller) | Class discussion with teacher survey for understanding of simulation |
12. use a model to illustrate the reasoning behind the standard classification system of living organisms.

| Explanation on how natural selection leads to adaptations. | HS-LS1-4 8.1.12.A.5 SEP2 | ● classify a randomly assigned animal into the appropriate taxonomy placement.  
● investigate a specified website to classify a bear, an orchid, and a sea cucumber according to descriptions of selected kingdoms, phyla, classes, orders, families, genera and species by navigating through the website. | Self-assess using teacher-provided key  
Self-assess using website-provided feedback | Write common names of different animals on index cards and distribute randomly.  

13. apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population. (Punnett squares and genetic variations)

| Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population. (Punnett squares and genetic variations) | HS-LS3-3 | ● solve Punnett Square problems that depict the various modes of inheritance. | Genotypic and phenotypic ratios will be assessed for accuracy |  |

14. use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem. (trophic levels)

| Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem. (trophic levels) | HS-LS2-4 | ● compare a food chain and a food web, draw each, and label the organisms in each as producer, primary consumer, secondary consumer or tertiary consumer. Include trophic levels. | Assess for accuracy |  |
15. use mathematical and/or computational representations to support explanations of factors that affect carrying capacity, biodiversity, and populations in ecosystems of different scales.

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<th>HS-LS2-1</th>
<th>HS-LS2-2</th>
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| ● conduct lab, *The Growth Cycle of Yeast* (Miller)  
● ask “Are humans at their carrying capacity/” | Questions and graph will be assessed for accuracy, Class discussion |
II. EARTH SCIENCE – 7 weeks:

Essential Question(s):

a) What evidence exists today that supports our understanding of how the Universe formed and how the planet Earth was effected during this formation and how these effects continue today?

b) How does the internal thermal convection of the Earth work and how does it affect processes on the surface?

c) What role has energy played to maintain the processes of the Earth’s systems (lithosphere, hydrosphere, and atmosphere) and how have these processes helped formed the basis of life on the planet, particularly over the course of climatic changes throughout history?

d) How can human activity lead to both positive and negative changes in the environment and the use natural resources and what steps need to be taken to reverse the negative processes and move towards sustainability for future generations?

Enduring Understanding(s):

a) While the expanding Universe supports the Big Bang theory, additional evidence in the form of fossils, geology and evolution demonstrate how the Earth itself slowly formed through a series of geological time periods of dramatic geological, biological and climatic change.

b) As the Earth formed, the pressure of the outer layers on the inner layers created a permanent state of molten rock material that is responsible for volcanoes, continental plates, the movement of these plates and in turn earthquakes. In addition to constant changes to the internal portion of the Earth, water, wind and other climatic elements are constantly changing the external surface of the planet.

c) The dynamic systems of the Earth, fueled by energy and based on land, water and air, have been a driving force in the development of life on our planet and the evolution of that life to allow survival despite dramatic and subtle changes in the planet’s climate.

d) As society demands more of our natural resources to survive, we run the risk of heating up the atmosphere, raising the pH of our water, damaging the protective layer of Ozone and using up our nonrenewable resources. There are many things that humans can do stop these destructive practices and reverse the damage, but action must be taken soon.
## EARTH SCIENCE

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<td><strong>Students will:</strong></td>
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| 16. construct an explanation of the Big Bang Theory based on astronomical evidence of universe expansion and communicate scientific ideas about the way stars, over their life cycles, produce elements. | HS-ESS1-3 | ● recreate the birth, life and death of a star using an interactive app showing the H-R diagram. They will then diagram their own graph showing the changes (they may do this while observing the app)  
● write a story explaining how they think the universe began based on current evidence found on the stars and planets we know | Being able to interpret the data on the website and diagramming accurately the H-R Diagram of star luminosity. | [https://lcogt.net/files/flash/hr-diagram/main.html](https://lcogt.net/files/flash/hr-diagram/main.html)  
This activity can lead to a discussion about the Big Bang origin of the Earth Theory. |
| 17. use a mathematical representation to demonstrate the motion and effects on Earth (i.e. tides /seasons) of orbiting objects in the solar system. | HS-ESS1-4 | ● students will view the phases of the Moon on the website: NGSS phenomena. They will diagram each phase.  
● students will use large balls or cut outs of the Sun, Moo and Earth to demonstrate the | Class discussion of how the Moon affects ocean tides.  
Teacher evaluation of student understanding. | [www.ngss.phenomena.com](http://www.ngss.phenomena.com) |
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<td><strong>18.</strong> apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth’s formation and early history.</td>
<td><strong>HS-ESS1-6</strong></td>
<td>● engineer a core drilling on artificial substrate (layers of clay, bread etc) using a variety of tools and determine which one is best (straws, tubing etc.)&lt;br&gt;● demonstrate understanding by competing interactive Geological timeline on web.&lt;br&gt;● make a model of a time line on adding machine paper with diagrams and dates</td>
<td>Evaluated on ability to design a test and to analyze their results.&lt;br&gt;Students will complete accompanying worksheets</td>
<td>NGSS Earth Science Activity:&lt;br&gt;<a href="http://www.earthsciweek.org/classroom-activities/a-bit-of-engineering">http://www.earthsciweek.org/classroom-activities/a-bit-of-engineering</a>&lt;br&gt;<a href="http://www.ei.lehigh.edu/eli/cc/sequence/day15.html">http://www.ei.lehigh.edu/eli/cc/sequence/day15.html</a></td>
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<td><strong>19.</strong> develop a model based on evidence of Earth’s interior to describe the cycling of matter by thermal convection.</td>
<td><strong>HS-ESS2-3</strong></td>
<td>● be able to describe and model how convection currents cause tectonic plate motion&lt;br&gt;● Diagram, label and show distances depicting the layers of the Earth.</td>
<td>Using hot and cold water and food coloring , students will create a model and diagram the direction of convection. Accurate diagram</td>
<td><a href="http://www.thetech.org/sites/default/files/pdfs/Science-Labs/EfE-Lab-Convection_Currents.pdf">http://www.thetech.org/sites/default/files/pdfs/Science-Labs/EfE-Lab-Convection_Currents.pdf</a></td>
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<td><strong>20.</strong> evaluate evidence of the past and current movements of Continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.</td>
<td><strong>HS-ESS1-5</strong></td>
<td>● use combined multimedia resources with a variety of hands on activities to demonstrate how plates move, model the 3 types of plate boundaries and</td>
<td>Completion of all 3 parts of lesson.</td>
<td><a href="http://www.pbslearningmedia.org/resource/ess05.sci.ess.earthsys.lp_platetectonics/plate-tectonics/">http://www.pbslearningmedia.org/resource/ess05.sci.ess.earthsys.lp_platetectonics/plate-tectonics/</a></td>
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|   | Understand how the theory of Plate Tectonics was developed.  
• cut out 3 different sets of continents. On first paper, paste them as Pangea, on the second paper, paste them mid movement and on the third paper paste them they are today. Label the continents and oceans. | 3 accurate and well done diagrams with labels. | **media resources available on website.** |
|---|---|---|---|
| 21. plan and conduct an investigation of how water and weathering have an effect on water on Earth materials and surface processes. | HS-ESS2-5 SEP1,3,6  
• use skittles as material that they will weather physically and chemically. This is an Inquiry lab, the student must discover what is happening.  
• go outside and find examples of chemical and physical weathering. | Correct lab procedure and reasonable guesses about what is happening.  
Class discussion and reasonable examples. | www.myips.org/cms/lib8/.../8123/SkittlesWeatheringAndErosionLabActivity.docx |
| 22. construct an argument based on evidence about the simultaneous coevolution of the Earth’s systems and life on Earth. | HS-ESS2-7  
• use Phenol red indicator to demonstrate whether CO2 is consumed or produced during photosynthesis.  
• complete graphing activity showing how Oxygen has | Complete lab and analyze data. Present findings in an oral report. (How did the Earth get its Oxygen?)  
Graphing skills will be assessed | https://www.biologycorner.com//worksheets/photosynthesis_phenol.html |
23. use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate.

| HS-ESS2-4 | design a model that demonstrates how the Sun’s radiation at different latitudes results in the variety of Biomes on the Earth.  
|           | identify the components of different biomes and make a Venn Diagram of 2 choices. |

Model can be diagram or 3-D and must be presented orally to the class.
Venn Diagram

24. use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity. (global warming, acid rain, and ozone depletion)

| HS-ESS3-6 | choose one of the main environmental impacts of human activity (global warming, acid rain or Ozone depletion) and they will design a lab demonstrating the effects on biotic and abiotic components. |

Lab design should be reasonable, student must run demonstration and explain it to the rest of the class.

25. evaluate solutions for developing and managing the natural resources of the Earth based on cost-benefit ratios and in such a way that promote sustainability for future generations. (renewable and nonrenewable energy).

| HS-ESS3-2 HS-ESS3-3 | choose one aspect of environmental responsibility related to the school and find a way to make it more efficient and measuring that efficiency. |

Students must identify a problem, find a solution and quantify that solution to show it is effective.
Examples: recycling, energy efficient lighting, heat loss during winter, insolation during summer, composting
III. CHEMISTRY – 8 weeks:

Essential Question(s):

a) How can one decipher the configuration and properties of matter?
b) How do substances react to become new substances?

Enduring Understanding(s):

a) The structure of the atom plays an important role in explaining the properties, reactivity, and stability of an atom.
b) The periodic table is a device to understand the properties of elements.
c) The collisions of molecules and the movement of atoms drive chemical reactions.

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<td>The student will be able to:</td>
<td>Students will:</td>
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<tr>
<td>26. differentiate between states of matter, physical and chemical properties, and physical and chemical changes.</td>
<td>HS-PSI.A</td>
<td>● mix two solids and a liquid in a closed container and observe a dramatic series of changes. Determine what interactions are responsible for each observation and if the changes are independent of one another. (This inquiry-based activity is an engaging way to introduce chemical and physical changes while reinforcing that experimentation is not a rigid path, it is a process of discovery.)</td>
<td>Activity results and participation will be assessed for level of understanding.</td>
</tr>
</tbody>
</table>
| 27. | plan and conduct an investigation to gather evidence to observe matter and how it changes between states. | HS-PS1-3 | • **Creation of a Heating Curve** – monitor the temperature as ice transitions from ice to water to vapor and from the data collected generate and then interpret a heating curve of water.  
• calculate the energy values associated with temperature changes or phase changes of a substance.  
• be provided with a set of phase diagrams and asked to interpret them. | **Creation of a Heating Curve Lab** – Purpose, Data, and Conclusion |
| 28. | use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. | HS-PS1-1 | • brainstorm a list of 50 items your supermarket will sell, record this list, and diagram a map showing the locations of all 50 items in your store, making connections to the logical arrangement of elements in the periodic table  
• observe, test (conductivity, acid reactivity, magnetism, metal/nonmetal), record and analyze physical and chemical properties of several | Ability to make connection to Periodic Table arrangement will be assessed  
Lab report will be assessed for accuracy and understanding | Periodicity (Ionization Energy, Atomic Radius, and Electronegativity) Activity – (Flinn) |
<table>
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<tr>
<th>Activity</th>
<th>Key Competencies</th>
<th>Assesses</th>
<th>Resources</th>
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<tr>
<td>Compose a lab report. Plot the trends of the periodic table to visually depict their patterns. Demonstrate the ability to order selected atoms/ions in increasing/decreasing size. Demonstrate the ability to order elements in sequence of increasing/decreasing ionization energy, electronegativity.</td>
<td>Plotted patterns will be assessed for accuracy. Contributions to class discussion, questions responses will be assessed for understanding.</td>
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<tr>
<td>29. compare and contrast pure substances vs. mixtures, heterogeneous vs. homogeneous mixtures, elements vs. compounds, and solvent vs. solute.</td>
<td>use a flow chart to classify various materials as an element, a compound, or a mixture. -first examine the physical properties of salt, sand, iron, and stearic acid. Then use collected data to design and carry out a procedure for separating a mixture of these substances.</td>
<td>Quiz – Classification of Matter. Separation of a Mixture Lab – Purpose, Procedure, Data, and Conclusion.</td>
<td>Bonding Simulation (Molecular Workbench: mw.concord.org)</td>
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<tr>
<td>30. construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states</td>
<td>explore the difference between ionic and covalent bonds through pattern recognition related to</td>
<td>Student responses will be assessed for accuracy and understanding</td>
<td></td>
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</table>
|   | of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties. (acids and bases) | placement of elements in bond on periodic table.  
- observe electron clouds of bonding atoms as properties such as atomic size and electronegativity change in order to understand the difference among ionic, polar covalent, and covalent bonds at the atomic scale, then compose a written description of the electrostatic force between the ions in an ionic bond. | Teacher designed quiz |
|---|---|---|
| 31. develop a model to illustrate that the release or absorption of energy from a chemical reaction results in equilibrium thus proving the law of conservation of mass. | HS-PS1-4  
- explore the nature of chemical equilibrium with two different reversible reactions, and identify the conditions that affect the position of equilibrium.  
- investigate the effect of different stressors on a reversible reaction. | Formal laboratory report rubric  
Investigation data will be assessed for clarity and accuracy | Flinn Scientific ChemptopictM Labs, Vol. 15, Lab 1 “Exploring Equilibrium” |
| 32. apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of a chemical reaction | HS-PS1-5  
concentration of the reacting particles on the rate at which a reaction occurs. | Gather data, and draw written conclusions about the effect of each item on reaction rates. |  
---|---|---
33. develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay. | HS-PS1-8 | - model the relationships between fission, fusion, and radioactive decay in terms of the changes in the composition of the nucleus and the energy released during each process. | Model designs will be assessed for understanding |
IV. PHYSICS – 8 weeks:

Essential Question(s):

a) How can a force be defined and measured and how do these measurements help explain Newton’s 3 Laws of Motion?

b) What are the characteristic properties of a wave and how do the characteristics determine the effects of energy formed on the Electromagnetic Spectrum?

c) What are the different types of energy and what occurs when they change from one form to another?

Enduring Understanding(s):

a) Force is a phenomenon that can be measured by its’ effect and these measurements can be used to calculate the presence of inertia, the amount of force needed to move objects and the net force resulting in the meeting of 2 forces.

b) Each wave of energy can be identified by its’ frequency, length and speed and these properties determine what effect that wave will have as it passes through different mediums. Each wave on the Electromagnetic Spectrum is different because of these defining characteristics and therefore each produces a different result during its’ use.

c) There are many different types of energy all emanating from potential and kinetic energy and as one type of energy transfers itself to a different type of energy, it must follow the constraints of the Law of Conservation of Energy.

### PHYSICS CONTENT OUTLINE

<table>
<thead>
<tr>
<th>Standards</th>
<th>SUGGESTED ACTIVITY</th>
<th>EVALUATION/ASSESSMENT</th>
<th>TEACHER NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS-PS2-2 SEP1-8</td>
<td>Students will: ● learn the different components regarding Force and Motion. They will design a car powered by a balloon to determine the fastest and most accurate vehicle.</td>
<td>Students will be evaluated on how their design was made to produce speed based on a knowledge of forces. They must calculate</td>
<td><a href="http://www.resa.net">www.resa.net</a> (NGSS lesson plans) Wayne, MI Regional educational service agency</td>
</tr>
<tr>
<td>35. analyze data to support the claim that Newton’s 3 Laws of Motion can demonstrate the effect forces have on objects in motion, including the use of simple machines.</td>
<td>HS-PS2-1</td>
<td>● PURPOSE: to design and create a virtual roller coaster and model roller coaster using g-forces and centripetal acceleration and explain why their coaster would be preferred over any other roller coaster. ● using plastic spoons, blocks of wood, rubber bands and marshmallows students will create a catapult and compete for distance.</td>
<td>Students must be able to incorporate Newton's’ 3 laws of motion into their explanation of their design.</td>
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</tr>
<tr>
<td>36. use mathematical representation to support a claim regarding the relationships among frequency, wavelength and speed of waves traveling in various media. (electromagnetic spectrum)</td>
<td>HS-PS4-1</td>
<td>● demonstrate wave types and their characteristics through a variety of activities such as modeling with ropes and coils, activating tuning forks, and interpreting data on seismic waves. ● demonstrate wave interactions including interference, polarization,</td>
<td>Class discussion and quiz on wave properties. Creating a musical instrument and being able to identify how waves are responsible for the music.</td>
</tr>
</tbody>
</table>
| 37. design, build and refine a device that works within given constraints to convert one form of energy into another form of energy and identify each form as the change takes place. | reflection, refraction and resonance within various materials.  
- demonstrate the application of acoustic principles such as in echolocation, musical instruments, noise pollution and sonograms.  
- diagram and explain orally the different wavelengths of the ELECTROMAGNETIC SPECTRUM. Identify 10 real life items that use the waves from the spectrum to perform their activities. | Accurate diagram and choice of 10 objects that rely on waves. | HS-PS3-3 |
<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>38. plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field</td>
<td>convert energy from one form to another through a series of changes as they heat water and use the steam to move a feather.</td>
<td>Students must design their own lab to move the feather and correctly identify the type of energy found at each step of the process.</td>
<td>Can use a hot plate, a bunsen burner or an alcohol burner as the heat source.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students must design their own lab to move the feather and correctly identify the type of energy found at each step of the process.</td>
<td>Can use a hot plate, a bunsen burner or an alcohol burner as the heat source.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Complete worksheets and correctly build and identify the parts of 2 types of electrical circuits.</td>
<td><a href="https://www.swlauriersb.qc.ca/Schools/mccaig/Teachers/dstrina/BOOKLETELEECTRICITYSTUDENT.pdf">https://www.swlauriersb.qc.ca/Schools/mccaig/Teachers/dstrina/BOOKLETELEECTRICITYSTUDENT.pdf</a></td>
</tr>
</tbody>
</table>
and that changing magnetic fields can produce an electric current.

- build a series circuit and a parallel circuit to light a small light bulb.

## BIBLIOGRAPHY

### TEXTBOOKS


### SUPPLEMENTAL TEXTBOOK MATERIALS


RESOURCES
WEBSITES
http://www.pbs.org/wgbh/nova/orchid/classifying.html
http://mw.concord.org
https://lcogt.net/files/flash/hr-diagram/main.html
www.ngss.phenomena.com
http://www.earthsciweek.org/classroom-activities/a-bit-of-engineering
http://www.ei.lehigh.edu/eli/cc/sequence/day15.html
http://www.pbslearningmedia.org/resource/ess05.sci.ess.earthsys.lp_platetectonics/plate-tectonics/
www.myips.org/cms/lib8/.../8123/SkittlesWeatheringandErosionLabActivity.docx
https://www.biologycorner.com//worksheets/photosynthesis_phenol.html
www.resa.net (NGSS lesson plans)
https://www.swlauriersb.qc.ca/Schools/mccag/Teachers/dstrina/BOOKLETELECTRICITYSTUDENT.pdf
APPENDIX A  AUTHENTIC ASSESSMENT
YOU ARE WHAT YOU EAT!  (REALLY)

You are working in a high school cafeteria as nutritionist. (Look up Nutritionist and see what they do and where they work) in your school, you
meet a student who is from your native country but they are just learning English.  Your job is to make sure all the students are eating healthy and
are learning about what good foods can do for their bodies.  You want to teach this new student what foods are healthy and why.

You have access to any foods you would like and you have cooks that are very talented and can cook anything for you.  Your job is to translate a
nutritional diet from your language to English (you may write both languages on your final assignment, but English is the language that will be
graded.)  YOU MAY USE FOODS FROM AMERICA, THE SCHOOL CAFETERIA AND FOODS THAT ARE FROM YOUR NATIVE COUNTRIES, AS LONG AS
THEY ARE NUTRITIOUS AND YOU THINK TEENAGERS WOULD LIKE THEM.  MAKE YOUR MENU INTERESTING AND UNIQUE.

YOU MUST FOLLOW THESE GUIDELINES:

I. Make a list of food that would be healthy and create a breakfast, lunch, snack and dinner menu that a teenager would like and that would
be the most nutritious for their bodies.  Put this information in the form of a MENU.

II. Determine which part of the body each type of food you are using is good for and explain using Biochemistry how the food works in the
body.  Be sure to be specific about cells, organs and organ systems.

III. Put this information in a booklet form and include at least 3 diagrams showing how macromolecules of lipids, carbohydrates, proteins,
vitamins and minerals each play an important role in helping us stay healthy.
IV. Create one of the following in make believe: Facebook Page, Twitter Tweets or an Instagram series to spread the information to other teenagers. How do you think you would present your ideas, teach them about nutrition and what do you think their response would be. Would all teenagers respond the same? Write both parts showing your information and what you think some of the responses would be.

The purpose of this assignment is to show the teacher what you have learned, so the more details you write the more you show your knowledge.

Research Nutritionist and see what they do and where they work.
APPENDIX B NEW JERSEY STUDENT LEARNING STANDARDS

3 - English Language Arts
4 - Mathematics
5 - Science
8 - Technology
9 - 21st Century Life and Careers
APPENDIX C  CURRICULUM MODIFICATIONS & ADAPTATIONS
There is no recipe for adapting general education curriculum to meet each student's needs. Each teacher, each student, each classroom is unique and adaptations are specific to each situation.

Keep in mind that curriculum does not always need to be modified. By providing multi-level instruction you will find that adapting a lesson may not always be necessary. Differentiating instruction and providing multiple ways assess allows more flexibility for students to meet the standards and requirements of the class. At other times, the curriculum can be made more accessible through accommodations. In addition, supports for one student may not necessarily be the same in all situations, e.g., a student who needs full time support from a paraprofessional for math may only need natural supports from peers for English, and no support for art. And, supports should not be determined by the disability label, instead supports should be used when the instructional or social activity warrants the need for assistance. (Fisher and Frey, 2001).

The forms and examples on the following pages provide information about curriculum and types of adaptations that could be considered in developing the appropriate strategy for a particular student. Examples are provided for both elementary and secondary levels.
A Curricular Adaptation and Decision-making Process

This decision-making flowchart can be used to conceptualize the process of selecting and implementing curricular adaptations. It should be used as a tool for a team in determining an individual student’s needs.

1. Identify the student’s individual educational goals and objectives to be emphasized during general education activities

2. Articulate the expectations for the student’s performance in general education activities

3. **Determine what to teach**
   As a team, determine the content of the general education activity, theme or unit study

4. **Determine how to teach**
   As a team, determine if, without modification, the student can actively participate and achieve the same essential outcomes as non-disabled classmates. If the student cannot achieve the same outcomes...

5. **Select of design appropriate adaptations**

| Select instructional arrangement | Select lesson format | Employ student-specific teaching strategies | Select curricular goals specific to | Engineer the physical and social classroom environment | Design modified materials | Select natural supports and supervision arrangements |
A Curricular Adaptation and Decision-making Model

Examine the Structure of the Instruction

1. Can the student actively participate in the lesson without modification? Will the same essential outcome he achieved?
2. Can the student’s participation be increased by changing the instructional arrangement?
   - From traditional arrangements to:
     - Cooperative groups
     - Small groups
     - Peer partners
     - Peer or cross-age tutors
3. Can the student’s participation be increased by changing the lesson format?
   - Interdisciplinary/thematic units
   - Activity-based lessons, games, simulations, role-plays
   - Group investigation or discovery learning
   - Experiential lessons
   - Community-referenced lessons
4. Can the Student’s participation and understanding be increased by changing the delivery of instruction or teaching style?

Examine the Demands and Evaluation Criteria of the Task

5. Will the student need adapted curricular goals?
   - Adjust performance standards
   - Adjust pacing
   - Same content but less complex
   - Similar content with functional/direct applications
   - Adjust the evaluation criteria or system (grading)
   - Adjust management techniques

Examine the Learning Environment

6. Can the changes he made in the classroom environment or lesson location that
Tools for Teachers: Curriculum Modifications & Adaptations

- Social rules
- Lesson location

Examine the Materials for Learning

7. Will different materials be needed to ensure participation?
   - Same content but variation in size, number, format
   - Additional or different materials/devices
   - Materials that allow a different mode of input
   - Materials that allow a different mode of output
   - Materials that reduce the level of abstraction of information

Examine the Support Structure

8. Will personal assistance be needed to ensure participation?
   - From peers or the general education instructor?
   - From the support facilitator’?
   - From therapists’?
   - From paraprofessionals?
   - From others?

Arrange Alternative Activities that Foster Participation and Interaction

9. Will a different activity need to be designed and offered for the student and a small group of peers?
   - In the classroom
   - In other general education environments
   - In community-based environments
Curriculum Adaptations

It is important to correlate adaptations with the IEP. In other words, we are not adapting for adaptations sake but, to meet the student’s needs as identified on an IEP.

**a. Curriculum as is.** This is the type we forget most frequently. We need to constantly be looking at the general education curriculum and asking if the students on IEPs may gain benefit from participating in the curriculum as is. We need to keep in mind that incidental learning does occur. Curriculum as is supports outcomes as identified in standard curriculum.

**b. Different objective within the same activity and curriculum.** The student with an IEP works with all the other students in the classroom participating in the activity when possible but, with a different learning objective from the other students. This is where the principle of partial participation fits. Examples include:

- A student with a short attention span staying on task for 5 minutes.
- Using a switch to activate a communication device to share during a class discussion.
- Expressing one’s thoughts by drawing in a journal instead of writing.
- Holding a book during reading time.
- Understanding the effect World War II has on the present rather than knowing the names and dates of key battles.

**c. Material or environmental adaptations.** The material or environmental changes are utilized so that participation in the general education curriculum by the student with the IEP may occur. Examples include:

- 5 spelling words from the weekly list instead of the standard 20.
- Completing a cooking assignment by following picture directions rather than written directions
- Changing the grouping of the class from large group to small groups (possible with the additional support staff).
- Changing the instructional delivery from lecture to the cooperative learning format
- Using a computer to write an assignment instead of paper and pencil.
- Reading a test to a student.
- Highlighting the important concepts in a textbook.
- Having the student listen to a taped textbook.
d. Providing Physical assistance. Assistance from another person may be needed for a student to participate in a classroom activity. If possible, it is better to use natural supports (peers) as these will be the people always present in the student’s life. If the use of peers is not possible, then either the support teacher, the paraprofessional, the classroom teacher, the classroom aide, or a parent volunteer may provide the assistance. Most peers and staff will need training in the correct way of providing physical assistance. In addition, we need to keep in mind the principle of partial participations.

Examples include:

- Starting a computer for an student with an IEP to use.
- Guiding a hand during handwriting.
- Assisting in activating a switch.
- Completing most of the steps of an activity and having a student with an IEP do the remainder.
- Pushing a student in a wheelchair to the next activity.

e. Alternative/substitute curriculum. This is sometimes referred to as functional curriculum as it usually involves the acquisition of “life skills.” The decision to use alternative/substitute curriculum is a major change and needs to be reflected on the IEP. This decision should be carefully made after weighing all of the pros and cons of using an alternative curriculum. The alternative curriculum may or may not take place in the general education classroom.

Examples include:

- Community-based instruction (which all students may benefit from!)
- Learning job skills in the school cafeteria.
- Learning how to use a communication device.
- Doing laundry for the athletic department.
- Learning cooking/grooming skills at the home.

Overlap does occur among the five types of curriculum adaptations.
## Nine Types of Adaptions

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input</strong></td>
<td>Adapt the way instruction is delivered to the learner.</td>
</tr>
<tr>
<td></td>
<td><em>For example:</em> Use different visual aids; plan more concrete examples;</td>
</tr>
<tr>
<td></td>
<td>provide hands-on activities; place students in cooperative groups.</td>
</tr>
<tr>
<td><strong>Output</strong></td>
<td>Adapt how the learner can respond to instruction.</td>
</tr>
<tr>
<td></td>
<td><em>For example:</em> Allow a verbal vs. written response; use a communication</td>
</tr>
<tr>
<td></td>
<td>book for students; allow students to show knowledge with hands-on materials</td>
</tr>
<tr>
<td><strong>Time</strong></td>
<td>Adapt the time allotted and allowed for learning, task completion or testing.</td>
</tr>
<tr>
<td></td>
<td><em>For example:</em> Individualize a timeline for completing a task; pace</td>
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<tr>
<td></td>
<td>learning differently (increase or decrease) for some learners.</td>
</tr>
<tr>
<td><strong>Difficulty</strong></td>
<td>Adapt the skill level, problem type, or the rules on how the learner may</td>
</tr>
<tr>
<td></td>
<td>approach the work.</td>
</tr>
<tr>
<td></td>
<td><em>For example:</em> Allow a calculator for math problems; simplify task</td>
</tr>
<tr>
<td></td>
<td>directions; change rules to accommodate learner needs.</td>
</tr>
<tr>
<td><strong>Level of Support</strong></td>
<td>Increase the amount of personal assistance with specific learner.</td>
</tr>
<tr>
<td></td>
<td><em>For example:</em> Assign peer buddies, teaching assistants, peer tutors or</td>
</tr>
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<td></td>
<td>cross-age tutors.</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>Adapt the number of items that the learner is expected to learn or compete.</td>
</tr>
<tr>
<td></td>
<td><em>For example:</em> Reduce the number of social studies terms a learner must</td>
</tr>
<tr>
<td></td>
<td>learn at any one time.</td>
</tr>
<tr>
<td><strong>Degree of Participation</strong></td>
<td>Adapt the extent to which a learner is actively involved in the task.</td>
</tr>
<tr>
<td><strong>Alternate Goals</strong></td>
<td>Adapt the goals or outcome expectations while using the same materials.</td>
</tr>
<tr>
<td><strong>Substitute Curriculum</strong></td>
<td>Provide the different instruction and materials to meet a learner's</td>
</tr>
<tr>
<td></td>
<td>individual goals.</td>
</tr>
</tbody>
</table>
Adaptations

ADAPTATIONS

Curricular
Adapt what is taught

Supplementary
Add social, communication, study or processing skills to general curriculum

Simplified
Change level of difficulty or include fewer objectives

Alternative
teach functional skills plus embedded social, communication and motor skills

Instructional stimulus or input
Difficulty/amount Modality Format/materials

Student response or output
Difficulty/amount Modality Format/materials

Ecological
Adapt the setting-where, when and with whom

When Adapt the place

Where Adapt the schedule

Who Adapt staffing, grouping

Stages of Adaptations

Stage 1 General Adaptations
Blueprints or formats for adapting predictable activities and routines

Stage 2 Specific Adaptations
Time-limited adaptations for a particular lesson, activity or unit
Creating Ways to Adapt Familiar Lessons - Elementary

1. Select the subject area (and grade level) to be taught:
   reading math science social studies writing music health P.E. art
   Grade Level: ......................

2. Select the lesson topic to be taught (on one day):

3. Briefly identify the *curricular* goal for most learners: By the end of this class, most students will know
   .................................................................................................................................

4. Briefly identify the *instructional* plan for most learners: As teacher, I will ........................................
   .................................................................................................................................

5. Identify the name(s) of the learner(s) who will need adaptations in the curriculum or instructional plan:
   .................................................................................................................................

6. Now use “Nine Types of Adaptations” as a means of thinking about some of the ways you could adapt what
   or how you teach to accommodate this learner in the classroom for this lesson.

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
<th>Time</th>
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</thead>
<tbody>
<tr>
<td>Difficulty</td>
<td>Level of Support</td>
<td>Size</td>
</tr>
</tbody>
</table>
Creating Ways to Adapt Familiar Lessons - Elementary

1. Select the subject area (and grade level) to be taught:
   - reading  
   - math  
   - science  
   - social studies  
   - writing  
   - music  
   - health  
   - P.E.  
   - art

   Grade Level: ......4

2. Select the lesson topic to be taught (on one day): Vocabulary comprehension

3. Briefly identify the curricular goal for most learners: By the end of this class, most students will know the meaning of new vocabulary words from their story.

4. Briefly identify the instructional plan for most learners: As teacher, I will ask students to complete a matching activity in which they match words and definitions on paper. The students will also choose one word and write a sentence using the word on the bottom of their paper.

5. Identify the name(s) of the learner(s) who will need adaptations in the curriculum or instructional plan: Kim

6. Now use “Nine Types of Adaptations” as a means of thinking about some of the ways you could adapt what or how you teach to accommodate this learner in the classroom for this lesson.

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
<th>Time</th>
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</thead>
<tbody>
<tr>
<td>Place students in cooperative groups and divide the task between group members. Each member teaches their vocabulary work to team members.</td>
<td>Allow the student to record all or part of the assignment on tape.</td>
<td>Ask the student to complete the assignment at home and return it the next day.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Difficulty</th>
<th>Level of Support</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select different vocabulary words for the student to learn; words that are less difficult or in some cases more difficult.</td>
<td>Ask a classmate, peer tutor or teaching assistant to assist in completing the assignment.</td>
<td>Select fewer (or more) words for the student to learn, but leave the assignment the same as for other students.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Degree of Participation</th>
<th>Alternate Goal</th>
<th>Substitute Curriculum</th>
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</table>
Creating Ways to Adapt Familiar Lessons - Secondary

1. Select the subject area (and grade level) to be taught:
   math    science    history    literature    business    P.E.    fine arts    health
   Grade Level: ..........................

2. Select the lesson topic to be taught (on one day):

3. Briefly identify the *curricular* goal for most learners: By the end of this class, most students will know
   .................................................................................................................................
.................................................................................................................................

4. Briefly identify the *instructional* plan for most learners: As teacher, I will ..........................................
   .................................................................................................................................
.................................................................................................................................

5. Identify the name(s) of the learner(s) who will need adaptations in the curriculum or instructional plan:
   .................................................................................................................................

6. Now use "Nine Types of Adaptations" as a means of thinking about some of the ways you could adapt what
   or how you teach to accommodate this learner in the classroom for this lesson.

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty</td>
<td>Level of Support</td>
<td>Size</td>
</tr>
</tbody>
</table>
## Creating Ways to Adapt Familiar Lessons - Secondary

1. Select the subject area (and grade level) to be taught:
   - math
   - science
   - history
   - literature
   - business
   - P.E.
   - fine arts
   - health

   Grade Level: 4th

2. Select the lesson topic to be taught (on one day): **Concept comprehension**

3. Briefly identify the **curricular** goal for most learners: By the end of this class, most students will be able to define and explain the relevance of five concepts from their text chapter.

4. Briefly identify the **instructional** plan for most learners: As teacher, I will ask the students to read the chapter, identify five key concepts and write a short paragraph describing each concept they have chosen.

5. Identify the name(s) of the learner(s) who will need adaptations in the curriculum or instructional plan:
   - John

6. Now use “Nine Types of Adaptations” as a means of thinking about some of the ways you could adapt what or how you teach to accommodate this learner in the classroom for this lesson.

### Input
- Provide a review of the chapter prior to having the student complete the written work.

### Output
- Allow the student to use a tape recorder to dictate the assignment instead of having to write the answers.
- Allow the student an extra day to complete the task either in study hall or at home.

### Difficulty
- Identify the key concepts for the student but keep the remainder of the assignment the same.

### Level of Support
- Place the students in cooperative groups to complete this assignment. Group members can assist the student with reading or writing.

### Size
- Select fewer or more concepts for the student to learn, but leave the assignment the same as for other students.
## Thematic Lesson Plan

<table>
<thead>
<tr>
<th>School Name</th>
<th>Class</th>
<th>Unit</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td></td>
</tr>
<tr>
<td>Parent/Guardian</td>
<td>Phone</td>
</tr>
<tr>
<td>Classroom Teacher</td>
<td></td>
</tr>
<tr>
<td>Inclusion Support Teacher</td>
<td></td>
</tr>
</tbody>
</table>

**Major standards, objectives and expectations for the unit**

**Materials, books, media, worksheets, software, etc.**

**Instructional arrangements. Time and opportunities for large group, small group, core group, learning centers, individual activities, non-classroom instruction.**

**Projects, supplemental activities, and homework**

**Items requiring accommodations and/or modifications**
**Thematic Lesson Plan**

**School Name:** Palm View Elementary  
**Class:** Social Studies  
**Unit:** More Alike Than Different

**Student Name:** Corey Santos  
**Age:** 8  
**Grade:** 2  
**Parent/Guardian:** Ms. Anita Santos  
**Classroom Teacher:** Mr. Sean Garrett  
**Inclusion Support Teacher:** Ms. Tangela Hunter  
**Room:** 21

**Major standards, objectives and expectations for the unit:**
1. Understand why personal and civic responsibility are important.  
2. Understand the cultural traditions and contributions of various societies and groups.  
3. Display appreciation of diversity in our society, including cultural, gender, and ability.

**Materials, books, media, worksheets, software, etc.:**
- Children’s books on topic
- “Chocolates” posterboard (Activities for a Diverse Classroom)
- Family interview questions
- Slides and overheads

**Items requiring accommodations and/or modifications:**
- Some books on tape
- Highlighted posterboard
- Fewer questions - done on audio tape

**Instructional arrangements, time and opportunities for large group, small group, core group, learning centers, individual activities, non-classroom instruction:**
Does it change day to day? Explain:
- Large group for read aloud
- Interactive lessons using various media
- Cooperative groups to complete Hyperstudio project
- Small group for chocolate activity

**Items requiring accommodations and/or modifications:**
- Modify if necessary
- Paraeducator assistance with computer

**Projects, supplemental activities, and homework:**
- “Box of Chocolates” activity (Activities for a Diverse Classroom)
- Hyperstudio group project: Are We More Alike Than Different?
- Homework – Family interview

**Items requiring accommodations and/or modifications:**
- Highlight posterboard of key points
- Select task items at student’s instructional level
- Provide word bank or magazine pictures

**Assessment(s) and final products:** Summarize actual student performance (list examples as appropriate) on the reverse:
- Completion of group activities
- Written reflections

**Items requiring accommodations and/or modifications:**
- Assess on use of language
## Thematic Lesson Plan

### School Name
Palm View Elementary

### Class Language Arts

### Unit
One Book, Two Book, Red Book, Blue Book: Author Study of Dr. Seuss

### Student Name
Corey Santos

### Age
8

### Grade
2

### Parent/Guardian
Ms. Anita Santos Phone: 555-5432

### Classroom Teacher
Mr. Sean Garrett

### Inclusion Support Teacher
Ms. Tangela Hunter

### Room
21

### Major standards, objectives, and expectations for the unit
1. Increase comprehension by rereading, retelling, and discussion.
2. Determine the main idea in nonprint communication.
3. Write, question, and make observations about familiar topics, stories, and new experiences.
4. Recognize personal preferences in literature.

### Materials, books, media, worksheets, software, etc.
1. Dr. Seuss books
2. Formatted reflective journal
3. Summary sheet to be completed on each book
4. Family response journal (homework)
5. Video versions of Dr. Seuss books
6. Computer ClarisWorks program
7. Biographical source materials

### Items requiring accommodations and/or modifications
2. Pictures available for use in journal
6. Picture vocabulary writing program
7. Taped readings of source material

### Instructional arrangements
- Time and opportunities for large group, small group, co-op group, learning centers, individual activities, non-classroom instruction
- Does it change day to day? Explain:
1. Large group for K-W-L chart
2. Large group read aloud
3. Read-write-pair-share
4. Individual journal writing
5. Partner research in media center
6. Concept web of themes
7. Small group editing

### Items requiring accommodations and/or modifications
1. Preview for prior knowledge
3. Picture schedule of activity
4. Design with sentence frames
5. Create list of materials to locate
6. Pictures for web
7. Picture checklist of process

### Projects, supplemental activities, and homework
1. Read 2 books, parent and child write in response journal (homework)
2. Choose 4 books from list (one must be a video), analyze for common themes
3. Analyze for a kindergarten, then read aloud to him or her

### Items requiring accommodations and/or modifications
1. Parent tips for activity
2. Assistance in selecting books
SAMPLE FORM (Secondary)

### Academic Unit Lesson Plan

<table>
<thead>
<tr>
<th>School Name</th>
<th>Class</th>
<th>Unit</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Student Name:</th>
<th>Class Schedule:</th>
<th>Room:</th>
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<tbody>
<tr>
<td>Age:</td>
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<td>Advocate Teacher:</td>
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<td></td>
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<tr>
<td>Classroom Teacher:</td>
<td></td>
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</tr>
</tbody>
</table>

**Major standards, objectives and expectations for the unit**

**Materials, books, media, worksheets, software, etc.**

**Items requiring adaptations and/or modifications**

**Instructional arrangements. Time and opportunities for large group, small group, cooperative learning centers, individual activities, non-classroom instruction. Does it change day to day? Explain.**

**Projects, supplemental activities, and homework**

**Items requiring adaptations and/or modifications**

**Assessment(s) and final products. Summarize actual student performance. (Attach examples as appropriate) on the reverse.**

**Items requiring adaptations and/or modifications**
# Academic Unit Lesson Plan

**School Name:** Central

**Class:** Biology

**Unit:** The Cell

**Student Name:** Kelley Glass

- **Age:** 15
- **Grade:** 10
- **Parent/Guardian:** Ms. Rebecca Glass, Phone: 555-1234
- **Advocate Teacher:** Mr. David Porter
- **Classroom Teacher:** Ms. Janita Foucault

**Class Schedule:**

<table>
<thead>
<tr>
<th>Block</th>
<th>Subject</th>
<th>Room</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Math</td>
<td>22</td>
</tr>
<tr>
<td>2</td>
<td>English</td>
<td>123</td>
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<tr>
<td>3</td>
<td>Biology</td>
<td>104</td>
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<tr>
<td>4</td>
<td>World Geography</td>
<td>150</td>
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<tr>
<td>5</td>
<td>3-D Art</td>
<td>17</td>
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**Room:**

<table>
<thead>
<tr>
<th>Block</th>
<th>Subject</th>
<th>Room</th>
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</thead>
<tbody>
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<td>World Geography</td>
<td>150</td>
</tr>
<tr>
<td>5</td>
<td>3-D Art</td>
<td>17</td>
</tr>
</tbody>
</table>

**Major standards, objectives and expectations for the unit**

1. Students will understand the structure and function of the cell.
2. Students will identify the parts of the cell.
3. Students will identify how cells are organized in multi-cellular organisms.

**Materials, books, media, worksheets, software, etc.:**

1. **Book:** Modern Biology
2. Educational videotapes related to chapter contents
3. Art supplies for Cell projects
4. Chapter worksheets
5. Primary source: Science magazine article on the cell
6. Local biology professor to discuss current research on cells

**Items requiring adaptations and/or modifications:**

1. Order textbook from publisher on cassette.
2. Modify worksheets to emphasize key points of chapters.
3. Record science magazine article on audio tape.

**Instructual arrangements:**

- Large group instruction with overhead transparencies
- Small groups to complete labs, worksheets, mind map, and chapter review
- Two cell labs will be completed in partners (Onion skin & Jell-O)
- Individual time to complete illustrated vocabulary

**Instructual arrangements:**

- Copy of teacher's overhead transparencies given to students
- Peer takes notes and highlights key points: student types on to computer for both
- Use of "Read, write, pair, share" strategy (see description on page 12) as chapter review

**Projects, supplemental activities, and homework:**

1. **Homework:** Complete vocabulary, bring in Jell-O cell food items
2. "Design a cell" and "Parts of the cell" group projects & presentations
3. Write-up for each completed lab with illustrations

**Projects, supplemental activities, and homework:**

1. Magazine pictures to illustrate the meaning of vocabulary words
2. Lab write-up sheet completed with peer using computer graphics & illustrations to supplement write-up
## Tools for Teachers

### Curriculum Modifications & Adaptations

### Sample Form

#### Academic Unit Lesson Plan

<table>
<thead>
<tr>
<th>School Name:</th>
<th>Central</th>
<th>Class:</th>
<th>Sophomore</th>
<th>English</th>
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<tbody>
<tr>
<td><strong>Unit:</strong></td>
<td>Of Mice and Men</td>
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<table>
<thead>
<tr>
<th>Student Name:</th>
<th>Kelley Glass</th>
<th>Room:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age:</td>
<td>15</td>
<td>Block 1: Math</td>
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<tr>
<td>Grade:</td>
<td>10th</td>
<td>Block 2: English</td>
</tr>
<tr>
<td>Parent/Guardian:</td>
<td>Ms. Rebecca Glass</td>
<td>Block 3: Biology</td>
</tr>
<tr>
<td>Advocate Teacher:</td>
<td>Mr. David Porter</td>
<td>Block 4: World Geography</td>
</tr>
<tr>
<td>Classroom Teacher:</td>
<td>Ms. Sarah Moore</td>
<td>Block 5: 3-D Art</td>
</tr>
</tbody>
</table>

#### Major standards, objectives and expectations for the unit

1. Students will evaluate their beliefs related to prejudice and diversity.
2. Students will learn about the plight of the migrant farm worker.
3. Students will learn about the times during the Depression and the time period in which Steinbeck did his writing.

#### Materials, books, media, worksheets, software, etc.

1. Copy of the short story "The Circuit" by Francisco Lemus
2. Copy of the novel Of Mice and Men by John Steinbeck
3. Workbooks for each of the six chapters
4. Video of the book Of Mice and Men
5. Video camera
6. "I Am" poem to use with "The Circuit"
7. "Open Mind" worksheet (see activity under Projects)
8. Circle of friends worksheet (see activity under Projects)

#### Items requiring adaptations and/or modifications

1. Audiovisual receiver of the short story "The Circuit"
2. Audiovisual receiver of the novel Of Mice and Men
3. Reformat chapter summary worksheets and comprehension questions using outlines, pictures, or visual formats

#### Instructional arrangements, time and opportunities for large group, small group, or group learning centers, individual activities, non-classroom instruction. Does it change day to day? Explain:

1. Large group instruction for introduction of the time period, Steinbeck, the Depression and migrant farm workers, use of opening question in Socratic dialogue format: Am I my brother's keeper?
2. Small groups for "I Am" poem for "The Circuit"
3. Student pairs to complete worksheets
4. Large group presentation for trial of George (with every student having a part in the trial)

#### Projects, supplemental activities, and homework

1. Class completes chapter worksheets
2. "I Am" poem on short story "The Circuit". Students complete outline of poem format that includes descriptive phrases, parallel structure within lines, and contrasting thinking
3. Simulated trial of George for killing Lennie
4. Homework: role in trial, some reading of novel at home
5. Illustration of secondary work
6. "Open Mind" activity: students fill in scenes from the perspective of...