

Black Horse Pike Regional School District Curriculum Template

Life Skills Science Curriculum – Physical Systems

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Course Number: 154000

Unit 1: Lab Skills

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<p>Course/Unit Title: Life Skills Science - Physical Systems /Lab Skills</p>	<p>Unit Summary: Performing experiments in a laboratory setting In this unit students will be introduced to the requirements of a laboratory course. They will learn the safety requirements of a laboratory course, as well as demonstrate safe utilization of the basic equipment of the course. They will perform varying laboratory experiments and learn how to extrapolate lab data to be written in a lab report. Throughout their laboratory investigations students will be able to differentiate between qualitative and quantitative data. A strong base in the laboratory skills and techniques will be essential for successful completion of this course. Skills will be revisited frequently throughout the year.</p>
<p>Grade Level(s): 9 -12</p>	<p>Enduring Understanding(s):</p> <ol style="list-style-type: none"> 1. In order for students to successfully complete this course they must understand and demonstrate the safety requirements of a laboratory course through successfully performing different laboratory activities. 2. There are many different types of lab equipment found in every classroom, with specific methods necessary for proper use of said equipment. 3. In order for scientists to communicate their findings globally they need to extrapolate and interpret laboratory data to be accurately presented in a laboratory report within the accepted format. 4. Data can either be presented in numbers or words and there are specific situations where each is appropriate.
<p>Essential Question(s):</p> <ol style="list-style-type: none"> 1. What rules must be followed in order for a laboratory activity to be performed safely? 2. Where is all of the lab safety equipment kept, and how is it used? 3. What steps must be followed in order for you to successfully complete a laboratory activity? 4. How can you effectively communicate results of a laboratory activity with other scientists? 	<p>Enduring Understanding(s):</p> <ol style="list-style-type: none"> 1. In order for students to successfully complete this course they must understand and demonstrate the safety requirements of a laboratory course through successfully performing different laboratory activities. 2. There are many different types of lab equipment found in every classroom, with specific methods necessary for proper use of said equipment. 3. In order for scientists to communicate their findings globally they need to extrapolate and interpret laboratory data to be accurately presented in a laboratory report within the accepted format. 4. Data can either be presented in numbers or words and there are specific situations where each is appropriate.

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

*****NOTE: students who are enrolled in this course have significant cognitive disabilities, and are assessed and taught based on what they are capable of learning. Each student has an IEP and is provided a tailored path to learn new academic skills. Therefore, not all students will be able to achieve or learn each target stated below. There is a balance between challenging the student**

and attainability. As a result, all students will be assessed and placed into the appropriate learning target below and progress accordingly.

<p>Learning Target: Students will be able to:</p> <ol style="list-style-type: none">1. State the safety requirement of a laboratory course.2. Demonstrate safe utilization of the basic laboratory equipment.3. Name the major sections of a laboratory report and describe the appropriate information to be included in each.]4. Differentiate between qualitative and quantitative data sets.	<p>NJCCCS or CCS</p> <ol style="list-style-type: none">1. Science: 5.1.12.D.32. Science: 5.1.12.D.33. Science: 5.1.12.A.24. [Science: 5.1.12.A.3]
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Inter-Disciplinary Connections:

Experience of laboratory skills to be used in real life situations at home and in the work place, including problem solving skills .

Students will engage with the following text:

1. *Physical Science*, 1999, Glencoe

Minimal use of text supplemented by teacher made materials, and web based information and videos.

On a daily basis, students will enrich their reading, writing, and interpretation skills through the use of Cornell notes supplied by the teacher.

Accommodations and/or modifications will be made on a case by case basis in accordance with individual student needs. They may include but not be limited to: read aloud directions to help students understand the chapter/unit, read aloud specific paragraphs to assist auditory learners, read captions in the book that describe concepts being discussed.

Students will write:

Students will write and fill in the blanks in the notes provided, they will also summarize the lesson, do warm-ups, short answer responses and open-ended responses.

Accommodations and/or modifications will be made on a case by case basis in accordance with individual student needs.

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills.

The following instructional strategies are utilized on an as needed basis throughout the year:

1. Direct Instruction

2. Cornell Note-Taking, guided
3. Scaffolding
4. Project Based Learning
5. Peer Based Learning/Review
6. Student presentations with peer review in addition to teacher assessment
7. Modeling
8. Drawing
9. Guided Discussion with analysis/prediction/defense of conclusions
10. Directed Reading
11. Guided Notes
12. Outlining
13. Technology: Microsoft Excel, PowerPoint, Word, SmartBoard, LCD Projectors
14. Media Resources: [Gizmos](#), Discovery Streaming, commercial video resources, YouTube, course websites (i.e. OnCourse and eBoards)

Once per quarter students are given a topical presentation assignment to research, present, and review.]

PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS.
IDENTIFY BLOOM'S LEVELS.



Formative Assessments:

The effectiveness of the instructional program will be based on teacher observations, students doing quality of work together, questioning strategies, self and peer assessment, student record keeping, quizzes, warm ups, class discussion, individual conferences, journal writing and performance tasks.]

Accommodations/Modifications:

- Use multimedia equipment (iPads, laptops, etc....) to lessen reliance on text.
- Incorporate experiential and community based activities related to lesson theme.
- Include "hands-on" activities (games, projects) within lectures/activities.
- Emphasize sensory experiences reflecting student's learning style: auditory, multisensory, visual, physical movement/kinesthetic.
- Use graphic organizers.
- Complete assignments through oral reports, tapes, projects or other means to lessen amount of writing.
- Extend time limits for tests and assignments.

- Read test items that do not assess reading skills to students.
- Use models, manipulatives and other concrete materials to demonstrate concepts and solve problems.
- Have student repeat or rephrase assignments.
- Check for understanding frequently
- Provide multiple practice sessions to reinforce a new skill/concept.
- Provide guided notes/handouts.

Summative Assessments:

State assessments, hands-on tests and written tests

Accommodations/Modifications:

- Use Pass/Fail Option.
- Provide checklists for solving problems.
- Allow students to use calculator when applicable.
- Read test items that do not assess reading skills to students.
- Extend time limits.
- Break test sections into smaller chunks

Performance Assessments:

Projects, presentations, display of student work.

Accommodations/Modifications:

- Complete assignments through oral reports, tapes, projects or other means to lessen amount of writing.
- Allow students extra time to complete projects.
- Provide students with an example of project for reference.
- Provide a clear rubric for students to understand exactly what is expected.

Black Horse Pike Regional School District Curriculum Template

Life Skills Science Curriculum – Physical Systems

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Unit 2: Measurement

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<p>Course/Unit Title: Life Skills Sciences - Physical Systems/Measurement</p>	<p>Unit Summary: Collecting Data and Communicating Results In this unit students will be introduced to the metric system and its units to convert from one unit in the metric system to another. They will also be able to determine the length of an object using the appropriate precision. Students will be using both calculators and mental math to solve problems. Dimensional analysis will be used throughout the year in many different types of problems including by not limited to density, speed, acceleration and force.</p> <p>By the end of this unit students will be able to measure and calculate the volume of regularly shaped solids. By the end of this unit students will be able to measure and calculate the density of solids, liquids, and gases, and describe why an object sinks or floats in air or water. This knowledge of characteristic properties of matter will be used in upcoming units to help classify matter into more specific categories.</p>
<p>Grade Level(s): 9 -12</p>	
<p>Essential Question(s):</p> <ol style="list-style-type: none"> 1. How do scientists effectively communicate data on a global scale? 2. How do you convert from metric to non-metric units? 3. How can graphs be used to show scientific data? 4. How do you determine the volume of regularly and irregularly shaped objects? 5. How do you calculate density? 	<p>Enduring Understanding(s):</p> <ol style="list-style-type: none"> 1. In order for scientists to be able to accurately communicate data globally they have to use a universal mathematical language. 2. In order for experiments to be successful measurements must be taken accurately and with the appropriate precision. 3. Graphs are a clear and efficient way of communicating data globally 4. a. There are formulas that can be used to accurately measure and calculate the volume of regularly shaped solids. 4. b. Water displacement can be used to measure and calculate the volume of irregularly shaped solids. 5. Density is a characteristic property that can be used to identify unknown substances.

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

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After each target, identify the NJCCCS or Common Core Standards that are applicable

<u>Learning Target:</u> Students will be able to:	<u>NJCCCS or CCS</u>
1. [Convert from one metric unit to another using dimensional analysis]	1. Science: 5.1.12.A.1
2. [Determine the length of an object using the appropriate precision.]	2. Science: 5.1.12.A.1
3. [Create and interpret graphs.]	3. Science: 5.1.12.A.1
4. [Measure and calculate the volume of a regularly shaped solid by multiplying length, width, and height.]	4. Science: 5.1.12.B.2
5. [Measure and calculate the volume of irregularly shaped objects by water displacement.]	5. Science: 5.1.12.A.1
6. [Measure and calculate the density of solids, liquids, and gases.]	6. Science: 5.1.12.A.a

Inter-Disciplinary Connections:

[Experience of laboratory skills to be used in real life situations at home and in the work place, including problem solving skills]

Students will engage with the following text:

1. *Physical Science*, 1999, Glencoe
 Minimal use of text supplemented by teacher made materials, and web based information and videos.

On a daily basis, students will enrich their reading, writing, and interpretation skills through the use of Cornell notes supplied by the teacher.

Accommodations and/or modifications will be made on a case by case basis in accordance with individual student needs. They may include but not be limited to: read aloud directions to help students understand the chapter/unit, read aloud specific paragraphs to assist auditory learners, read captions in the book that describe concepts being discussed. |

Students will write:

In addition to the usual warm ups, closing activities, lab reports, example(s) of student activities requiring them to write are as follows:

1. Personal reflections to discussions
2. Writing Prompts used as introductions to current subject matter
3. Daily Summaries to Cornell Note-Taking |

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills.

The following instructional strategies are utilized on an as needed basis throughout the year:

1. Direct Instruction
2. Cornell Note-Taking, guided
3. Scaffolding
4. Project Based Learning
5. Peer Based Learning/Review
6. Student presentations with peer review in addition to teacher assessment
7. Modeling
8. Drawing
9. Guided Discussion with analysis/prediction/defense of conclusions
10. Directed Reading
11. Guided Notes
12. Outlining
13. Technology: Microsoft Excel, PowerPoint, Word, SmartBoard, LCD Projectors
14. Media Resources: [Gizmos](#), Discovery Streaming, commercial video resources, YouTube, course websites (i.e. OnCourse and eBoards)

Once per quarter students are given a topical presentation assignment to research, present, and review |

PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR



**UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS.
IDENTIFY BLOOM'S LEVELS.**

Formative Assessments:

The effectiveness of the instructional program will be based on teacher observations, students doing quality of work together, questioning strategies, self and peer assessment, student record keeping, quizzes, warm ups, class discussion, individual conferences, journal writing and performance tasks.

Accommodations/Modifications:

- Use multimedia equipment (iPads, laptops, etc....) to lessen reliance on text.
- Incorporate experiential and community based activities related to lesson theme.
- Include "hands-on" activities (games, projects) within lectures/activities.
- Emphasize sensory experiences reflecting student's learning style: auditory, multisensory, visual, physical movement/kinesthetic.
- Use graphic organizers.
- Complete assignments through oral reports, tapes, projects or other means to lessen amount of writing.
- Extend time limits for tests and assignments.
- Read test items that do not assess reading skills to students.
- Use models, manipulatives and other concrete materials to demonstrate concepts and solve problems.
- Have student repeat or rephrase assignments.
- Check for understanding frequently
- Provide multiple practice sessions to reinforce a new skill/concept.
- Provide guided notes/handouts.

Summative Assessments:

Hands-on tests and written tests
Measurement of every day items: length, weight.

Accommodations/Modifications:

- Use Pass/Fail Option.
- Provide checklists for solving problems.
- Allow students to use calculator when applicable.
- Read test items that do not assess reading skills to students.
- Extend time limits.
- Break test sections into smaller chunks

Performance Assessments:

Projects, presentations, display of student work.

Accommodations/Modifications:

- Complete assignments through oral reports, tapes, projects or other means to lessen amount of writing.
- Allow students extra time to complete projects.
- Provide students with an example of project for reference.
- Provide a clear rubric for students to understand exactly what is expected.

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Life Skills Science Curriculum – Physical Systems

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Unit 3: Composition of Matter

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Life Skills Science - Physical Systems /Composition of Matter	Unit Summary: Composition of Matter This unit focuses on the general properties of matter such as density, boiling point, melting point, and solubility. By the end of this unit students will be able to accurately classify substances based on their properties.
Grade Level(s): 9 -12	
Essential Question(s): <ol style="list-style-type: none"> 1. What determines the classification and behavior of various forms of matter? 2. How can you determine if something is a pure substance or a mixture? 3. How can you determine if something is a homogeneous or heterogeneous mixture? 4. What factors affect solubility? 5. What are characteristic properties and how are they used? 	Enduring Understanding(s): <ol style="list-style-type: none"> 1. Every substance can be classified into different categories based on their composition and behavior. 2. Substances can either be pure substances or mixtures. 3. Mixtures can either be heterogeneous and homogeneous mixtures. 4. Certain changes in environment can change the solubility of different substances. 5. Unknown substances can be identified using characteristic properties. 6. Differentiate between chemical and physical properties and changes. 7. Interpret chemical formulas 8. Relate volume and density to states of matter and the kinetic theory. 9. Describe why an object sinks or floats in water or air.

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

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After each target, identify the NJCCCS or Common Core Standards that are applicable

<u>Learning Target:</u> Students will be able to:	<u>NJCCCS or CCS</u>
<ol style="list-style-type: none"> 1. Determine the melting, freezing, boiling, and condensation points on a line graph. 2. Calculate solubility of substances using solubility formula and interpreting solubility graphs. 3. Apply the kinetic theory to explain the differences in solids liquids and gases. 4. Distinguish between heterogeneous and homogenous mixtures. 5. Distinguish between elements and compounds. 6. Identify acids and bases based on pH value. - move to after chemical reactions, possible independent unit with solutes and solvents or eliminate 	<p>1,2: Science: 5.2.12.B</p> <p>Other content areas:</p> <p>a) 6.1.12.C.12, 6.1.12.C16, 6.2.12.C.5, 9.1.12.A.1, 9.1.12.B, 9.4O, RI.9-10 or RI.11-12, RST.9-10 or RST.11-12, WHST.9-10 or WHST.11-12</p> <p>3,4,5: Science: 5.2.12.C</p> <p>Other content areas:</p> <p>a) 6.1.12.C.12, 6.1.12.C16, 6.2.12.C.5, 7.1.IL.A.7, 9.1.12.A.1, 9.1.12.B, 9.4O, RI.9-10 or RI.11-12, RST.9-10 or RST.11-12, SL.9-10 or SL.11-12, W.9-10 or W.11-12, WHST.9-10 or WHST.11-12</p> <p>6: Science: 5.2.12.A</p> <p>Other content areas:</p> <p>a) 6.1.12.C.12, 6.1.12.C16, 6.2.12.C.5, 7.1.IL.A.7, 9.1.12.A.1, 9.1.12.B, 9.4O, RI.9-10 or RI.11-12, RST.9-10 or RST.11-12, WHST.9-10 or WHST.11-12</p>

Inter-Disciplinary Connections:

Experience of laboratory skills to be used in real life situations at home and in the work place, including problem solving skills .

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1. *Physical Science*, 1999, Glencoe
 Minimal use of text supplemented by teacher made materials, and web based information and videos.

On a daily basis, students will enrich their reading, writing, and interpretation skills through the use of Cornell notes supplied by the teacher.

Accommodations and/or modifications will be made on a case by case basis in accordance with individual student needs. They may include but not be limited to: read aloud directions to help students understand the chapter/unit, read aloud specific paragraphs to assist auditory learners, read captions in the book that describe concepts being discussed.

Students will write:

Students will write and fill in the blanks in the notes provided, they will also summarize the lesson, do warm-ups, short answer responses and open-ended responses.

Accommodations and/or modifications will be made on a case by case basis in accordance with individual student needs.

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills.

The following instructional strategies are utilized on an as needed basis throughout the year:

- 15. Direct Instruction
- 16. Cornell Note-Taking, guided
- 17. Scaffolding
- 18. Project Based Learning
- 19. Peer Based Learning/Review
- 20. Student presentations with peer review in addition to teacher assessment
- 21. Modeling
- 22. Drawing
- 23. Guided Discussion with analysis/prediction/defense of conclusions
- 24. Directed Reading
- 25. Guided Notes
- 26. Outlining
- 27. Technology: Microsoft Excel, PowerPoint, Word, SmartBoard, LCD Projectors
- 28. Media Resources: [Gizmos](#), Discovery Streaming, commercial video resources, YouTube, course websites (i.e. OnCourse and eBoards)

Once per quarter students are given a topical presentation assignment to research, present, and review.]

PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS.

IDENTIFY BLOOM'S LEVELS.



Formative Assessments:

The effectiveness of the instructional program will be based on teacher observations, students doing quality of work together, questioning strategies, self and peer assessment, student record keeping, quizzes, warm ups, class discussion, individual conferences, journal writing and performance tasks.

Accommodations/Modifications:

- Use multimedia equipment (iPads, laptops, etc....) to lessen reliance on text.
- Incorporate experiential and community based activities related to lesson theme.
- Include "hands-on" activities (games, projects) within lectures/activities.
- Emphasize sensory experiences reflecting student's learning style: auditory, multisensory, visual, physical movement/kinesthetic.
- Use graphic organizers.
- Complete assignments through oral reports, tapes, projects or other means to lessen amount of writing.
- Extend time limits for tests and assignments.
- Read test items that do not assess reading skills to students.
- Use models, manipulatives and other concrete materials to demonstrate concepts and solve problems.
- Have student repeat or rephrase assignments.
- Check for understanding frequently
- Provide multiple practice sessions to reinforce a new skill/concept.
- Provide guided notes/handouts.

Summative Assessments:

Hands-on tests and written tests.

Accommodations/Modifications:

- Use Pass/Fail Option.
- Provide checklists for solving problems.
- Allow students to use calculator when applicable.
- Read test items that do not assess reading skills to students.
- Extend time limits.
- Break test sections into smaller chunks

Performance Assessments:

Projects, presentations, display of student work.
Sample Lab: observing physical and chemical changes using clay.

Accommodations/Modifications:

- Complete assignments through oral reports, tapes, projects or other means to lessen amount of writing.
- Allow students extra time to complete projects.
- Provide students with an example of project for reference.
- Provide a clear rubric for students to understand exactly what is expected.

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Life Skills Science Curriculum – Physical Systems

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Unit 4: Atomic Theory & the Periodic Table

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Life Skills Science - Physical Systems/ Atomic Theory & Periodic Table	Unit Summary: Atomic Theory and Arrangement of Elements This unit is focused on the development of the theory of the atom, the structure of the atom and the organization of elements in the periodic table. Students will learn about the historical development of the atom beginning with early contributions through the current atomic theory. Students will examine the structure of the atom and analyze nuclear energy as it relates to the atom. They will explore the arrangement of elements on the periodic table in reference to groups and periods, and describe trends seen in their properties.
Grade Level(s): 9 -12	
Essential Question(s): <ol style="list-style-type: none"> 1. How has the model of the atom changed over time, and what prompted these changes? 2. How does the current atomic model explain the interactions of elements and the formation of compounds? 3. How does the arrangement of the subatomic particles of atoms relate to the reactivity and behavior of each element? 4. How are elements currently arranged on the Periodic Table? 5. What do atoms of an element have in common with other atoms of the same element? 	Enduring Understanding(s): <ol style="list-style-type: none"> 1. All matter is made up of atoms in definite quantities and arrangements which determine physical and chemical properties. 2. The periodic table is arranged based upon patterns that exist in the physical and chemical properties of elements. 3. All changes in the properties of any substance require changes in any of the following: temperature, pressure, concentration and/or the presence of a catalyst. 4. All elements are currently arranged in the periodic table in order by atomic number. 5. All elements are arranged in columns called groups or families and rows called periods. 6. Chemical equations represent the conservation of matter when balanced.

6. What is a chemical equation and why is it important that it is balanced?

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

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<u>Learning Target: Bold:</u> Identifies both courses	<u>NJCCCS or CCS</u>
<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. List the names and symbols of common elements. 2. Describe the present atomic model. 3. Describe the periodic table of elements and use it to find information about an element such as atomic number, atomic mass/mass number, isotopes and electron arrangement. 4. Describe ionic and covalent bonding by using Lewis Dot Structures and Bohr Models. 5. Acknowledge that Mendeleev developed the original periodic table. 6. Distinguish between a group and a period. 7. Apply the law of conservation of mass by balancing chemical equations. 8. Analyze chemical equations and classify them as synthesis, decomposition, or single/double replacement. 	<p>1,2,3,4,5,6: Science: 5.2.12.A.1-5, 5.2.12.B.3</p> <p>Other content areas:</p> <p>a) 6.1.12.C.12, 6.1.12.C16, 6.2.12.C.5, 7.1.IL.A.7, 9.1.12.A.1, 9.1.12.B, 9.4O, RI.9-10 or RI.11-12, RST.9-10 or RST.11-12, WHST.9-10 or WHST.11-12</p> <p>7, 8: Science: 5.2.12.B.1</p> <p>Other content areas:</p> <p>a) 6.1.12.C.12, 6.1.12.C16, 6.2.12.C.5, 9.1.12.A.1, 9.1.12.B, 9.4O, RI.9-10 or RI.11-12, RST.9-10 or RST.11-12, WHST.9-10 or WHST.11-12</p>

Inter-Disciplinary Connections:

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Accommodations and/or modifications will be made on a case by case basis in accordance with individual student needs. They may include but not be limited to: read aloud directions to help students understand the chapter/unit, read aloud specific paragraphs to assist auditory learners, read captions in the book that describe concepts being discussed.

Students will write:

Students will write and fill in the blanks in the notes provided, they will also summarize the lesson, do warm-ups, short answer responses and open-ended responses.

Accommodations and/or modifications will be made on a case by case basis in accordance with individual student needs.

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills.

The following instructional strategies are utilized on an as needed basis throughout the year:

29. Direct Instruction
30. Cornell Note-Taking, guided
31. Scaffolding
32. Project Based Learning
33. Peer Based Learning/Review
34. Student presentations with peer review in addition to teacher assessment
35. Modeling
36. Drawing
37. Guided Discussion with analysis/prediction/defense of conclusions
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41. Technology: Microsoft Excel, PowerPoint, Word, SmartBoard, LCD Projectors
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Once per quarter students are given a topical presentation assignment to research, present, and review.]

PART IV: EVIDENCE OF LEARNING

IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS.

IDENTIFY BLOOM'S LEVELS.



Formative Assessments:

The effectiveness of the instructional program will be based on teacher observations, students doing quality of work together, questioning strategies, self and peer assessment, student record keeping, quizzes, warm ups, class discussion, individual conferences, journal writing and performance tasks.]

Accommodations/Modifications:

- Use multimedia equipment (iPads, laptops, etc....) to lessen reliance on text.
- Incorporate experiential and community based activities related to lesson theme.
- Include "hands-on" activities (games, projects) within lectures/activities.
- Emphasize sensory experiences reflecting student's learning style: auditory, multisensory, visual, physical movement/kinesthetic.
- Use graphic organizers.
- Complete assignments through oral reports, tapes, projects or other means to lessen amount of writing.
- Extend time limits for tests and assignments.
- Read test items that do not assess reading skills to students.
- Use models, manipulatives and other concrete materials to demonstrate concepts and solve problems.
- Have student repeat or rephrase assignments.
- Check for understanding frequently
- Provide multiple practice sessions to reinforce a new skill/concept.
- Provide guided notes/handouts.

Summative Assessments:

State assessments, hands-on tests and written tests

Accommodations/Modifications:

- Use Pass/Fail Option.
- Provide checklists for solving problems.
- Allow students to use calculator when applicable.
- Read test items that do not assess reading skills to students.
- Extend time limits.
- Break test sections into smaller chunks

Performance Assessments:

Projects, presentations, display of student work.

Sample: Creating a large paper representation of the periodic table in color. Researching an element and creating a card of the atomic number, weight, etc. as shown on periodic table, then presenting the use of that particular element in our world.

Accommodations/Modifications:

- Complete assignments through oral reports, tapes, projects or other means to lessen amount of writing.
- Allow students extra time to complete projects.
- Provide students with an example of project for reference.
- Provide a clear rubric for students to understand exactly what is expected.

Black Horse Pike Regional School District Curriculum Template

Life Skills Science Curriculum – Physical Systems

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Unit 5: Force and Motion

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<p>Course/Unit Title: Life Skills Science - Physical Systems/Force & Motion</p> <p>Grade Level(s): 9 -12</p>	<p>Unit Summary: Force and Motion</p> <p>In this unit, students will be able to distinguish between speed and velocity, and will solve word problems involving time, distance, velocity and acceleration. They will also review graphs of speed, velocity, and acceleration.</p> <p>Students will describe how force affects the motion of an object, distinguish between balanced and unbalanced forces, and use vectors to graphically represent unbalanced forces. Newton’s laws of motion will be used and applied to physical situations.</p> <p>Students will observe that the strength of the gravitational attractive force exists between two masses and describe how it is proportional to the masses and inversely proportional to the square of the distance between them. They will explain that every object experiences this force of attraction, but when masses are small, so is the force.</p>
<p>Essential Question(s):</p> <ol style="list-style-type: none"> 1. What is the relationship between force and motion? 2. How can graphs be used to find velocity and acceleration? 3. What happens when there is a net force acting on an object? 4. How does the mass of an object affect its inertia, and its ability to accelerate? 5. How is momentum calculated and conserved? 	<p>Enduring Understanding(s):</p> <ol style="list-style-type: none"> 1. Velocity, acceleration, and momentum can be identified as vector quantities. 2. Solving word problems corresponding to different variables related to force and motion allows for understanding the relationship and the effect that each of these variables has on each other and the motion of objects. 3. Newton’s three laws of motion can be applied to physical situations. 4. Momentum is transferred and conserved between objects.

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

Learning Target: Bold: Indicates both courses

Students will be able to:

1. **Relate speed to distance and time.**
2. **Define velocity, acceleration, force, and momentum as vector quantities.**
3. **Distinguish between speed and velocity.]**
4. **[Solve problems involving time, distance, velocity, acceleration, and force.]**
5. **Create and analyze graphs of speed, velocity, and acceleration.**
6. **Describe how force affects the motion of an object.**
7. **Distinguish between balanced and unbalanced forces.**
8. **Use vectors to graphically represent unbalanced forces.**
9. **State and apply Newton's three laws of motion to physical situations.**
10. **Infer the relationship between force, mass, and acceleration in accordance with Newton's second law.]**

NJCCCS or CCS

1,2,3,4,5,6,7,8,9,10: Science: 5.2.12.E.1-4

Other content areas:

a) 8.1.12.A.1, 2, 9.1.12.A.1, 9.1.12.B, 9.4O, N-Q.1, 2, 3, A-REI.3, 6, RST.9-10.1, 2, 3, 4 OR RST.11-12.1, 2, 3, 4;]

Inter-Disciplinary Connections:

Experience of laboratory skills to be used in real life situations at home and in the work place, including problem solving skills .

Students will engage with the following text:

1. *Physical Science*, 1999, Glencoe

Minimal use of text supplemented by teacher made materials, and web based information and videos.

On a daily basis, students will enrich their reading, writing, and interpretation skills through the use of Cornell notes supplied by the teacher.

Accommodations and/or modifications will be made on a case by case basis in accordance with individual student needs. They may include but not be limited to: read aloud directions to help students understand the chapter/unit, read aloud specific paragraphs to assist auditory learners, read captions in the book that describe concepts being discussed.]

Students will write:

Students will write and fill in the blanks in the notes provided, they will also summarize the lesson, do warm-ups, short answer responses and open-ended responses.
Accommodations and/or modifications will be made on a case by case basis in accordance with individual student needs.

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills.

The following instructional strategies are utilized on an as needed basis throughout the year:

43. Direct Instruction
44. Cornell Note-Taking, guided
45. Scaffolding
46. Project Based Learning
47. Peer Based Learning/Review
48. Student presentations with peer review in addition to teacher assessment
49. Modeling
50. Drawing
51. Guided Discussion with analysis/prediction/defense of conclusions
52. Directed Reading
53. Guided Notes
54. Outlining
55. Technology: Microsoft Excel, PowerPoint, Word, SmartBoard, LCD Projectors
56. Media Resources: [Gizmos](#), Discovery Streaming, commercial video resources, YouTube, course websites (i.e. OnCourse and eBoards)

Once per quarter students are given a topical presentation assignment to research, present, and review.]

PART IV: EVIDENCE OF LEARNING

**IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS.
IDENTIFY BLOOM'S LEVELS.**



Formative Assessments:

The effectiveness of the instructional program will be based on teacher observations, students doing quality of work together, questioning strategies, self and peer assessment, student record keeping, quizzes, warm ups, class discussion, individual conferences, journal writing and performance tasks.]

Accommodations/Modifications:

- Use multimedia equipment (iPads, laptops, etc....) to lessen reliance on text.
- Incorporate experiential and community based activities related to lesson theme.
- Include "hands-on" activities (games, projects) within lectures/activities.
- Emphasize sensory experiences reflecting student's learning style: auditory, multisensory, visual, physical movement/kinesthetic.
- Use graphic organizers.
- Complete assignments through oral reports, tapes, projects or other means to lessen amount of writing.
- Extend time limits for tests and assignments.
- Read test items that do not assess reading skills to students.
- Use models, manipulatives and other concrete materials to demonstrate concepts and solve problems.
- Have student repeat or rephrase assignments.
- Check for understanding frequently
- Provide multiple practice sessions to reinforce a new skill/concept.
- Provide guided notes/handouts.

Summative Assessments:

State assessments, hands-on tests and written tests

Accommodations/Modifications:

- Use Pass/Fail Option.
- Provide checklists for solving problems.
- Allow students to use calculator when applicable.
- Read test items that do not assess reading skills to students.
- Extend time limits.
- Break test sections into smaller chunks

Performance Assessments:

Projects, presentations, display of student work.

Sample labs: making a pendulum, observing a Newton's Cradle and explaining the law that applies.

Accommodations/Modifications:

- Complete assignments through oral reports, tapes, projects or other means to lessen amount of writing.
- Allow students extra time to complete projects.
- Provide students with an example of project for reference.
- Provide a clear rubric for students to understand exactly what is expected.

