HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Discuss syllabus and explain rules and procedures. Discuss supply list and explain how the science notebook will be organized. Students will take a pretest to determine prior knowledge. Students will write a paragraph describing characteristics they share with a scientist. Explain the importance of asking questions in life science. State examples of life scientists at work. List three ways life science is helpful to living things. Describe scientific methods. Determine the appropriate design of a controlled experiment. Use information in tables and graphs to analyze experimental results. Explain how scientific knowledge can change. Analyze evidence surrounding phenomena from a scientific viewpoint and using critical thinking skills.

PASS OBJECTIVES AND COMMON CORE STANDARDS:
Common Core: 8.RST 5(analyze the structure an author uses to analyze a text), 8.RST 7(integrate information expressed in words with version of that info. expressed visually), 8.WHST 1a(introduce and distinguish claims, and organize evidence logically), 8.WHST 2d(use precise language and domain-specific vocabulary) 8.WHST 4(produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience), 8.WHST 6(use technology to produce writing and present ideas clearly), 8.WHST 7(conduct short research projects), 8.WHST 8(gather information from digital sources; avoid plagiarism; follow a standard format for citation) **Pass:** Process Standard 3.1(ask questions, design investigations, identify testable questions), Process Standard 3.3(identify variables and/or controls in an experiment), Process Standard 3.4(identify a testable hypothesis), Process Standard 4.2 (interpret data tables and graphs), Process Standard 4.3(evaluate data to develop explanations or predictions), Process Standard 5.1 (ask questions that can be answered through scientific investigations)

HOURS	MONDAY 8/19/13	TUESDAY 8/20/13	WEDNESDAY 8/21/13	THURSDAY 8/22/13	FRIDAY 8/23/13
5th Hour 8th Grade Advanced Science		**Purpose:** Discuss syllabus and explain rules and procedures. Discuss supply list and explain how the science notebook will be organized. Students will take a pretest to determine prior knowledge. **Activities:** • Discuss the syllabus, explain rules and procedures, and give a tour of the room. **Eval:** Students will take the Science Pretest. Answers will be discussed at the end of class.	**Purpose:** Students will write a paragraph describing characteristics they share with a scientist. Explain the importance of asking questions in life science. State examples of life scientists at work. List three ways life science is helpful to living things. Introduce new academic vocabulary words. Process Standard 5.1, 8.RST 4, 8.WHST 2d, 8.WHST 4 **Activities:** • Bell Activity #1: List two reasons why it is important for scientists to ask questions. Answer the OCCT Item Spec. Question • Science Journal Entry #1: Pick a scientist characteristic from the list on the board. Give an example of why that characteristic describes you and then explain why a scientist needs that characteristic. • Organize science notebooks. • Discuss "Deformed Frogs" pg. 2. • Asking Questions about Life Science (Section 1.1 pg.4-7) PowerPoint Lecture/Read/Discuss • Academic Vocabulary Powerpoint #1: The words are independent variable, dependent variable, controlled variable, and control. **Eval:** **1.** Science Journal Entry #1: Scientific Characteristics Paragraph **2.** Word Association for AV words	**Purpose:** Describe scientific methods. Determine the appropriate design of a controlled experiment. Use information in tables and graphs to analyze experimental results. Explain how scientific knowledge can change. Process Standard 3.1, Process Standard 3.3, Process Standard 3.4, Process Standard 4.2, Process Standard 4.3, Process Standard 5.1, 8.RST 5, 8.RST 7, 8.WHST 1a **Activities:** • Bell Activity #2: Analyze the structure the author uses to organize the text on pg.6-7. OCCT Item Spec. Question • Scientific Methods (Section 1.2 pg.8-14) PowerPoint Read/Lecture/Discuss • Discuss how to write a proper lab report in preparation for the lab on Monday. **Eval:** 1. Show experiment examples and have students identify control groups, experimental groups, and variables.	**Purpose:** Analyze evidence surrounding phenomena from a scientific viewpoint and using critical thinking skills. Write a paper that discusses the topic and its evidence and then analyze the evidence using **at least three** areas of reasoning (from "A Field Guide to Critical Thinking". Discuss ways that science could support the existence without relying on weak arguments. Use the scientific method and scientific processes to propose a research method that could support the existence of the phenomenon. 8.WHST 6, 8.WHST 7, 8.WHST 8, Process Standard 3.1 **Activities:** • Work in the computer lab to complete the "Debunking the Paranormal" assignment. http://www.biologycorner.com/worksheets/paranormal.html • Follow the instruction on screen including reading "A Field Guide to Critical Thinking". • Students will work in groups to complete this assignment. **Eval:** 1. "Debunking the Paranormal" Report Presentations are on Tuesday.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Use the scientific method to answer a question about a pendulum. Students will design and conduct their own experiment. Write a lab report to explain the results. Present evidence surrounding phenomena from a scientific viewpoint and using critical thinking skills. Discuss how to create a successful science fair project. Give examples of three types of models. Identify the benefits and limitations of models. Compare the ways that scientists use hypotheses, theories, and laws. Give three examples of how life scientists use computers and technology. Describe three tools life scientists use to observe organisms. Explain the importance of the International System of Units, and give four examples of SI units. Convert between units of measurements. Identify control groups, experimental groups, independent variables, and dependent variables. Introduce new academic vocabulary words. Students will work in the computer lab to find possible ideas for a science fair project. They will pick their favorite idea and write a paragraph explaining what they are testing and give a detailed procedure.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: RST 3(follow a multistep procedure), 8.RST 4(determine the meaning of key terms), 8.RST 7(integrate information in words with version expressed visually), 8.WHST 1(write arguments focused on discipline-specific content), 8.WHST 1a(introduce and distinguish claims), 8.WHST 1.d (maintain a formal style), 8.WHST 1.e(provide a concluding statement), 8.WHST 2a(introduce topic, organize ideas into categories), 8.WHST 4(produce clear writing appropriate to task), 8.WHST 7(conduct short research projects), 8.WHST 10(write routinely) **Pass:** Process Standard 1.2(use appropriate tools), Process Standard 1.3(use appropriate SI units), P. Standard 3.1(ask questions, design investigations, identify testable questions), P. Standard 3.3(identify variables and controls in an experiment), P. Standard 3.4(identify a testable hypothesis), P. Standard 3.6 (recognize hazards and safety procedures), P. Standard 4.1 (report and record quantitative/qualitative data), P. Standard 4.3(evaluate data to develop explanations), P. Standard 4.4(determine if results support or reject hypothesis), P. Standard 4.5(communicate scientific processes, procedures, and conclusions), P. Standard 5.1(ask questions that can be answered through investigations), Process Standard 5.2(design and conduct experiments), Process Standard 5.4(understand the value of technology)

HOURS	MONDAY 8/26/13	TUESDAY 8/27/13	WEDNESDAY 8/28/13	THURSDAY 8/29/13	FRIDAY 8/30/13
5th Hour 8th Grade Advanced Science	**Purpose:** Use the scientific method to answer a question about a pendulum. Students will design and conduct their own experiment. Write a lab report to explain the results. 8.RST 3, 8.WHST 1, 8.WHST 1.d, 8.WHST 1.e, 8.WHST 2a, 8.WHST 4, 8.WHST 10, P. Std. 3.4, P. Std. 3.6, P. Std. 4.1, P. Std. 4.3, P. Std. 4.4, P. Std. 4.5, P. Std. 5.1, P. Std.5.2 **Activities:** • Bell Activity #3: Identify the 7 steps of the scientific method with the example on the board. OCCT Item Spec. Question • The Pendulum Lab **Eval:** Students will write a lab report for this lab and turn in with the data sheet.	**Purpose:** Present evidence surrounding phenomena from a scientific viewpoint and using critical thinking skills. Discuss how to create a successful science fair project. 8.WHST 7, P. Std. 4.5 **Activities:** • Bell Activity #4: Pg.15 #10 OCCT Item Spec. Question • Discuss science fair projects and due dates. • Discuss the proper format of a works cited page. Discuss plagiarism. **Eval:** 1. AV Word Quiz #1 2. Students will present "Debunking the Paranormal" Reports to the class.	**Purpose:** Give examples of three types of models. Identify the benefits and limitations of models. Compare the ways that scientists use hypotheses, theories, and laws. Give three examples of how life scientists use computers and technology. Describe three tools life scientists use to observe organisms. Explain the importance of the International System of Units, and give four examples of SI units. 8.RST 4, 8.RST 7, P. Std. 1.2, P. Std. 1.3, P. Std. 5.4 **Activities:** • Bell Activity #5: Write the 7 steps of the scientific method and explain why the arrows go both ways on Figure 1 pg. 8. OCCT Item Spec. Question • Models (Section 1.3 pg.16-19) and Measurement/Safety (Section 1.4 pg.20-25) PowerPoints Lecture/Read/Discuss **Eval:** Spongebob Scientific Method Word Problems	**Purpose:** Explain the importance of the International System of Units. Convert between units of measurements. Identify control groups, experimental groups, independent variables, and dependent variables. Introduce new academic vocabulary words. 8.RST 4, P Std. 1.3, P. Std. 3.3, P. Std. 5.4 **Activities:** • Bell Activity #6: pg.28 #1-11, OCCT Item Spec. Question • Metric Conversion Lesson and Controlled Experiment review • Show experiment examples and have students identify control groups, experimental groups, and variables. • Academic Vocabulary PowerPoint #2: The words are mass, technology, volume, and hypothesis. **Eval:** SI Unit Conversion Word Problems	**Purpose:** Students will work in the computer lab to find possible ideas for a science fair project. They will pick their favorite idea and write a paragraph explaining what they are testing and give a detailed procedure. Process Standard 5.1(ask questions that can be answered through investigations), 8.WHST 7(conduct research projects to answer) **Activities:** • Bell Activity #7: pg.29 #15, 17. OCCT Item Spec. Question • Write down 5 possible ideas for a science fair project. Choose your favorite idea and write a paragraph explaining what you are testing and how you attempt to do it. Present Scientific Summer reports today. **Eval:** Science Fair Ideas Worksheet (Due Tuesday)

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Compare and contrast the four major branches of Earth science. Identify four examples of Earth science that are linked to other areas of science. Use lab tools to measure accurately. Convert between units of measurements using the International System of Units. Use lab tools to measure accurately. Determine possible causes for changes found in the lab between Part 1 and Part 2. Explain how scientists begin to learn about the natural world. Explain what scientific methods are and how scientists use them. Reflect on the importance of communicating the results of a scientific investigation. Describe how scientific investigations often lead to new investigations. Explain how models are used in science. Recognize the three types of models. Propose which types of models are best for certain topics. Accept the climate model as an example of a mathematical model. Find 5 sources for the science fair research plan. Type the research plan.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 3(follow a multistep procedure), .RST 4(determine the meaning of key terms), 8.RST 7(integrate information expressed in words with version of that info. expressed visually), 8.RST 9(compare and contrast info. gained from experiments, video with that gained from reading a text on the same topic), 8.WHST 2(write informative texts), 8.WHST 2.d(use domain specific vocabulary), 8.WHST 6(use technology, including the Internet, to produce and publish writing), 8.WHST 8(gather information from print and digital sources, assess credibility of source, and quote or paraphrase while avoiding plagiarism and following a standard of citation) **Pass:** Process Standard 1.2(use appropriate tools), Process Standard 1.3(use appropriate SI units), Process Standard 3.4(identify a testable hypothesis), P. Standard 3.6 (recognize hazards and safety procedures), Process Standard 4.1 (report and record both quantitative/qualitative data), Process Standard 4.3(evaluate data to develop explanations or predictions), P. Standard 5.1(ask questions that can be answered through investigations)**,** Process Standard 5.3(use the design process to address a problem), Process Standard 5.4(understand the value of technology), Process Standard 5.5(develop a relationship between evidence and explanation to form a conclusion)

HOURS	MONDAY 9/2/13	TUESDAY 9/3/13	WEDNESDAY 9/4/13	THURSDAY 9/5/13	FRIDAY 9/6/13
5th Hour 8th Grade Advanced Science	**LABOR DAY**	**Purpose:** Compare and contrast the four major branches of Earth science. Identify four examples of Earth science that are linked to other areas of science. Use lab tools to measure accurately. 8.RST 3, 8.RST 4, 8.RST 9, 8.WHST 2.d, P. Std 1.2, P. Std. 1.3, P.Std 3.6, P. Std. 5.4 **Activities:** • Bell Activity #8: Questions pg. 31 #1-3 OCCT Item Spec. Question • Branches of Earth Science (Section 2.1 pg.36-41) PowerPoint Lecture/Read/Discuss • Academic Vocabulary PowerPoint #3: The words are DNA, Dominant/recessive traits, Monohybrid cross, Punnett Square, Comets, Abiotic, Biotic. Practice working out Punnett squares. **Eval:** 1. Measure a Bean Lab Part 1 2. Word Association Organizer for AV words **Reminder:** Science Fair Topics due today.	**Purpose:** Convert between units of measurements using the International System of Units. Use lab tools to measure accurately. Determine possible causes for changes found in the lab between Part 1 and Part 2. 8.RST 3, 8.RST 9, P. Std 1.2, P. Std. 1.3, P.Std 3.6, P.Std. 4.1, P. Std. 4.3, P. Std. 5.5 **Activities:** • Bell Activity #9: Matthew kept track of his weight on a calendar. On April 1 he weighed forty-six kilograms. On May 1 he weighed nine hundred grams more. By June 1 he had gained another two kilograms. How much was his weight, in kilograms, on the first of June? OCCT Item Spec. Question • Finish the second part of the Measure a Bean Lab **Eval:** 1. AV word Quiz #2 2. Measure a Bean Lab	**Purpose:** Explain how scientists begin to learn about the natural world. Explain what scientific methods are and how scientists use them. Reflect on the importance of communicating the results of a scientific investigation. Describe how scientific investigations often lead to new investigations. Explain how models are used in science. Recognize the three types of models. Propose which types of models are best for certain topics. Accept the climate model as an example of a mathematical model. 8.RST 3, 8.RST 4, 8.RST 7, 8.WHST 2, P. Std. 3.4, p. Std. 5.3, P. Std. 5.4 **Activities:** • Bell Activity #10: Write a hypothesis to explain why the dog vomited. OCCT Item Spec. Question • Scientific Methods(Section 2.2 pg.42-47) and Models (Section 2.3 pg.48-51) PowerPoints Lecture/Read/Discuss **Eval:** Science Journal #2: "Solving a Problem" pg.43. Devise a way to place a backpack, 3 textbooks, a notebook, pencils, and a lunch in a locker. Everything must be easily accessible and the lunch cannot be smashed. Draw the locker with the items. Then explain the design in a paragraph.	**Purpose:** Find 5 sources for the science fair research plan. Type the research plan. 8.WHST 6, 8.WHST 8, P. Std. 5.1 **Activities:** • Bell Activity #11: What can be measured in centimeters, meters, or kilometers? What can be measured in liters or milliliters? What can be measured in milligrams, grams, or kilograms? OCCT Item Spec. • Work in the computer lab to find sources for the research plan. Begin typing the research plan. **Eval:** 1. AV Quiz #3 2. Work on Research Plan. **Reminder:** Completed research plan is due next Friday.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Evaluate the importance of the International System of Units. Determine appropriate units to use for particular measurements. Identify lab safety symbols, and determine what they mean. Use lab tools to measure volume, length, and mass accurately. Explain that science involves asking questions. Describe the relationship of matter and energy to physical science. Describe the two branches of physical science. Identify three areas of science that use physical science. Explain what scientific methods are. Explain how scientific methods are used to answer questions. Describe how a hypothesis is formed and tested. Identify methods that are used to analyze data. Explain how a conclusion can support or disprove a hypothesis. List methods of communicating data. Review content matter of chapters 1-3 in preparation for the test. Explain how models represent the natural world. Identify three types of models used in science. Describe theories and law. Identify tools used to collect and analyze data. Explain the importance of the International System of units. Identify the appropriate units to use for particular measurements. Identify safety symbols. Evaluate understanding of chapters 1-3 (The World of Life, Earth, and Physical Science). Explain how to classify an organism. Practice listing the seven levels of classification. Study scientific names. Describe how dichotomous keys help in identifying organisms. Explain how classification schemes for kingdoms developed as greater numbers of different organisms became known. Catalogue each of the six kingdoms.

PASS OBJECTIVES AND COMMON CORE STANDARDS: 8.RST 1(Cite textual evidence to support analysis of texts), 8.RST 3(follow a multistep procedure), 8.RST 4(determine the meaning of key terms), 8.RST 7(integrate information expressed in words with version of that info. expressed visually), 8.RST 8(distinguish between facts and speculation) 8.RST 9(compare and contrast info. gained from experiments, video with that gained from reading a text on the same topic) , 8.WHST 1.b(support claims with reasoning using credible sources), 8.WHST 1.c(use words to create relationships among reasons and evidence), 8.WHST 2(write informative texts), 8.WHST 2.b(develop the topic with well-chosen facts), 8.WHST 2.d(use domain specific vocabulary) **Pass:** Process Standard 1.2(use appropriate tools), Process Standard 1.3(use appropriate SI units), Process Standard 2.1 (place an object into a classification system), Process Standard 2.2 (identify properties by which objects could be ordered), Process Standard 3.1(ask questions, design investigations, identify testable questions), Process Standard 3.3(identify variables and/or controls in an experiment), Process Standard 3.4(identify a testable hypothesis), Process Standard 3.6 (recognize potential hazards and safety procedures), Process Standard 4.1 (report and record both quantitative/qualitative data), Content Standard 1.2 (matter has physical properties that can be measured; matter is conserved), Content Standard 3.1(by classifying organisms biologists infer the degree of relatedness among organisms)

HOURS	MONDAY 9/9/13	TUESDAY 9/10/13	WEDNESDAY 9/11/13	THURSDAY 9/12/13	FRIDAY 9/13/13
5th Hour 8th Grade Advanced Science	**Purpose:** Evaluate the importance of the International System of Units. Determine appropriate units to use for particular measurements. Identify lab safety symbols, and determine what they mean. Use lab tools to measure volume, length, and mass accurately. 8. RST 1, 8.RST 3, 8.RST 9, P. Std. 1.2, P. Std. 1.3, P. Std. 3.6, P.Std. 4.1 **Activities:** • Bell Activity #12: Read the article on Jupiter. Answer reading comprehension questions and cite textual evidence. OCCT Item Spec. Question • Measurement and Safety (Section 2.4 pg.52-55) PowerPoint Lecture/Read/ Discuss **Eval:** 1. Scientific Processes Lab 2. Checking Chapters 1-3 Notes today.	**Purpose:** Explain that science involves asking questions. Describe the relationship of matter and energy to physical science. Describe the two branches of physical science. Identify three areas of science that use physical science. Explain what scientific methods are. Explain how scientific methods are used to answer questions. Describe how a hypothesis is formed and tested. Identify methods that are used to analyze data. Explain how a conclusion can support or disprove a hypothesis. List methods of communicating data. Review content matter of chapters 1-3 in preparation for the test. 8.RST 4, P. Std. 3.1, P. Std. 3.3, P. Std. 3.4, C. Std. 1.2 **Activities:** • Bell Activity #13: One afternoon you decide to pop some popcorn. You put the bag in the microwave, but after a couple of minutes of cooking, it is clear the popcorn is not popping. Write a hypothesis to explain why this happened. What steps could you take to help locate the problem? OCCT Item Spec. Question • Exploring Physical Science (Section 3.1 pg.66-71) and Scientific Methods (Section 3.2 pg.72-78) PowerPoint Lecture/Read/Discuss • Matter vs. Energy pg.67, Developing a hypothesis pg.75 • Review for the test.	**Purpose:** Explain how models represent the natural world. Identify three types of models used in science. Describe theories and law. Identify tools used to collect and analyze data. Explain the importance of the International System of units. Identify the appropriate units to use for particular measurements. Identify safety symbols. Review content matter of chapters 1-3 and identify any weaknesses. 8.RST 4, P. Std. 1.3, P. Std 3.6, C. Std 1.2 **Activities:** • Bell Activity #14: Questions pg.90 #8-11. OCCT Item Spec. Question • Scientific Models (Section 3.3 pg.80-83) and Measurement (Section 3.4 pg.84-87) Lecture/Read/ Discuss **Eval:** Review for the test.	**Purpose:** Evaluate understanding of chapters 1-3 (The World of Life, Earth, and Physical Science). Explain how to classify an organism. Practice listing the seven levels of classification. Study scientific names. Describe how dichotomous keys help in identifying organisms. 8. RST 4, 8.RST 7, P. Std. 1.3, P. Std. 2.1, P. Std. 2.2, P. Std. 3.3, P. Std. 3.4, P. Std. 3.6, C. Std. 3.1 **Activities:** • Bell Activity #15: Viola wants to bake a cake. The recipe calls for 0.125L of vegetable oil. All of Viola's measuring cups are in milliliters. How many milliliters of vegetable oil does she need? OCCT Item Spec. Question • Classification (Section 9.1 pg.222-227) PowerPoint Lecture/Read/ Discuss **Eval:** Chapter 1-3 Test	**Purpose:** Explain how classification schemes for kingdoms developed as greater numbers of different organisms became known. Catalogue each of the six kingdoms. 8.RST 7, 8.RST 8, 8.WHST 1.b, 8. WHST 1.c, 8.WHST 2, 8.WHST 2.b, 8.WHST 2.d, P. Std. 2.1, P. Std. 2.2, C. Std. 3.1 **Activities:** • Bell Activity #16: Distinguish between facts, reasoned judgment based on research, and speculation after reading a passage about dinosaurs. OCCT Item Spec. Question • The Six Kingdoms (Section 9.2 pg.228-233) PowerPoint **Eval:** 1. What did you learn today? Students will write about what they learned and then we will discuss as a class. **Reminder:** Research Plan due today.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Classify organisms using a dichotomous key. Review content matter of Chapter 9: Classification and Chapter 12: Seed Plants. Recognize ways that seed plants differ from seedless plants. Describe the structure of seeds. Discuss methods of seed dispersal. Compare angiosperms and gymnosperms. Explain the economic and environmental importance of gymnosperms and angiosperms. Evaluate understanding of Chapter 9: Classification and Chapter 12: Seed Plants. List the four common body parts of chordates. Describe the two main characteristics of vertebrates. Explain the difference between an ectotherm and an endotherm. Describe four traits that fishes share. Describe the three classes of living fishes, and give an example of each. Explain how amphibians breathe. Describe amphibian metamorphosis. Describe the three groups of amphibians, and give an example of each. Explain why amphibians are ecological indicators. Explain the traits that allow reptiles to live on land. Describe the characteristics of an amniotic egg. Name the four groups of modern reptiles, and give an example of each. Identify Oklahoma's poisonous snakes by sight. Describe two kinds of bird feathers. Describe how a bird's diet, breathing, muscles, and skeleton help it fly. Identify the differences between flightless birds, water birds, perching birds, and birds of prey.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 4(determine the meaning of key terms), 8.RST 5(analyze the structure an author uses to organize a text), 8.RST 6(analyze the author's purpose in providing an explanation in a text), 8.RST 8(distinguish between facts and speculation), 8.RST 9(compare and contrast info. gained from experiments, video with that gained from reading a text on the same topic), 8.WHST 2(write informative texts), 8.WHST 2e(maintain a formal style), 8.WHST 2f(provide a concluding statement) **Pass:** Process Standard 2.1 (place an object into a classification system), Process Standard 2.2 (identify properties by which objects could be ordered), Process Standard 3.3(identify variables and controls in an experiment), Content Standard 3.1(by classifying organisms biologists infer the degree of relatedness among organisms), Content Standard 3.2(organisms have a variety of internal and external structures that enable them to survive such as echolocation and seed dispersal)

HOURS	MONDAY 9/16/13	TUESDAY 9/17/13	WEDNESDAY 9/18/13	THURSDAY 9/19/13	FRIDAY 9/20/13
5th Hour 8th Grade Advanced Science	**Purpose:** Classify organisms using a dichotomous key. Review content matter of Chapter 9: Classification and Chapter 12: Seed Plants. 8.RST 6, 8.RST 9, P. Std. 2.1, P. Std. 2.2, C. Std. 3.1 **Activities:** • Bell Activity #17: Read the paragraph on pg.223 named, "Branching Diagrams". Analyze the author's purpose in providing the explanation. OCCT Item Spec. Question • Review for the test. • Dichotomous Key Lab **Eval: :** Identify the organisms using the dichotomous key. Write the steps taken to identify the organism.	**Purpose:** Recognize ways that seed plants differ from seedless plants. Describe the structure of seeds. Discuss methods of seed dispersal. Compare angiosperms and gymnosperms. Explain the economic and environmental importance of gymnosperms and angiosperms. Review content matter of Chapter 9: Classification and Chapter 12: Seed Plants. 8.RST 4, 8.RST 9, 8.WHST 2, 8.WHST 2e, 8.WHST 2f, C. Std. 3.2 **Activities:** • Bell Activity #18: Read the three paragraphs on pg.229. Then analyze the structure the author uses to analyze the text, including how the major sections contribute to the whole and to an understanding of the topic. OCCT Item Spec. Question • Introduction to Plants (Section 12.3 pg.308-309) and (Section 12.3 pg.310-313) PowerPoints Lecture/Read/Discuss • Finish reviewing for the test. **Eval:** Science Journal Entry #3: Animals That Help Plants pg. 309. Students will write about how animals help plants in seed dispersal. A concluding statement must be included.	**Purpose:** Evaluate understanding of Chapter 9: Classification and Chapter 12: Seed Plants. 8.RST 4,8.RST 5, 8.RST 7, P. Std. 2.1, P. Std. 2.2, P. Std. 3.3, C. Std. 3.1 **Activities:** • Bell Activity#19: Read the two paragraphs about animals on pg.232-233. Analyze the author's purpose in providing the explanation about simple animals. OCCT Item Spec. Question **Eval:** Chapter 9, 12 Test	**Purpose:** List the four common body parts of chordates. Describe the two main characteristics of vertebrates. Explain the difference between an ectotherm and an endotherm. Describe four traits that fishes share. Describe the three classes of living fishes, and give an example of each. Explain how amphibians breathe. Describe amphibian metamorphosis. Describe the three groups of amphibians, and give an example of each. Explain why amphibians are ecological indicators. 8.RST 4, P. Std. 2.1, C. Std. 3.1, C. Std. 3.2 **Activities:** • Bell Activity #20: Questions about cladograms pg.237 #20-23. OCCT Item Spec. Question • Fishes (Section 16.1 pg.412-418) and Amphibians (Section 16.2 pg.420-425) PowerPoints Lecture/Read/Discuss **Eval:** Oral Questions	**Purpose:** Explain the traits that allow reptiles to live on land. Describe the characteristics of an amniotic egg. Name the four groups of modern reptiles, and give an example of each. Identify Oklahoma's poisonous snakes by sight. Describe two kinds of bird feathers. Describe how a bird's diet, breathing, muscles, and skeleton help it fly. Identify the differences between flightless birds, water birds, perching birds, and birds of prey. 8.RST 4, 8.RST 8, P. Std. 2.1, C. Std. 3.1, C. Std. 3.2 **Activities:** • Bell Activity #21: Distinguish between facts, reasoned judgment based on research, and speculation after reading a passage about plants in South Africa. OCCT Item Spec. Question • Reptiles (Section 16.3 pg. 426-431), Characteristics of Birds (Section 17.1 pg.442-447), and Kinds of Birds (Section 17.2 pg.448-451) PowerPoints • Oklahoma's Poisonous Snakes PowerPoint **Eval:** Oral questions **Reminder:** Begin experiment part of science fair project.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Describe seven common characteristics of mammals. Explain how placental mammals develop. Give an example of each type of mammal. Describe the difference between monotremes and marsupials. Name the two kinds of monotremes. Give three examples of marsupials. Explain why marsupials are endangered or extinct. Review content matter of Chapter 16 and 17: Fishes, Amphibians, Reptiles, and Mammals.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 4(determine the meaning of key terms), 8.RST 7(integrate information expressed in words with version of that info. expressed visually), 8.RST 8(distinguish between facts and speculation, 8.WHST 1(write arguments focused on discipline-specific content), 8.WHST 1b(support claims with logical reasoning), 8.WHST 1d(maintain a formal style), 8.WHST 1e(provide a concluding statement that supports the argument), 8.WHST 5(with some guidance from peers, develop and strengthen writing as needed), **Pass:** Process Standard 2.1 (place an object into a classification system), Process Standard 2.2 (identify properties by which objects could be ordered), Process Standard 3.3(identify variables and controls in an experiment), Process Standard 4.1(record quantitative/ qualitative data in an appropriate method), Process 4.2(interpret data tables and graphs), Content Standard 3.1(by classifying organisms biologists infer the degree of relatedness among organisms), Content Standard 3.2(organisms have a variety of internal and external structures that enable them to survive such as echolocation and seed dispersal)

HOURS	MONDAY 9/23/13	TUESDAY 9/24/13	WEDNESDAY 9/25/13	THURSDAY 9/26/13	FRIDAY 9/27/13
5th Hour 8th Grade Advanced Science	**Purpose:** Describe seven common characteristics of mammals. Explain how placental mammals develop. Give an example of each type of mammal. 8.RST 4, 8.RST 7, P. Std. 2.1, P. Std. 2.2, P. Std. 4.1, P. Std. 4.2, C. Std. 3.1, C. Std. 3.2 **Activities:** • Bell Activity #22: List 20 mammals and organize them into groups based on their similarities. OCCT Item Spec. Question • Characteristics of Mammals (Section 17.3 pg.452-455) and Placental Mammals (Section 17.4 pg.456-458) PowerPoints Lecture/Read/ Discuss **Eval:** Graph Gestation Periods of various mammals.	**Purpose:** Give an example of each type of mammal. 8.RST 8, 8.WHST 1, 8.WHST 1b, 8.WHST 1d, 8.WHST 1e, 8.WHST 5, C. Std. 3.1, C. Std. 3.2 **Activities:** • Bell Activity #23: Distinguish between facts, reasoned judgment based on research, and speculation after reading a passage about hoofed mammals. OCCT Item Spec. Question • Placental Mammals (Section 17.4 pg.459-462) PowerPoint Lecture/Read/Discuss **Eval:** Students will write a debate on carnivore conservation. A concluding statement must be included. A peer will read their debates and make suggestions for revisions. Time will be given for students to revise their debate. Some students will read their debate to the class.	**Purpose:** Describe the difference between monotremes and marsupials. Name the two kinds of monotremes. Give three examples of marsupials. Explain why marsupials are endangered or extinct. Review content matter of Chapter 16 and 17: Fishes, Amphibians, Reptiles, and Mammals. 8.RST 4, P. Std. 3.3, C. Std. 3.1, C. Std. 3.2 **Activities:** • Bell Activity #24: Questions pg.463 #8-10 OCCT Item Spec. Question • Monotremes and Marsupials (Section 17.5 pg.464-467) PowerPoint • Review for the test **Eval:** Oral questions	**Purpose:** Evaluate understanding of Chapter 16 and 17: Fishes, Amphibians, Reptiles, and Mammals. 8.RST 4, P. Std. 3.3, C. Std. 3.1, C. Std. 3.2 **Activities:** • Bell Activity #25: What is echolocation? List two example s of mammals that use echolocation. Then identify which placental mammal group those animals belong to. OCCT Item Spec. Question • Discuss Rock cycle Prezi Project (Presentation Due Date is Mon. 10/7) **Eval:** Chapter 16,17 Test	NO SCHOOL

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Describe two ways rocks have been used by humans. Describe four processes that shape Earth's features. Describe how each type of rock changes into another type as it moves through the rock cycle. List two characteristics of rock that are used to help classify it. Model the changes rocks go through in the rock cycle. Write a lab report to explain the results. Describe three ways that igneous rock forms. Explain how the cooling rate of magma affects the texture of igneous rock. Distinguish between igneous rock that cools within the Earth's crust and igneous rock that cools at Earth's surface. Describe the origin of sedimentary rock. Describe the three main categories of sedimentary rock. Describe the three types of sedimentary structures. Review content matter of Chapter 4: Rocks. Describe two ways a rock can undergo metamorphism. Explain how the mineral composition of rocks changes as the rocks undergo metamorphism. Describe the difference between foliated and nonfoliated metamorphic rock. Explain how metamorphic structures are related to deformation. Work in the computer to complete the Prezi presentation on the rock cycle. Evaluate understanding of Chapter 4: Rocks (Mineral Mixtures)

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 2(determine the central ideas of a text), RST 3(follow a multistep procedure), 8.RST 4(determine the meaning of key terms), 8.RST 7(integrate information expressed in words with version of that info. expressed visually), 8.WHST 1(write arguments focused on discipline-specific content), 8.WHST 1.d (maintain a formal style), 8.WHST 1.e(provide a concluding statement), 8.WHST 2a(introduce topic, organize ideas into categories), 8.WHST 4(produce clear writing appropriate to task), 8.WHST 10(write routinely) 8.WHST 2(write informative texts), 8.WHST 2.b(develop the topic with well-chosen facts), 8.WHST 2.d(use domain specific vocabulary), 8.WHST 7(conduct short research projects) **Pass:** Process Standard 3.3(identify variables and controls in an experiment), Content Standard 4.2(the formation, weathering, sedimentation, and reformation of rock constitute a continuing "rock cycle" in which the total amount of material stays the same as its form changes)

HOURS	MONDAY 9/30/13	TUESDAY 10/1/13	WEDNESDAY 10/2/13	THURSDAY 10/3/13	FRIDAY 10/4/13
5th Hour 8th Grade Advanced Science	**Purpose:** Describe two ways rocks have been used by humans. Describe four processes that shape Earth's features. Describe how each type of rock changes into another type as it moves through the rock cycle. List two characteristics of rock that are used to help classify it. 8.RST 2, 8.RST 4, 8.RST 7, C. Std. 4.2 **Activities:** • Bell Activity #26: Read the Section "The Value of Rock" on pg.90. Determine the central ideas of the text and provide a one paragraph summary of the text. OCCT Item Spec. Question • The Rock Cycle (Section 4.1 pg.90-97) Lecture/ Read/Discuss • Review variables and controls in experiments. **Eval:** 1. Oral Review Questions 2. Turn in Bell Activities #1-26 and Science Journal Entries #1-3	**Purpose:** Model the changes rocks go through in the rock cycle. Write a lab report to explain the results. 8.RST 3, 8.WHST 1, 8.WHST 1.d, 8.WHST 1.e, 8.WHST 2a, 8.WHST 4, 8.WHST 10, P. Std. 3.4, P. Std. 3.6, P. Std. 4.1, P. Std. 4.3, P. Std. 4.4, P. Std. 4.5 **Activities:** • Bell Activity #1: List the 4 processes that change rock from one type to another. What are the 3 main classes of rocks? OCCT Item Spec. Question • Rock Cycle Crayon Lab **Eval:** Lab questions	**Purpose:** Describe three ways that igneous rock forms. Explain how the cooling rate of magma affects the texture of igneous rock. Distinguish between igneous rock that cools within the Earth's crust and igneous rock that cools at Earth's surface. Describe the origin of sedimentary rock. Describe the three main categories of sedimentary rock. Describe the three types of sedimentary structures. Review content matter of Chapter 4: Rocks. 8.RST 4, 8.WHST 2, 8.WHST 2.b, 8.WHST 2.d, C. Std. 4.2 • Bell Activity #2: Layers in sedimentary rocks are like rings in a tree. Explain the meaning of this sentence. What information can geologists infer by examining sedimentary layers? OCCT Item Spec. Question • Igneous Rock (Section 4.2 pg.98-101) and Sedimentary Rock (Section 4.3 pg.102-105) PowerPoint Lecture/Read/ Discuss • Begin reviewing for the test on Tuesday. **Eval:** What did you learn today? Students will write about what they learned and then we will discuss as a class.	**Purpose:** Describe two ways a rock can undergo metamorphism. Explain how the mineral composition of rocks changes as the rocks undergo metamorphism. Describe the difference between foliated and nonfoliated metamorphic rock. Explain how metamorphic structures are related to deformation. Review content matter of Chapter 4: Rocks. 8.RST 4 **Activities:** • Bell Activity #3: Write a brief description of how cake is made. How is the mixture of raw ingredients like sedimentary rock? Describe how cake metamorphoses when it is baked in an oven. How is this similar to the way metamorphic rock forms? OCCT Item Spec. Question • Metamorphic Rock (Section 4.4 pg.106-111) PowerPoint Read/ Lecture/Discuss • Review for the test. **Eval:** Rock Cycle Worksheet	**Purpose:** Work in the computer to complete the Prezi presentation on the rock cycle. 8.RST 4, 8.WHST 7, C. Std. 4.2 **Activities:** • Bell Activity #4: If you were looking for fossils around your home and the rock type that was closest to your home was metamorphic, do you think that you would find many fossils? Explain your answer. OCCT Item Spec. Question • Work in the computer lab on the rock cycle Prezi presentation. **Eval:** Rock Cycle Prezi presentation. Due on Mon. 10/7.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Review the types of rocks, how rocks change, and the rock cycle diagram by listening to student Rock Cycle Projects presentations. Evaluate understanding of Chapter 4: Rocks (Mineral Mixtures). Compare uniformitarianism and catastrophism. Explain how relative dating is used in geology. Explain the principle of superposition. Describe how the geologic column is used in relative dating. Identify two events and two features that disrupt rock layers. Explain how physical features are used to determine relative ages. Describe how radioactive decay occurs. Explain how radioactive decay relates to radiometric dating. Identify four types of radiometric dating. Determine the best type of radiometric dating to use to date an object. Describe five ways that different types of fossils form. List three types of fossils that are not part of organisms. Explain how fossils can be used to determine the history of changes in environments and organisms. Explain how index fossils can be used to date rock layers. Explain how geologic time is recorded in rock layers. Identify important dates on the geologic time scale. Explain how environmental changes resulted in the extinction of some species.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 2(determine the central ideas of a text), 8.RST 4(determine the meaning of key terms), 8.RST 6(analyze the author's purpose in providing an explanation), 8.RST 7(integrate information expressed in words with version of that info. expressed visually), W.HST 1(write arguments focused on discipline-specific content), W.Hst1a((introduce claims about a topic or issue), 8.WHST1b(support claims with logical reasoning), W.HST 1c (use words to clarify relationships among claims, reasons, and evidence), 8.WHST1d(maintain a formal style), 8.WHST1e(provide a concluding statement), 8.WHST 7(conduct short research projects), **PASS:** Process Standard 3.3(identify variables and controls in an experiment), Process Standard 4.2(interpret data tables, and graphs), Content Standard 4.2(the formation, weathering, sedimentation, and reformation of rock constitute a continuing "rock cycle" in which the total amount of material stays the same as its form changes) Content Standard 5.2(fossils provide evidence of how life and conditions have changed)

HOURS	MONDAY 10/7/13	TUESDAY 10/8/13	WEDNESDAY 10/9/13	THURSDAY 10/10/13	FRIDAY 10/11/13
5th Hour 8th Grade Advanced Science	**Purpose:** Review the types of rocks, how rocks change, and the rock cycle diagram by listening to student Rock Cycle Prezi presentations. 8.RST 4, 8.RST 7, C. Std. 4.2 **Activities:** • Bell Activity #5: Graphing questions pg.115 #22-24 OCCT Item Spec. Question • Students will present their Rock Cycle Prezi Presentations to the class. They are expected to be able to answer questions about their project and the parts of the rock cycle. **Eval:** Rock Cycle Prezi Presentations	**Purpose:** Evaluate understanding of Chapter 4: Rocks (Mineral Mixtures). 8.RST 4, P. Std. 3.3, P. Std. 4.2, C. Std. 4.2 **Activities:** • Bell Activity #6: Identify the variables and the control in an experiment. OCCT Item Spec. Question **Eval:** **1.** Chapter 4 Test 2. After the test, finish the Rock Cycle Prezi Presentations.	**Purpose:** Compare uniformitarianism and catastrophism. Explain how relative dating is used in geology. Explain the principle of superposition. Describe how the geologic column is used in relative dating. Identify two events and two features that disrupt rock layers. Explain how physical features are used to determine relative ages. 8.RST 2, 8.RST 4, C. Std. 5.2 **Activities:** • Bell Activity #7: Read the text titled "Shock Metamorphism" on page 118. Determine the central ideas and write a summary of the text. OCCT Item Spec. Question • Earth's Story (Section 6.1 pg.152-155) and Relative Dating (Section 6.2 pg.156-161) PowerPoints Read/ Lecture/Discuss **Eval:** **1.** Science Journal Entry #1: Draw and label disconformities, nonconformities, and angular unconformities. Identify the youngest and the oldest rocks and includes examples of intrusions, folds, and faults. 2. Finish Rock cycle Prezi Presentations if needed.	**Purpose:** Describe how radioactive decay occurs. Explain how radioactive decay relates to radiometric dating. Identify four types of radiometric dating. Determine the best type of radiometric dating to use to date an object. Describe five ways that different types of fossils form. List three types of fossils that are not part of organisms. Explain how fossils can be used to determine the history of changes in environments and organisms. Explain how index fossils can be used to date rock layers. 8.RST 4, C. Std. 5.2 **Activities:** • Bell Activity #8: pg.161 #3, 5, 7 OCCT Item Spec. Question • Absolute Dating (Section 6.3 pg.162-165) and Looking at Fossils (Section 6.4 pg.166-171) PowerPoints Read/ Lecture/Discuss • Discuss progress on science fair projects. **Eval:** Oral questions	**Purpose:** Explain how geologic time is recorded in rock layers. Identify important dates on the geologic time scale. Explain how environmental changes resulted in the extinction of some species. 8.RST 4, 8.RST 6, 8.WHST 1, 8.WHST 1a, 8.WHST1b, 8.WHST 1c, 8.WHST 1d, 8.WHST 1e C. Std. 5.2 **Activities:** • Bell Activity #9: Read the paragraph titled, "Time Marches On". Analyze the author's purpose in providing the explanation. OCCT Item Spec. Question • The Rock and Fossil Record (Section 6.5 pg.172-177) PowerPoint Read/ Lecture/Discuss • Pass out fossil boxes. Students will look at the fossils and determine which period on the geologic time scale they came from. **Eval:** **1.** Science Journal Entry #2: Draw and give examples of animals alive during the Paleozoic, Mesozoic, and Cenozoic Eras. 2. Read and discuss a science related current event. After the discussion, students will write an argument focused on the content.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Visit several websites and explore the information presented on fossils, the fossil record, and geologic history. Review content matter of Chapter 6: The Rock and Fossil Record. Read a short science fiction story. Define unknown terms in the story. Determine the central ideas of the story and produce clear and coherent writing that demonstrates understanding. Evaluate understanding of Chapter 6: The Rock and Fossil Record.

PASS OBJECTIVES AND COMMON CORE STANDARDS:
Common Core: 8.RST 2(determine the central ideas of a text), 8.RST 4(determine the meaning of key terms), 8.RST 4(determine the meaning of key terms), 8.WHST 2(write informative/explanatory texts), 8.WHST 2b(develop the topic with well-chosen facts), 8.WHST2d(use domain-specific vocabulary to inform), 8.WHST 4(produce clear and coherent writing), 8.WHST 5(develop and strengthen writing as needed), 8.WHST 6(use technology, including the Internet, to produce and publish writing), 8.WHST 7(conduct short research projects to answer a question), 8.WHST 8(gather relevant information from digital sources), 8.WHST 9(draw evidence from informational texts to support research), 8.WHST 10(write routinely) **PASS:** Process Standard 3.3(identify variables and controls in an experiment), Content Standard 5.2(fossils provide evidence of how life and conditions have changed)

HOURS	MONDAY 10/14/13	TUESDAY 10/15/13	WEDNESDAY 10/16/13	THURSDAY 10/17/13	FRIDAY 10/18/13
5th Hour 8th Grade Advanced Science	**Purpose:** Visit several websites and explore the information presented on fossils, the fossil record, and geologic history. 8.RST 4, 8.W.HST 2, 8.WHST2b, 8.WHST 2d, 8.WHST 6, 8.WHST 7, 8.WHST 8, 8.WHST 9, C. Std. 5.2 **Activities:** • Bell Activity #10:Interpreting Graphics Questions pg.181 #22-25 OCCT Item Spec. Question • Work in the computer lab to complete the On-Line Fossil Lab **Eval:** On-Line Fossil Lab	**Purpose:** Review content matter of Chapter 6: The Rock and Fossil Record. Read a short science fiction story. Define unknown terms in the story. Determine the central ideas of the story and produce clear and coherent writing that demonstrates understanding. 8.RST 2, 8.RST 4, 8.WHST 4, 8.WHST 5, 8.WHST10, C. Std. 5.2 **Activities:** • Bell Activity #11: Read the passage about Feathered Dinosaurs on pg.184. Write an argument stating your opinion on feathered dinosaurs. OCCT Item Spec. Question • Review for the test • Read the science fiction story, "The Anatomy Lesson" by Scott Sanders. **Eval:** **1.** Write down ten unknown words while reading the story and define them. 2. Answer the "Think About It" questions at the end of the story. 3. Discuss possible answers to the questions at the end of class.	**Purpose:** Evaluate understanding of Chapter 6: The Rock and Fossil Record. 8.RST 4, P. Std. 3.3, C. Std. 5.2 **Activities:** • Bell Activity #12: Identify the variables and the control in an experiment. OCCT Item Spec. Question **Eval:** Chapter 6Test	NO SCHOOL	NO SCHOOL

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Identify the layers of the Earth by their composition. Identify the layers of the Earth by their physical properties. Describe a tectonic plate. Explain how scientists know about the structure of Earth's interior. Describe Wegener's hypothesis of continental drift. Explain how sea-floor spreading provides a way for continents to move. Describe how new oceanic lithosphere forms at mid-ocean ridges. Explain how magnetic reversals provide evidence for sea-floor spreading. Describe the three types of tectonic plate boundaries. Describe three forces thought to move tectonic plates. Explain how scientists measure the rate at which tectonic plates move. Introduce ten new academic vocabulary words. Describe the two types of stress that deform rocks. Describe three major types of folds. Explain the difference between the three major types of faults. Review academic vocabulary words as a class. Identify the most common types of mountains. Explain the difference between uplift and subsidence. Identify the forces that shape the features of the Earth. Predict land features resulting from gradual changes. Represent the natural world using models and identify their limitations.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 3(follow a multistep procedure), 8.RST 4(determine the meaning of key terms), 8.RST 5(analyze the structure an author uses to organize a text), 8.RST 6(analyze the author's purpose in providing an explanation), 8.RST 7(integrate information expressed in words with version of that info. expressed visually)8.WHST 2(write informative texts), 8.WHST 2a(introduce a topic clearly), 8.WHST 2c(use appropriate and varied transitions to create cohesion among ideas), 8.WHST 2d(use precise language to explain the topic), 8.WHST 2e(establish and maintain a formal style) **PASS:** Process Standard 3.5(follow a multistep procedure), Process Standard 4.2(interpret data tables, and graphs), Content Standard 4.1(landforms result from constructive forces)

HOURS	MONDAY 10/21/13	TUESDAY 10/22/13	WEDNESDAY 10/23/13	THURSDAY 10/24/13	FRIDAY 10/25/13
5th Hour 8th Grade Advanced Science	**Purpose:** Identify the layers of the Earth by their composition. Identify the layers of the Earth by their physical properties. Describe a tectonic plate. Explain how scientists know about the structure of Earth's interior. 8.RST 3, 8.RST 4, P. Std. 3.5, P. Std. 4.2, C. Std. 4.1 **Activities:** • Bell Activity #13: Graphing Questions pg.183 #1-3 OCCT Item Spec. Question • Inside the Earth (Section 7.1 pg.190-196) Read/ Lecture/Discuss • Make a notes foldable that models the layers of the Earth by composition and physical properties. **Eval:** Continental Collisions Activity pg.189 Answer analysis questions for Continental Collisions Activity.	**Purpose:** Describe Wegener's hypothesis of continental drift. Explain how sea-floor spreading provides a way for continents to move. Describe how new oceanic lithosphere forms at mid-ocean ridges. Explain how magnetic reversals provide evidence for sea-floor spreading. Describe the three types of tectonic plate boundaries. Describe three forces thought to move tectonic plates. Explain how scientists measure the rate at which tectonic plates move. 8.RST 4, C. Std. 4.1 **Activities:** • Bell Activity #14: Describe your journey to the center of the Earth. In your description, tell about the characteristics of the layers. • Plate Tectonics (Section 7.2 pg.198-201) and The Theory of Plate Tectonics (Section 7.3 pg.202-205) PowerPoints Read/ Lecture/Discuss **Eval:** Evidence for Continental Drift Assignment: Students will work in groups to analyze evidence that supports the continental drift hypothesis. **Reminder:** Rough Draft of Research Paper Due	**Purpose:** Introduce ten new academic vocabulary words. Describe the two types of stress that deform rocks. Describe three major types of folds. Explain the difference between the three major types of faults. 8.RST 4, 8.RST 6, 8.RST 7, C. Std. 4.1 **Activities:** • Bell Activity #15: Questions pg.197 #5-8 OCCT Item Spec. Question • Academic Vocabulary PowerPoint. The words for this week are dispersal methods, rock cycle, sedimentary rock, igneous rock, metamorphic rock, plate tectonics, continental drift, crustal deformation, landforms, and continental glaciation. Students will write the definitions and draw the pictures. • Deforming the Earth's Crust (Section 7.4 pg.206-209) PowerPoint Read/ Lecture/Discuss **Eval:** Oral questions	**Purpose:** Review academic vocabulary words as a class. Identify the most common types of mountains. Explain the difference between uplift and subsidence. 8.RST 4, 8.RST 5, C. Std. 4.1 **Activities:** • Bell Activity#16: Read the two paragraphs titled, "Deforming the Earth's Crust". Analyze the author's purpose in providing the explanation about spaghetti noodles. • Review the academic vocabulary words as a class. • Deforming the Earth's Crust continued (Section 7.4 pg.210-213) PowerPoint Read/ Lecture/Discuss **Eval:** Watch BrainPop video clip over Plate Tectonics. Answer quiz questions that follow.	**Purpose:** Identify the forces that shape the features of the Earth. Predict land features resulting from gradual changes. Represent the natural world using models and identify their limitations. 8.RST 3, 8.RST 5, p. Std. 3.5, C. Std. 4.1 **Activities:** • Bell Activity#17: Look at the major headings on pg.207-211. Analyze the structure the author uses to organize the text, including how the minor headings contribute to the major headings and how the major headings contribute to the whole. OCCT Item Spec. Question • Graham Cracker Plate Tectonics Lab **Eval:** Post Lab Questions

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Explain how volcanic eruptions can affect climate. Compare three types of volcanic landforms. Demonstrate a volcanic eruption using a model volcano. Describe the formation and movement of magma. Explain the relationship between volcanoes and plate tectonics. Summarize the methods scientists use to predict volcanic eruptions. Evaluate understanding of building academic vocabulary words. Review content matter of Chapter 7: Plate Tectonics and Chapter 9: Volcanoes. Determine where explosive and nonexplosive volcanoes are located in the world. Evaluate understanding of Chapter 7: Plate Tectonics and Chapter 9: Volcanoes. Read a short science fiction story. Define unknown terms in the story. Determine the central ideas of the story and produce clear and coherent writing that demonstrates understanding.

PASS OBJECTIVES AND COMMON CORE STANDARDS:
Common Core: 8.RST 2(determine the central ideas of a text and provide and accurate summary), 8.RST 3(follow a multistep procedure), 8.RST 4(determine the meaning of key terms), 8.RST 7(integrate information expressed in words with version of that info. expressed visually), W.HST 1(write arguments focused on discipline-specific content), 8.WHST1b(support claims with logical reasoning), 8.WHST 4(produce clear and coherent writing), 8.WHST 5(develop and strengthen writing as needed), 8.WHST 10(write routinely) **Pass:** Process Standard 3.3(identify variables and controls in an experiment), Process Standard 3.5(follow a multistep procedure), Process Standard 4.2(interpret data tables, and graphs), Content Standard 4.1(landforms result from constructive forces)

HOURS	MONDAY 10/28/13	TUESDAY 10/29/13	WEDNESDAY 10/30/13	THURSDAY 10/31/13	FRIDAY 11/1/13
5th Hour 8th Grade Advanced Science	**Purpose:** Explain how volcanic eruptions can affect climate. Compare three types of volcanic landforms. Demonstrate a volcanic eruption using a model volcano. 8.RST 4, 8.RST 7, C. Std. 4.1 **Activities:** • Bell Activity#18: Questions pg.213 #9-12 OCCT Item Spec. Question • Effects of Volcanic Eruptions (Section 9.2 pg.256, 258-259) PowerPoint Read/Lecture/ Discuss • Volcanic Eruption Model **Eval:** Word association organizer for academic vocabulary words.	**Purpose:** Describe the formation and movement of magma. Explain the relationship between volcanoes and plate tectonics. Summarize the methods scientists use to predict volcanic eruptions. Evaluate understanding of building academic vocabulary words. 8.RST 2, 8.RST 4, C. Std. 4.1 **Activities:** • Bell Activity#19: Read the paragraphs about Alfred Wegener on pg.221. Determine the central ideas of the text and provide an accurate summary. OCCT Item Spec. Question • Causes of Volcanic Eruptions (Section 9.3 pg.260-265) PowerPoint Read/ Lecture/Discuss • Begin reviewing for Ch. 7, 9 test. **Eval:** AV Word Quiz #4	**Purpose:** Review content matter of Chapter 7: Plate Tectonics and Chapter 9: Volcanoes. Determine where explosive and nonexplosive volcanoes are located in the world. 8.RST 2, 8.RST 3, P. Std. 3.5, C. Std. 4.1 **Activities:** • Bell Activity#20: Graphing questions pg.269 #21-22 OCCT Item Spec. Question • Review for Ch. 7, 9 Test • Some Go "Pop," Some Do Not Lab pg.733 **Eval:** Location of Volcanoes Map, Analyze the Results pg.733 #1-2 **Reminder:** Bring a soil sample to school by Wednesday, November 6th.	**Purpose:** Evaluate understanding of Chapter 7: Plate Tectonics and Chapter 9: Volcanoes. Read a short science fiction story. Define unknown terms in the story.8.RST 4, P. Std. 3.3, P. Std. 4.2, C. Std. 4.1 **Activities:** • Bell Activity #21: Read the paragraph on pg.272 "Fighting Lava with Fire Hoses." Determine the central ideas of the text and provide an accurate summary. OCCT Item Spec. Question • After the test, begin reading the science fiction short story, "The Contagion" by Katherine Maclean. **Eval:** Ch. 7, 9 Test	**Purpose:** Read a short science fiction story. Define unknown terms in the story. Determine the central ideas of the story and produce clear and coherent writing that demonstrates understanding. 8.RST 2, 8.RST 4, 8.WHST 1, 8.WHST 1b, 8.WHST 4, 8.WHST 5, 8.WHST10 **Activities:** • Bell Activity #22: Graphing question OCCT Item Spec. Question • Read the science fiction story, "The Contagion" by Katherine Maclean. **Eval:** **1.** Write down ten unknown words while reading the story and define them. 2. Answer the "Think About It" questions at the end of the story including a persuasive 2-minute speech. 3. Discuss possible answers to the questions at the end of class. 4. Students will present their persuasive 2-minute speeches at the end of class.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Describe how ice, water, wind, gravity, plants, and animals cause mechanical weathering. Describe how water, acids, and air cause chemical weathering of rocks. Explain how the composition of rock affects the rate of weathering. Describe how a rock's total surface area affects the rate at which the rock weathers. Describe how differences in elevation and climate affect the rate of weathering. Describe the source of soil. Explain how the different properties of soil affect plant growth. Describe how various climates affect soil. Test to see if decomposers found in soil affect the rate of mold on bread. Introduce ten new academic vocabulary words. Describe how moving water shapes the surface of the Earth by the process of erosion. Explain how water moves through the water cycle. Describe a water shed. Explain three factors that affect the rate of stream erosion. Identify four ways that rivers are described. Review academic vocabulary words as a class. Describe the four different types of stream deposits. Describe how the deposition of sediment affects the land. Explain how caves and sinkholes form as a result of erosion and deposition.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 4(determine the meaning of key terms), 8.RST 7(integrate information expressed in words with version of that info. expressed visually), 8.RST 8(distinguish between facts, reasoned judgment, and speculation in a text), 8.WHST 2(write informative texts),**Pass:** Process Standard 3.3(identify variables and controls in an experiment), Process Standard 3.4(identify a testable hypothesis), Process Standard 3.5(follow a multistep procedure), Content Standard 2.1(The motion of an object can be measured and its speed can be represented on a graph), Content Standard 4.1(landforms result from constructive forces and destructive forces)

HOURS	MONDAY 11/4/13	TUESDAY 11/5/13	WEDNESDAY 11/6/13	THURSDAY 11/7/13	FRIDAY 11/8/13
5th Hour 8th Grade Advanced Science	**Purpose:** Describe how ice, water, wind, gravity, plants, and animals cause mechanical weathering. Describe how water, acids, and air cause chemical weathering of rocks. 8.WHST 2, 8. RST 4, 8.RST 7, C. Std. 4.1 **Activities:** • Bell Activity #23: Write a paragraph that describes how water contributes to the formation of potholes. OCCT Item Spec. Question • Weathering (Section 10.1 pg.278-283) PowerPoint Read/ Lecture/Discuss • Acids React Quick Lab pg.282 **Eval:** Chemical Weathering Smart Board Interactive Activity	**Purpose:** Explain how the composition of rock affects the rate of weathering. Describe how a rock's total surface area affects the rate at which the rock weathers. Describe how differences in elevation and climate affect the rate of weathering. 8.WHST 2, 8.RST 4, C. Std. 4.1 **Activities:** • Bell Activity #24:Imagine that you are in a sand castle-building contest. Describe ways to protect your castle against the weathering effects of the wind and waves. OCCT Item Spec. Question • Rates of Weathering (Section 10.2 pg.284-287) PowerPoint Read/Lecture/Discuss **Eval:** What did you learn today? Students will write about what they learned and then we will discuss as a class.	**Purpose:** Describe the source of soil. Explain how the different properties of soil affect plant growth. Describe how various climates affect soil. Test to see if decomposers found in soil affect the rate of mold on bread. 8.RST 4, P. Std.3.3, P. Std. 3.4, P. Std. 3.5, C. Std. 4.1 **Activities:** • Bell Activity #25: Has there always been soil on Earth? What makes soil valuable to humans? OCCT Item Spec. Question • From Bedrock to Soil (Section 10.3 pg.288-293) PowerPoint **Eval:** Living Soil Lab pg.290 Begin writing a lab report for the living soil lab.	**Purpose:** Introduce ten new academic vocabulary words. Describe how moving water shapes the surface of the Earth by the process of erosion. Explain how water moves through the water cycle. Describe a water shed. Explain three factors that affect the rate of stream erosion. Identify four ways that rivers are described. 8.RST 4, 8.RST 8, C. Std. 4.1 **Activities:** • Bell Activity #26: Distinguish between facts, reasoned judgment based on research, and speculation after reading a passage about water conservation. OCCT Item Spec. Question • Academic Vocabulary PowerPoint. The words for this week are biosphere, geosphere, hydrosphere, relative age, water cycle, troposphere, stratosphere, mesosphere, ionosphere, thermosphere. Students will write the definitions and draw the pictures. • The Active River (Section 11.1 pg.308-314) PowerPoint Read/ Lecture/Discuss **Eval:** Work on Living Soil Lab Report	**Purpose:** Review academic vocabulary words as a class. Describe the four different types of stream deposits. Describe how the deposition of sediment affects the land. Explain how caves and sinkholes form as a result of erosion and deposition. 8.RST 4, 8.WHST 2, C. Std. 2.1, C. Std. 4.1 **Activities:** • Bell Activity #27: Even though flooding along rivers is potentially harmful, many farms are located near rivers. Why do people build farms along rivers? If you had access to all resources, how would you deal with this problem? OCCT Item Spec. Question • Review for the AV word quiz by having students guess the word when given the definition or picture. • Stream and River Deposits (Section 11.2 pg.316-319) and Water underground (Section 11.3 pg.324-325) PowerPoints Read/Lecture/Discuss **Eval:** Oral Questions

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Explain how energy from waves affects a shoreline. Identify six shoreline features created by wave erosion. Explain how wave deposits form beaches. Describe how sand moves along a beach. Explain why some areas are more affected by wind erosion than other areas are. Describe the process of saltation. Identify three landforms that result from wind erosion and deposition. Explain how dunes move. Explain the difference between alpine glaciers and continental glaciers. Describe two ways in which glaciers move. Identify five landscape features formed by alpine glaciers. Identify four types of moraines. Review content matter of Chapter 10:Weathering and Soil Formation, Chapter 11:The Flow of Fresh Water, and Chapter 12: Agents of Erosion and Deposition. Evaluate understanding of academic vocabulary words. Explain the role of gravity as an agent of erosion and deposition. Explain how angle of repose is related to mass movement. Describe three factors that affect creep. Evaluate understanding of Chapter 10: Weathering and Soil Formation, Chapter 11: The Flow of Fresh Water, and Chapter 12: Agents of Erosion and Deposition. Introduce ten new academic vocabulary words. Explain how water moves through the water cycle. Explain how rivers forms and how they cause erosion and deposition.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 2(determine the central ideas of a text and provide and accurate summary), 8.RST 3(follow a multistep procedure), 8.RST 4(determine the meaning of key terms), 8.RST 9(compare info. gained from experiments and videos with that gained from reading a text on the same topic), 8.WHST 2(write informative texts)**Pass:** Process Standard 3.3(identify variables and controls in an experiment), Process Standard 3.4(identify a testable hypothesis), Process Standard 3.5(follow a multistep procedure), Process Standard 3.6(practice safety procedures), Process Standard 4.1(record qualitative data), Process Standard 4.3(develop reasonable explanations), Process Standard 4.5(communicate scientific processes), Process Standard 5.2(conduct experiments), Process Standard 5.5(form a valid conclusion),Process Standard 4.2(interpret data tables, and graphs), Content Standard 2.1(The motion of an object can be measured and its speed can be represented on a graph),Content Standard 4.1(landforms result from constructive forces and destructive forces)

HOURS	MONDAY 11/11/13	TUESDAY 11/12/13	WEDNESDAY 11/13/13	THURSDAY 11/14/13	FRIDAY 11/15/13
5th Hour 8th Grade Advanced Science	**Purpose:** Explain how energy from waves affects a shoreline. Identify six shoreline features created by wave erosion. Explain how wave deposits form beaches. Describe how sand moves along a beach. 8.RST 2, 8.RST 4, 8.WHST 2, C. Std. 2.1, C. Std. 4.1 **Activities:** • Bell Activity #28: Read the passage titled, "Sunken Forests" on pg. 338. Determine the central ideas of the text and provide an accurate summary. OCCT Item Spec. Question • Shoreline Erosion and Deposition (Section 12.1 pg.342-347) PowerPoint Read/Lecture/ Discuss **Eval:** Word association organizer for academic vocabulary words #5.	**Purpose:** Explain why some areas are more affected by wind erosion than other areas are. Describe the process of saltation. Identify three landforms that result from wind erosion and deposition. Explain how dunes move. Explain the difference between alpine glaciers and continental glaciers. Describe two ways in which glaciers move. Identify five landscape features formed by alpine glaciers. Identify four types of moraines. Review content matter of Chapter 10:Weathering and Soil Formation, Chapter 11:The Flow of Fresh Water, and Chapter 12: Agents of Erosion and Deposition. 8.RST 4, 8.WHST 2, C. Std. 2.1, C. Std. 4.1 **Activities:** • Bell Activity #29: What causes wind? OCCT Item Spec. Question • Wind Erosion and Deposition (Section 12.2 pg.348-351) and Erosion and Deposition by Ice (Section 12.3 pg.352-357) Read/Lecture/ Discuss • Review for the Ch.10-12 Test • **Eval:** Finish Living Soil Lab by observing bread samples.	**Purpose:** Evaluate understanding of academic vocabulary words. Explain the role of gravity as an agent of erosion and deposition. Explain how angle of repose is related to mass movement. Describe three factors that affect creep. Review content matter of Chapter 10:Weathering and Soil Formation, Chapter 11:The Flow of Fresh Water, and Chapter 12: Agents of Erosion and Deposition. 8.RST 4, 8.WHST 2, C. Std. 4.1 **Activities:** • Bell Activity #30: Much of North America was once covered by a continental glacier. Describe what a continental glacier does to the land. What would be different today if that event had not occurred? OCCT Item Spec. Question • The Effect of Gravity on Erosion and Deposition (Section 12.4 pg.358-361) Read/ Lecture/Discuss • Finish reviewing for the test. **Eval:** **1.** AV Word Quiz #5 2. Living Soil Lab Report Due	**Purpose:** Evaluate understanding of Chapter 10: Weathering and Soil Formation, Chapter 11: The Flow of Fresh Water, and Chapter 12: Agents of Erosion and Deposition. 8.RST 2, 8.RST 4, P. Std. 3.3, P. Std. 4.2, C. Std. 4.1 **Activities:** • Bell Activity #31: Describe a place where a warning sign saying, "Watch for falling rocks," might be located. List factors that contribute to making a rock-fall zone. OCCT Item Spec. Question • After the test, read the procedure for the Stream Table Lab. Discuss the formula for calculating speed. **Eval:** Chapter 10,11,12 Test	**Purpose:** Examine a stream's velocity and its effect on erosion. 8.RST 3,8.RST 9, P. Std. 3.4, P. Std. 3.5, P. Std. 3.6,P. Std. 4.1, P. Std. 4.3, P. Std. 4.5, P. Std. 5.2, P. Std. 5.5 **Activities:** • Bell Activity #33: Why is a stream table a good model for showing the effects of erosion? OCCT Item Spec. Question • Stream Table Lab **Eval:** Post-lab questions and Graphs

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Examine a stream's velocity and its effect on erosion. Determine the effect of various angles and volumes of water on the amount of soil erosion. Describe the cause of tsunamis and the impact they can have on the environment. Describe the cause of tsunamis and the impact they can have on the environment. Review academic vocabulary words as a class. Describe surface currents. List the three factors that control surface currents. Describe deep currents. Identify the three factors that form deep currents. Explain how currents affect climate. Describe the effects of El Nino. Explain how scientists study and predict the pattern of El Nino.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 2(determine the central ideas of a text and provide and accurate summary), 8.RST 4(determine the meaning of key terms), 8.RST 5(analyze the structure an author uses to organize a text), 8.RST 6(analyze the author's purpose in providing an explanation) , 8.RST 9(compare info. gained from experiments and videos with that gained from reading a text on the same topic), 8.WHST 2(write informative texts), 8.WHST 2b(develop the topic with relevant fact, definitions, or examples), 8.WHST 2d(use precise language to explain the topic), 8.WHST 2e(establish and maintain a formal style) **PASS** Content Standard 4.3(Atmospheric and ocean circulation patterns affect weather), Content Standard 5.1(Earth's history has been punctuated by occasional catastrophic events)

HOURS	MONDAY 11/18/13	TUESDAY 11/19/13	WEDNESDAY 11/20/13	THURSDAY 11/21/13	FRIDAY 11/22/13
5th Hour 8th Grade Advanced Science	**Purpose:** Introduce ten new academic vocabulary words. Explain how water moves through the water cycle. Explain how rivers forms and how they cause erosion and deposition. 8.RST 2, 8.RST 4, 8.RST 9 **Activities:** • Bell Activity #32: If the large ice sheet covering Antarctica were to melt completely, what type of landscape would you expect Antarctica to have? OCCT Item Spec. Question • Academic Vocabulary PowerPoint. The words for this week are aerobic, anaerobic, photosynthesis, respiration, transpiration, carbon cycle, climate, conduction, convection, and asteroids. Students will write the definitions and draw the pictures. • Watch the Brain POP video clips over the water cycle and rivers. Take the quizzes for each topic. Then review the answers as a class. **Eval:** Brain POP video quizzes (Water Cycle and Rivers)	**Purpose:** Examine a stream's speed. Practice solving for speed, distance, and time. **Activities/Eval:** • Finish lab report and graphs for the Stream Table lab. • Speed Problems Practice Worksheets **Reminder:** Hilldale Middle School Science Fair is today.	**Purpose:** Describe the cause of tsunamis and the impact they can have on the environment. C. Std. 5.1 **Activities/Eval:** • Finish watching the Tsunami video. Students will take notes (25 facts)over the video and turn in at the end of the hour.	**Purpose:** Review academic vocabulary words as a class. Describe surface currents. List the three factors that control surface currents. Describe deep currents. Identify the three factors that form deep currents. 8.RST 4, 8.RST 5, 8.WHST 2, 8.WHST 2b, 8.WHST 2d, 8.WHST 2e, C. Std. 4.3 **Activities:** • Bell Activity #34: Read the passage titled, "The Lost Squadron," on pg.368. Determine the central ideas of the text and provide an accurate summary. Then imagine that you were part of the crew that had to wait 10 days to be rescued. What would you have done to survive? OCCT Item Spec. Question • Review for the AV word quiz by having students guess the word when given the definition or picture. • Currents (Section 14.1 pg.416-421) PowerPoint Read/ Lecture/Discuss **Eval:** What did you learn today? Students will write about what they learned and then we will discuss as a class.	**Purpose:** Explain how currents affect climate. Describe the effects of El Nino. Explain how scientists study and predict the pattern of El Nino. 8.RST 4, 8.RST 6, C. Std. 4.3 **Activities:** • Bell Activity #35: Look at the major heading titled, "Surface Currents," on pg.417 and the 4 minor headings that follow. Analyze the structure the author uses to organize the text, including how the minor headings contribute to the major headings and how the major headings contribute to the whole. OCCT Item Spec. Question • Currents and Climate (Section 14.2 pg.422-425) PowerPoint Read/Lecture/Discuss **Eval:** Word association organizer for academic vocabulary.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Evaluate understanding of academic vocabulary words. Identify the parts of a wave. Explain how the parts of a wave relate to wave movement. Describe how ocean waves form and move. Introduce ten new academic vocabulary words. Classify types of waves.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 2(determine the central ideas of a text and provide and accurate summary), **,** 8.RST 4(determine the meaning of key terms), **PASS:** Content Standard 4.3(Atmospheric and ocean circulation patterns affect weather)

HOURS	MONDAY 11/25/13	TUESDAY 11/26/13	WEDNESDAY 11/27/13	THURSDAY 11/28/13	FRIDAY 11/29/13
5th Hour 8th Grade Advanced Science	**Purpose:** Evaluate understanding of academic vocabulary words. Identify the parts of a wave. Explain how the parts of a wave relate to wave movement. Describe how ocean waves form and move. 8.RST 4, C. Std. 4.3 **Activities:** • Bell Activity #36: Read the introductory paragraph on pg.422. Analyze the author's purpose in providing the explanation about Scilly Isles and Newfoundland. OCCT Item Spec. Question • Waves (Section 14.3 pg.426-427) PowerPoint Read/ Lecture/Discuss • Making Waves Demonstration pg.426 • Modeling Waves pg.427 **Eval:** Academic Vocabulary Quiz #6	**Purpose:** Introduce ten new academic vocabulary words. Classify types of waves. 8.RST 2, 8.RST 4, C. Std. 4.3 **Activities:** • Bell Activity #37: Describe how global winds, the Coriolis Effect, and continental deflections form a pattern of surface currents on Earth. OCCT Item Spec. Question • Academic Vocabulary PowerPoint. The words for this week are carnivore, commensalism, ecosystem, energy pyramid, species diversity, food web, herbivore, mutualism, parasitism, and niche. Students will write the definitions and draw the pictures. • Waves (Section 14.3 pg.428-431) PowerPoint Read/ Lecture/Discuss • Show the Tsunami video clip. • Discuss Science Fair PowerPoint Presentation **Eval:** Oral questions	NO SCHOOL	NO SCHOOL	NO SCHOOL

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Students will create a PowerPoint presentation of their science fair project. Review academic vocabulary words as a class. Explain tides and their relationship with the Earth, sun, and moon. Describe four different types of tides. Analyze the relationship between tides and coastal land. Examine the link between global warming and stronger hurricanes. Explain the concept of global warming. Review academic vocabulary words as a class. Describe how the Earth's climate has changed over time. Summarize four different theories that attempt to explain why the Earth's climate has changed. Explain the greenhouse effect and its role in global warming. Evaluate understanding of academic vocabulary words. Review content matter of Chapter 14: The Movement of Ocean Water and Chapter 17:Changes in Climate.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 4(determine the meaning of key terms), 8.RST 9(compare info. gained from experiments and videos with that gained from reading a text on the same topic), 8.WHST 2(write informative texts), 8.WHST 2b(develop the topic with relevant fact, definitions, or examples), 8.WHST 2d(use precise language to explain the topic), 8.WHST 2e(establish and maintain a formal style), 8.WHST 6(using technology, produce and publish writing), 8.WHST 9(draw evidence from informational texts to support analysis) **PASS:** Content Standard 4.3(Atmospheric and ocean circulation patterns affect weather), Content Standard 5.1(Earth's history has been punctuated by occasional catastrophic events)

HOURS	MONDAY 12/2/13	TUESDAY 12/3/13	WEDNESDAY 12/4/13	THURSDAY 12/5/13	FRIDAY 12/6/13
5th Hour 8th Grade Advanced Science	**Purpose:** Students will create a PowerPoint presentation of their science fair project. 8.WHST 6, 8.WHST 9 **Activities:** • Bell Activity #38: Read the passage titled, "Red Tides," on pg.442. Determine the central ideas of the text and provide an accurate summary. OCCT Item Spec. Question • Students will work in the computer lab to create the PowerPoint presentation over their science fair projects. **Reminder:** Presentations are due on Friday, December 13th.	**Purpose:** Review academic vocabulary words as a class. Explain tides and their relationship with the Earth, sun, and moon. Describe four different types of tides. Analyze the relationship between tides and coastal land. 8.RST 4, 8.WHST 2, 8.WHST 2b, 8.WHST 2d, 8.WHST 2e, C. Std.4.3 **Activities:** • Bell Activity #39: If the moon had the mass of a golf ball, the sun would have the mass of approximately 110 school buses. Why do you think that the moon exerts more influence over tides on Earth than the sun does? OCCT Item Spec. Question • Review for the AV word quiz by having students guess the word when given the definition or picture. • Tides (Section 14.4 pg.432-435) PowerPoint Read/Lecture/Discuss **Eval:** Watch the Brain POP video clip on tides. Take the quiz that follows for a grade. Also, students will write a paragraph summarizing what they learned.	**Purpose:** Examine the link between global warming and stronger hurricanes. Explain the concept of global warming. 8.RST 4, 8.RST 9, C. Std. 5.1 **Activities:** • Bell Activity #40: Explain how the position of the moon relates to the occurrence of high tides and low tides? OCCT Item Spec. Question • Show "Stronger Hurricanes" video clip. Discuss global warming and its effect on the strength of hurricanes. http://www.pbs.org/teachers/connect/resources/564/preview/ • Watch the Brain POP video clip over global warming. Take the quiz and review answers as a class. **Eval:** Word association organizer for academic vocabulary.	**Purpose:** Review academic vocabulary words as a class. Describe how the Earth's climate has changed over time. Summarize four different theories that attempt to explain why the Earth's climate has changed. Explain the greenhouse effect and its role in global warming. 8.RST 4, 8.RST 9, C. Std. 5.1 **Activities:** • Bell Activity #41: Imagine that the climate in Oklahoma has changed, and is now warmer than it used to be. Write down five different ways you think the area would be affected by warmer temperatures. OCCT Item Spec. Question • Review for the AV word quiz by having students guess the word when given the definition or picture. Changes in Climate (Section 17.4 pg.536-541) PowerPoint Read/Lecture/Discuss **Eval:** Watch the Brain Pop video clip over the greenhouse effect. Take the quiz that follows and review answers as a class.	**Purpose:** Evaluate understanding of academic vocabulary words. Review content matter of Chapter 14: The Movement of Ocean Water and Chapter 17:Changes in Climate. 8.RST 4, C. Std.4.3, C. Std. 5.1 **Activities:** • Bell Activity #42: Read Passage 2 on pg.547. Answer the three reading comprehension questions that follow. OCCT Item Spec. Question • Chapter 14,17 Study Guide **Eval:** Academic Vocabulary Quiz #7 **Reminder**: Chapter 14,17 Test Tuesday, 12/10/13

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Describe the structure of minerals. Describe the two major groups of minerals. Identify seven ways to determine the identity of minerals. Explain special properties of minerals. Describe different uses for metallic and nonmetallic minerals. Evaluate understanding of Chapter 14: The Movement of Ocean Water and Chapter 17:Changes in Climate. Prepare for the semester exam by completing the semester exam study guide.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 4(determine the meaning of key terms), 8.WHST 2(write informative texts), 8.WHST 2b(develop the topic with relevant fact, definitions, or examples), 8.WHST 2c(use appropriate and varied transitions to create cohesion among ideas), 8.WHST 2d(use precise language to explain the topic), 8.WHST 2e(establish and maintain a formal style), 8.WHST4(produce clear and coherent writing), 8.WHST10(write routinely) **PASS:** Process Standard 1(observe and measure), Process Standard 3(experimenting), Process Standard 4(interpret and communicate), Content Standard 4.3(Atmospheric and ocean circulation patterns affect weather), Content Standard 5.1(Earth's history has been punctuated by occasional catastrophic events)

HOURS	MONDAY 12/9/13	TUESDAY 12/10/13	WEDNESDAY 12/11/13	THURSDAY 12/12/13	FRIDAY 12/13/13
5th Hour 8th Grade Advanced Science	**Purpose:** Describe the structure of minerals. Describe the two major groups of minerals. Identify seven ways to determine the identity of minerals. Explain special properties of minerals. Describe different uses for metallic and nonmetallic minerals. 8.RST 4, 8.WHST 2, 8.WHST2b, 8.WHST 2d, 8.WHST 2e, 8.WHST 4, 8.WHST 10, **Activities:** • Students will answer an OCCT Item Spec. Question. • Minerals (Section3.1, 3.2, 3.3.3 pg.66-79) PowerPoint Read/Lecture/ Discuss **Eval:** Read and discuss a science related current event. After the discussion, students will write an informative essay focused on the content.	**Purpose:** Evaluate understanding of Chapter 14: The Movement of Ocean Water and Chapter 17:Changes in Climate. 8.RST 4, Content Standard 4.3, Content Standard 5.1 **Activities:** • Students will answer an OCCT Item Spec. Question. **Eval:** Chapter 14,17 Test	**Purpose:** Prepare for the semester exam by completing the semester exam study guide. 8.RST 4, P. Std. 1, P. Std. 3, P. Std. 4 **Activities:** • Students will answer an OCCT Item Spec. Question. • Students will complete their study guide for the semester exam..	**Purpose:** Prepare for the semester exam by finishing the semester exam study guide. 8.RST 4, P. Std. 1, P. Std. 3, P. Std. 4 **Activities:** • Students will answer an OCCT Item Spec. Question. • Students will finish the semester exam study guide. **Eval:** Go over the answers to the study guide as a class.	**Purpose:** Student will present their PowerPoint presentations of their science fair projects. They will be ready to answer questions about their projects from the audience. 8.WHST 2 **Activities/Eval:** Science Fair PowerPoint Presentations

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Student will present their PowerPoint presentations of their science fair projects. They will be ready to answer questions about their projects from the audience. Prepare for the OCCT by taking a practice test over observing, measuring, experimenting, interpreting, and communicating. Prepare for the OCCT by taking a practice test over observing, measuring, experimenting, interpreting, and communicating.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 4(determine the meaning of key terms), 8.WHST 2(write informative texts)
PASS: Process Standard 1(observe and measure), Process Standard 3(experimenting), Process Standard 4(interpret and communicate)

HOURS	MONDAY 12/16/13	TUESDAY 12/17/13	WEDNESDAY 12/18/13	THURSDAY 12/19/13	FRIDAY 12/20/13
5th Hour 8th Grade Advanced Science	**Purpose:** Student will present their PowerPoint presentations of their science fair projects. They will be ready to answer questions about their projects from the audience. 8.WHST 2 **Activities/Eval:** Science Fair PowerPoint Presentations	**Purpose:** Prepare for the OCCT by taking a practice test over observing, measuring, experimenting, interpreting, and communicating. P. Std. 1, P. Std. 3, P. Std. 4 **Activities/Eval:** • Answer the first 25 questions on the 50 question OCCT practice test. • Go over the 25 questions as a class.	**Purpose**: Prepare for the OCCT by taking a practice test over observing, measuring, experimenting, interpreting, and communicating. P. Std. 1, P. Std. 3, P. Std. 4 **Activities/Eval**: • Answer the last 25 questions on the 50 question OCCT practice test. Discuss answers to the OCCT practice test.	SEMESTER EXAMS	SEMESTER EXAMS

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Introduce ten new academic vocabulary words. Determine an object's identity based on the object's properties. Describe the two properties of all matter. Identify the units used to measure volume. Determine the relationship between pitch and volume of water in glass containers. Measure volume using a graduated cylinder. Compare mass and weight. Explain the relationship between mass and inertia. Accurately measure volume, mass, and weight. Use the correct SI units when measuring. Identify tools used in the lab. Evaluate understanding of academic vocabulary words. Define physical properties of matter and list examples. Determine the importance of using a variety of properties when describing objects. Identify six examples of physical properties of matter. Describe how density is used to identify substances. List six examples of physical changes. Explain what happens to matter during a physical change.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 3(follow a multistep procedure), 8.RST 4(determine the meaning of key terms), 8.RST 9(compare info. gained from experiments and videos with that gained from reading a text on the same topic), 8.WHST 2b(develop the topic with relevant, well chosen facts), 8.WHST 4(produce clear and coherent writing) **PASS:** Process Standard 1.1(identify quantitative changes given conditions), Process Standard 1.2(use appropriate tools), Process Standard 1.3(use appropriate SI units), Process Standard 2.1(identify properties by which a set of objects could be ordered), Process Standard 3.5(follow a multistep procedure), Process Standard 4.1(record data in an appropriate method), Process Standard 4.3(evaluate data to develop reasonable explanations), Process Standard 5.5(develop a logical relationship between evidence and explanation to form a conclusion), Content Standard 1.2 (matter has physical properties that can be measured)

HOURS	MONDAY 1/6/14	TUESDAY 1/7/14	WEDNESDAY 1/8/14	THURSDAY 1/9/14	FRIDAY 1/10/14
5th Hour 8th Grade Advanced Science	**NO SCHOOL**	**Purpose:** Introduce thirteen new academic vocabulary words. Describe the two properties of all matter. Identify the units used to measure volume. Determine the relationship between pitch and volume of water in glass containers. Measure volume using a graduated cylinder. Compare mass and weight. Explain the relationship between mass and inertia. 8.RST 4, 8.RST 9, 8.WHST 4, P. Std. 1.1, P. Std. 1.2, P. Std. 1.3, P. Std. 2.1, P. Std. 3.5, P. Std. 4.3, P. Std. 5.5, C. Std. 1.2 **Activities:** • Bell Activity #1: Think of a present you received for Christmas. Write a paragraph describing the item, but do not say what the item is. We will read some out loud and other students will guess based on the description given. OCCT Item Spec. Question • Academic Vocabulary Words #8. The words for this week are chemical compound, chemical element, chemical energy, chemical reaction, Newton's three laws of motion, constant velocity, elements, forces, inertia, Law of Conservation of Matter, net forces, and pH. • What is Matter? (Sect. 2.1 pg.38-39 and pg.40-43) PowerPoint Read/Lecture/Discuss • Explaining Volume Demo pg.38 • Water Music Experiment pg.38 **Eval:** Measuring Liquid Volume Worksheet and Volume Calculations Worksheet	**Purpose:** Accurately measure volume, mass, and weight. Use the correct SI units when measuring. Identify tools used in the lab. 8.RST 3, 8.RST 4, 8.RST 9, 8.WHST 2b, 8.WHST 4, P. Std. 1.1, P. Std. 1.2, P. Std. 1.3, P. Std. 3.5, P. Std. 4.1, C. Std. 1.2 **Activities:** • Bell Activity #2: What is the difference between volume and mass? What units of measurement would you use to measure each? OCCT Item Spec. Question • Measuring Volume, Mass, and Weight Lab **Eval:** Lab Questions **Reminder:** AV Quiz #8 on Thursday	**Purpose:** Evaluate understanding of academic vocabulary words. Define physical properties of matter and list examples. Determine the importance of using a variety of properties when describing objects. 8.RST 4, 8.WHST 2b, 8.WHST 4, C. Std. 1.2 **Activities:** • Bell Activity #3: Do objects with large masses always have large weights? Explain your answer. OCCT Item Spec. Question • Physical Properties Part 1 (Sect. 2.2 pg.44) PowerPoint Read/Lecture/ Discuss **Eval:** 1. Science Journal Entry #1 (An Accurate Description Activity). Students will examine various objects and describe each in terms of color, odor, texture, size, shape, and state. 2. Academic Vocabulary Quiz #8	**Purpose:** Identify six examples of physical properties of matter. Describe how density is used to identify substances. List six examples of physical changes. Explain what happens to matter during a physical change. 8.RST 4, 8.WHST 2b, 8.WHST 4, C. Std. 1.2 **Activities:** • Bell Activity #4: If you were asked to describe a cheeseburger to someone who had never seen a cheeseburger, what would you tell the person? Write your response in complete sentences. OCCT Item Spec. Question • Physical Properties Part 2 (Sect. 2.2 pg.45-49) PowerPoint Read/Lecture/Discuss • Demonstrate how a density column works. • Arrange various items in order of density on the Smart Board. **Eval:** 1. Science Journal Entry #2: Physical Changes of a Sugar Cube Students will write down the physical properties of a sugar cube and then they will describe three things they can do to the sugar cube to cause it to undergo a physical change. 2. Density Word Problems

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Introduce new academic vocabulary words. Describe two examples of chemical properties. Explain what happens during a chemical change. Distinguish between physical and chemical changes. Describe the properties shared by particles of all matter. Describe three states of matter. Explain the differences between the states of matter. Describe three factors that affect how gases behave. Predict how a change in pressure or temperature will affect the volume of gas. Describe how energy is involved in changes of state. Describe what happens during melting and freezing. Compare evaporation and condensation. Explain what happens during sublimation. Identify the two changes that can happen when a substance loses or gains energy. Describe pure substances. Describe the characteristics of elements, and give examples. Explain how elements can be identified. Classify elements according to their properties. Explain how elements make up compounds. Describe the properties of compounds. Explain how a compound can be broken down into its elements. Give examples of common compounds. Complete the word association organizer for the academic vocabulary words. Evaluate understanding of academic vocabulary words. Describe three properties of mixtures. Describe four methods of separating the parts of a mixture. Analyze a solution in terms of its solute and solvent. Explain how concentration affects a solution. Describe the particles in a suspension. Explain how a colloid differs from a solution and a suspension.

PASS OBJECTIVES AND COMMON CORE STANDARDS: C**ommon Core:** 8.RST 1(cite specific textual evidence to support analysis of science), 8.RST 4(determine the meaning of key terms), 8.RST 6(analyze the author's purpose in providing an explanation in a text), 8.WHST 2b(develop the topic with relevant, well chosen facts), 8.WHST 2d(use precise language and domain specific vocabulary to inform), 8.WHST 4(produce clear and coherent writing) **PASS:** Content Standard 1.2 (matter has physical properties that can be measured and chemical properties)

HOURS	MONDAY 1/13/14	TUESDAY 1/14/14	WEDNESDAY 1/15/14	THURSDAY 1/16/14	FRIDAY 1/17/14
5th Hour 8th Grade Advanced Science	**Purpose:** Introduce new academic vocabulary words. Describe two examples of chemical properties. Explain what happens during a chemical change. Distinguish between physical and chemical changes. 8.RST 4, 8.RST 6, 8.WHST 2b, C. Std.1.2 **Activities:** • Bell Activity #5: Read the passage about electronic coin testers in vending machines. Then describe the physical properties of the coins that the coin tester looks for. OCCT Item Spec. Question • Academic Vocabulary Words #9. The words for this week are acceleration, conservation of energy, density, electric current, electrical energy, electromagnet, electromagnetic spectrum, energy transformation, magnetic field, balanced force, unbalanced force. • Chemical Properties (Sect. 2.3 pg.50-51 and pg.52-55) PowerPoint Read/ Lecture/Discuss **Eval:** Oral Questions	**Purpose:** Describe the properties shared by particles of all matter. Describe three states of matter. Explain the differences between the states of matter. Describe three factors that affect how gases behave. Predict how a change in pressure or temperature will affect the volume of gas. 8.RST 4, C. Std. 1.2 **Activities:** • Bell Activity #6: Read the 1st paragraph on pg.50 in italics. Analyze the author's purpose in providing the explanation. OCCT Item Spec. Question • Three States of Matter (Sect. 3.1 pg.66-69) and Behavior of Gases (Sect. 3.2 pg.70-73) PowerPoints Read/Lecture/Discuss **Eval:** Oral Questions	**Purpose:** Describe how energy is involved in changes of state. Describe what happens during melting and freezing. Compare evaporation and condensation. Explain what happens during sublimation. Identify the two changes that can happen when a substance loses or gains energy. Describe pure substances. Describe the characteristics of elements, and give examples. Explain how elements can be identified. Classify elements according to their properties. 8.RST1, 8.RST4, 8.WHST 2b, 8.WHST 2d, 8.WHST 4, C. Std. 1.2 **Activities:** • Bell Activity #7:What is the difference between an element, molecule, and a compound? Cite evidence from the book to support your thoughts. Give an example of each. Use the index or glossary to help you. OCCT Item Spec. Question • Changes of State (Sect. 3.3 pg.74-79) and Elements (Sect. 4.1 pg.90-93) PowerPoints Read/ Lecture/Discuss **Eval:** Physical vs. Chemical Changes Worksheet	**Purpose:** Explain how elements make up compounds. Describe the properties of compounds. Explain how a compound can be broken down into its elements. Give examples of common compounds. Describe three properties of mixtures. Describe four methods of separating the parts of a mixture. Analyze a solution in terms of its solute and solvent. Explain how concentration affects a solution. Describe the particles in a suspension. Explain how a colloid differs from a solution and a suspension. 8.RST 4, 8.WHST 2b, 8.WHST 2d, 8.WHST 4, C. Std. 1.2 **Activities:** • Bell Activity #8: Compare the properties of metals, nonmetals, and metalloids. OCCT Item Spec. Question • Compounds (Sect. 4.2 pg.94-97) and Mixtures (Sect. 4.3 pg.98-104) PowerPoints Read/ Lecture/ Discuss **Eval:** Word Association Organizer for AV words #9.	**Purpose:** Evaluate understanding of academic vocabulary words. 8.RST 4, C. Std. 2.1 **Activities:** Bell Activity #9: Interpreting Graphics Questions pg. 61 #1-4 OCCT Item Spec. Question **Eval:** 1. Academic Vocabulary Quiz #9 2. Elements, Compounds, and Mixtures Worksheet

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Review content matter of Chapter 2: The Properties of Matter and Chapter 4: Elements, Compounds, and Mixtures. Discuss Elements Project. Describe the physical properties of four substances. Identify physical and chemical changes. Classify four substances by their chemical properties. Evaluate understanding of Chapter 2: The Properties of Matter and Chapter 4: Elements, Compounds, and Mixtures. Describe the motion of an object by the position of the object in relation to a reference point. Identify the two factors that determine speed. Explain the difference between speed and velocity. Analyze the relationship between velocity and acceleration. Demonstrate that changes in motion can be measured and represented on a graph. Introduce new academic vocabulary words. Review how to work out volume, density, speed, velocity, and force problems.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 2(determine the central ideas or conclusions of a text), 8.RST 4(determine the meaning of key terms), 8.WHST 4(produce clear and coherent writing), **PASS:** Process Standard 4.2(interpret tables and graphs), Content Standard 1.2 (matter has physical properties that can be measured and chemical properties), Content Standard 2.1(the motion of an object can be measured), Content Standard 2.2(an object that is not being subjected to a net force will continue to move at a constant velocity)

HOURS	MONDAY 1/20/14	TUESDAY 1/21/14	WEDNESDAY 1/22/14	THURSDAY 1/23/14	FRIDAY 1/24/14
5th Hour 8th Grade Advanced Science	**NO SCHOOL**	**Purpose:** Review content matter of Chapter 2: The Properties of Matter and Chapter 4: Elements, Compounds, and Mixtures. Discuss Elements Project. 8.RST 4, P. Std. 4.2, C. Std. 1.2 **Activities:** • Bell Activity #10: Interpreting Graphics Questions pg.111 #1-4 OCCT Item Spec. Question • Review for the Matter, Elements, Compounds, and Mixtures Test • Discuss Elements Project • Look up uses of elements. **Eval:** Oral Questions	**Purpose:** Evaluate understanding of Chapter 2: The Properties of Matter and Chapter 4: Elements, Compounds, and Mixtures. 8.RST 2, 8.RST 4, Content Standard 2.1 **Activities:** • Bell Activity #12: Read passage 1 on pg.84 and answer the three reading comprehension questions that follow. OCCT Item Spec. Question **Eval:** Matter, Elements, Compounds, and Mixtures Test	**Purpose:** Describe the motion of an object by the position of the object in relation to a reference point. Identify the two factors that determine speed. Explain the difference between speed and velocity. Analyze the relationship between velocity and acceleration. Demonstrate that changes in motion can be measured and represented on a graph. 8.RST 4, 8.WHST 4, P. Std. 1.3, C. Std. 2.1, C. Std. 2.2 **Activities:** • Bell Activity #13: Describe your position in the classroom two different ways using a reference point and a set of reference directions. OCCT Item Spec. Question • Measuring Motion (Sect. 5.1 pg.118-123) PowerPoint Read/ Lecture/Discuss **Eval:** Speed, Velocity, and Force Problems Worksheet	**Purpose:** Introduce new academic vocabulary words. Review how to work out volume, density, speed, velocity, and force problems. 8.RST 4, C.Std. 2.1, C. Std. 2.2 **Activities:** • Bell Activity #14: Explain what the following words mean: velocity, acceleration, net force, friction, and gravity. OCCT Item Spec. Question • Academic Vocabulary Words #10 The words for this week are amplitude, wave length, wave, refraction, reflection, six forms of energy, and frequency. Students will write the definitions and draw the pictures. **Eval:** Volume, Density, Speed, Velocity, and Force Problems Study Guide

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Describe forces, and explain how forces act on objects. Determine the net force when more than one force is acting on an object. Compare balanced and unbalanced forces. Review and evaluate understanding of Volume, Density, Speed, Velocity, and Force Quiz. Explain why friction occurs. List the two types of friction, and give examples of each type. Explain how friction can be both harmful and helpful. Describe gravity and its effect on matter. Explain the law of universal gravitation. Describe the difference between mass and weight. Review academic vocabulary words as a class. Explain the effect of gravity and air resistance on falling objects. Explain why objects in orbit are in free fall and appear to be weightless. Describe how projectile motion is affected by gravity. Describe Newton's first law of motion, and explain how it relates to objects at rest and objects in motion. State Newton's second law of motion, and explain the relationship between force, mass, and acceleration. State Newton's third law of motion and give examples of force pairs. Students will be assigned the task of designing a parachute that descends the slowest. Then they will write a detailed procedure explaining how they made the parachute.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 2(determine the central ideas or conclusions of a text), 8.RST 3(follow a multistep procedure), 8.RST 4(determine the meaning of key terms), 8.RST 7(integrate information expressed in words with version of that info. expressed visually), 8.WHST 2a(introduce a topic clearly), 8.WHST 2b(develop the topic with relevant information and examples), 8.WHST 2c(use appropriate transitions to create cohesion), 8.WHST 2e(maintain a formal style), 8.WHST 2f(provide a concluding statement), 8.WHST 4(produce clear and coherent writing) **PASS:** Process Standard 3.5(follow a multistep procedure), Process Standard 4.2(interpret tables and graphs), Process Standard 4.5(communicate scientific processes),Content Standard 2.1(the motion of an object can be measured), Content Standard 2.2(an object that is not being subjected to a net force will continue to move at a constant velocity)

HOURS	MONDAY 1/27/14	TUESDAY 1/28/14	WEDNESDAY 1/29/14	THURSDAY 1/30/14	FRIDAY 1/31/14
5th Hour 8th Grade Advanced Science	**Purpose:** Describe forces, and explain how forces act on objects. Determine the net force when more than one force is acting on an object. Compare balanced and unbalanced forces. Describe ways that unbalanced forces cause changes in motion. Review for Volume, Density, Speed, Velocity, and Force Quiz. 8.RST 4, C. Std. 2.1, C. Std. 2.2 **Activities:** • Bell Activity #15: Where do you see a force happening in the room right now? Which object is exerting the force, and which is receiving it? Give two examples. OCCT Item Spec. Question • What is a Force? (Section 5.2 pg.124-127) PowerPoint Read/ Lecture/Discuss • Review for Volume, Density, Speed, Velocity, and Force Quiz. **Eval:** Science Journal Entry #3: Draw 3 examples of balanced forces and then draw 3 more pictures showing what happens when the forces become unbalanced.	**Purpose:** Evaluate understanding of volume, density, speed, velocity, and force problems. 8.RST 3, 8.RST 4, 8.RST 9, P. Std. 3.5, C. Std. 2.1, C. Std. 2.2 **Activities:** • Bell Activity #16: Questions pg.127 #7-9 OCCT Item Spec. Question **Eval:** 1. Volume, Density, Speed, Velocity, and Force Quiz 2. Word Association Organizer for academic vocabulary words.	**Purpose:** Explain why friction occurs. List the two types of friction, and give examples of each type. Explain how friction can be both harmful and helpful. Describe gravity and its effect on matter. Explain the law of universal gravitation. Describe the difference between mass and weight. Review academic vocabulary words as a class. 8.RST 3, 8.RST 4, 8.RST 9, 8.WHST 2a, 8.WHST 2b, 8.WHST 2c, 8.WHST 2e, 8.WHST 2f, P. Std. 3.5, p. Std. 4.2, C. Std. 2.1, C. Std. 2.2 **Activities:** • Bell Activity #17: Interpreting Graphics Questions pg.145 #1-3 OCCT Item Spec. Question • Friction (Sect. 5.3 pg.128-133) and Gravity (Sect. 5.4 pg.134-139) PowerPoints Read/ Lecture/Discuss • Reducing Friction Quick Lab pg.132 **Eval:** Gravity Story pg.138 The story must be introduced clearly, have appropriate transitions, and have a concluding statement. The story must be three paragraphs in length.	**Purpose:** Explain the effect of gravity and air resistance on falling objects. Explain why objects in orbit are in free fall and appear to be weightless. Describe how projectile motion is affected by gravity. 8.RST 2, 8.RST 4. 8.RST 7, C. Std. 2.1, C. Std. 2.2 **Activities:** • Bell Activity #18: If Wile E. Coyote and a boulder fall off a cliff at the same time, which do you think will hit the ground first? Answer this question. Then read the first two paragraphs on pg.150. Write a summary of what you read. OCCT Item Spec. Question • Gravity and Motion (Sect. 6.1 pg.150-157) PowerPoint Read/ Lecture/ Discuss • Answer questions pg.157 #8-10 as a class. **Eval:** Academic Vocabulary Quiz #10	**Purpose:** Describe Newton's first law of motion, and explain how it relates to objects at rest and objects in motion. State Newton's second law of motion, and explain the relationship between force, mass, and acceleration. State Newton's third law of motion and give examples of force pairs. Students will be assigned the task of designing a parachute that descends the slowest. Then they will write a detailed procedure explaining how they made the parachute. 8.RST 3, 8.RST 4, 8.RST 7, P. Std. 4.5, C. Std.2.1, C. Std. 2.2 **Activities:** • Bell Activity #19: Draw a series of pictures that shows what happens to an egg in a cart as the cart moves across the floor and strikes the wall. Then draw a picture of how the egg could be protected in the cart. Which one of Newton's laws does this example attempt to explain? OCCT Item Spec. Question • Newton's Laws of Motion (Sect. 6.2 pg.158-165) PowerPoint Read/ Lecture/Discuss • Parachute Design Lab **Eval:** Parachute Design Procedure and Table of Results

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Describe how fluids exert pressure. Explain the relationship between fluid pressure and buoyant force. Describe the relationship between pressure and fluid speed. Review content matter of Chapter 5: Matter in Motion, Chapter 6: Forces and Motion, and Chapter 7: Forces in Fluids. Determine the speed of a toy car by following a procedure and using the formula for speed. Evaluate understanding of Chapter 5: Matter in Motion, Chapter 6: Forces and Motion, and Chapter 7: Forces in Fluids. Describe some of the experiments that led to the current atomic theory. Compare the different models of the atom. Explain how the atomic theory has changed as scientists have discovered new information about the atom. Describe the size of an atom. Name the parts of an atom. Describe the relationship between numbers of protons and neutrons and atomic number. State how isotopes differ. Calculate atomic masses. Describe the forces within an atom.

PASS OBJECTIVES AND COMMON CORE STANDARDS: **Common Core:** 8.RST 3(follow a multistep procedure), 8.RST 4(determine the meaning of key terms), 8.RST 5(analyze the structure and author uses to organize a text, including how major sections contribute to the whole), 8.RST 7(integrate information expressed in words with version of that info. expressed visually) **PASS:** Process Standard 1.1 (identify quantitative changes), Process Standard 1.2(use appropriate tools), Process Standard 1.3(use SI units), Process Standard 2.2(identify properties by which a set of objects could be ordered), Process Standard 3.5(follow a multistep procedure), Process Standard 4.1(report data in an appropriate method), Process Standard 4.3(evaluate to develop reasonable explanations), Content Standard 2.1(the motion of an object can be measured), Content Standard 2.2(an object that is not being subjected to a net force will continue to move at a constant velocity)

HOURS	MONDAY 2/3/14	TUESDAY 2/4/14	WEDNESDAY 2/5/14	THURSDAY 2/6/14	FRIDAY 2/7/14
5th Hour 8th Grade Advanced Science	**Purpose:** Describe how fluids exert pressure. Explain the relationship between fluid pressure and buoyant force. Describe the relationship between pressure and fluid speed. Review content matter of Chapter 5: Matter in Motion, Chapter 6: Forces and Motion, and Chapter 7: Forces in Fluids. 8.RST 4, C. Std. 2.1, C. Std. 2.2 **Activities:** • Bell Activity #20: Math Questions pg.175 #1-3 OCCT Item Spec. Question • Forces in Fluids (Chapter 7 pg.180-197) PowerPoint Read/Lecture/ Discuss • Review for the Matter, Forces, and Fluids Test **Eval:** Oral Questions	**Purpose:** Determine the speed of a toy car by following a procedure and using the formula for speed. 8.RST 3, P. Std. 1.1, P. Std. 1.2, P. Std. 1.3, P. Std. 3.5, P. Std. 4.1, P. Std. 4.3, C. Std. 2.1 **Activities:** • Bell Activity #21: Interpreting Graphics Questions pg.175 #1-2 OCCT Item Spec. Question • Speed of a Toy Car Lab **Eval:** Data Sheet and Post Lab Questions	**Purpose:** Evaluate understanding of Chapter 5: Matter in Motion, Chapter 6: Forces and Motion, and Chapter 7: Forces in Fluids. 8.RST 4, C. Std. 2.1, C. Std. 2.2 **Activities:** • Bell Activity #22: Reading passage #2 pg.174 Questions #1-2 OCCT Item Spec. Question **Eval:** Matter, Forces and Fluids Test	**Purpose:** Describe some of the experiments that led to the current atomic theory. Compare the different models of the atom. Explain how the atomic theory has changed as scientists have discovered new information about the atom. 8.RST 4, P. Std. 2.2 **Activities:** • Bell Activity #23: Explain what you think this statement means: "Color exists by convention, sweet by convention, bitter by convention; in reality nothing exists but atoms and the void." OCCT Item Spec. Question • Development of the Atomic Theory (Sect. 11.1 pg.312-317) PowerPoint Read/ Lecture/Discuss **Eval:** Pass out the list of elements students will have to memorize. Play elements review game on Smart Board.	**Purpose:** Describe the size of an atom. Name the parts of an atom. Describe the relationship between numbers of protons and neutrons and atomic number. State how isotopes differ. Calculate atomic masses. Describe the forces within an atom. 8.RST 4, 8.RST 5, 8.RST 7, P. Std. 2.2 **Activities:** • Bell Activity #24: Write down the five major headings in Section 11.2 starting on pg.318. Analyze the structure the author uses to organize the text, including how the major sections contribute to the whole. OCCT Item Spec. Question • The Atom (Sect. 11.2 pg.318-324) PowerPoint Read/Lecture/Discuss **Eval:** Play elements review game on Smart Board.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Describe how Mendeleev arranged elements in the first periodic table. Explain how elements are arranged in the modern periodic table. Compare metals, nonmetals, and metalloids based on their properties and on their location in the periodic table. Describe some of the experiments that led to the current atomic theory. Compare the different models of the atom. Explain how the atomic theory has changed as scientists have discovered new information about the atom. Describe the size of an atom. Name the parts of an atom. Describe the relationship between numbers of protons and neutrons and atomic number. State how isotopes differ. Calculate atomic masses. Describe the forces within an atom. Explain why elements in a group often have similar properties. Describe the properties of the elements in the groups of the periodic table. Review content matter of Chapter 11: Introduction to Atoms and Chapter 12: The Periodic Table.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 4(determine the meaning of key terms), 8.RST 7(integrate information expressed in words with version of that info. expressed visually) **PASS:** Process Standard 2.1 (using observable properties, place an object into a classification system), Process Standard 2.2(identify properties by which a set of objects could be ordered), Content Standard 1.1 (substances react chemically with other substances to form new substances with different characteristics), Content Standard 1.2 (matter has physical properties that can be measured and chemical properties)

HOURS	MONDAY 2/10/14	TUESDAY 2/11/14	WEDNESDAY 2/12/14	THURSDAY 2/13/14	FRIDAY 2/14/14
5th Hour 8th Grade Advanced Science	**Purpose:** Describe how Mendeleev arranged elements in the first periodic table. Explain how elements are arranged in the modern periodic table. Compare metals, nonmetals, and metalloids based on their properties and on their location in the periodic table. 8.RST 4, 8.RST 7, P. Std. 2.1, C. Std.1.1, C. Std. 1.2 **Activities:** • Bell Activity #25: Think of all of the ways a deck of cards could be laid out so that the cards form some sort of identifiable pattern. Write down as many patterns as you can think of. OCCT Item Spec. Question • Arranging the Elements (Sect. 12.1 pg.336-343) PowerPoint Read/Lecture/Discuss **Eval:** Ch. 11Vocabulary Activity	**Purpose:** Explain why elements in a group often have similar properties. Describe the properties of the elements in the groups of the periodic table. 8.RST 4, 8.RST 7, P. Std. 2.1, P. Std. 2.2, C. Std. 1.1, C. Std.1.2 **Activities:** • Bell Activity #26: Interpreting Graphics pg.329 #19-21 OCCT Item Spec. Question • Grouping the Elements (Sect. 12.2 pg.344-350) PowerPoint Read/ Lecture/Discuss **Eval:** Review elements.	**Purpose:** Describe the size of an atom. Name the parts of an atom. Describe the relationship between numbers of protons and neutrons and atomic number. State how isotopes differ. Calculate atomic masses. Describe the forces within an atom. 8.RST 4, P. Std. 2.2 **Activities/Eval:** • Directed Reading Worksheet over Section 11.2.	**Purpose:** Describe some of the experiments that led to the current atomic theory. Compare the different models of the atom. Explain how the atomic theory has changed as scientists have discovered new information about the atom. 8.RST 4, P. Std. 2.2 **Activities/Eval:** • Directed Reading Worksheet over Section 11.1 and Section Review for Section 11.1.	**Purpose:** Review content matter of Chapter 11: Introduction to Atoms and Chapter 12: The Periodic Table. 8.RST 4, P. Std. 2.1, P. Std. 2.2, C. Std. 1.1, C. Std. 1.2 **Activities:** • Bell Activity #27: Using Key Terms Questions pg. 351 #1-4 OCCT Item Spec. Question • Review for the Introduction to Atoms and Periodic Table Test. **Eval:** Present Elements Projects

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Evaluate understanding of Chapter 11: Introduction to Atoms and Chapter 12: The Periodic Table. Review content matter of Chapter 11: Introduction to Atoms and Chapter 12: The Periodic Table. Describe chemical bonding. Identify the number of valence electrons in an atom. Predict whether an atom is likely to form bonds. Explain how ionic bonds form. Describe how positive ions form. Describe how negative ions form. Explain why ionic compounds are neutral. Explain how covalent bonds form. Describe molecules. Explain how metallic bonds form. Describe the properties of atoms. Use cereal to represent electrons when making electron-dot diagrams. Describe how chemical reactions produce new substances that have different chemical and physical properties. Identify four signs that indicate that a chemical reaction might be taking place. Explain what happens to chemical bonds during a chemical reaction.

PASS OBJECTIVES AND COMMON CORE STANDARDS:
Common Core: 8.RST 3(follow a multistep procedure), 8.RST 4(determine the meaning of key terms), 8.RST 7(integrate information expressed in words with version of that info. expressed visually), 8.RST 9(compare info. gained from experiments and videos with that gained from reading a text on the same topic) **PASS:** Process Standard 1.1 (identify qualitative and quantitative changes given conditions), Process Standard 1.2(use appropriate tools), Process Standard 2.1 (using observable properties, place an object into a classification system), Process Standard 2.2(identify properties by which a set of objects could be ordered), Process Standard 3.5(follow a multistep procedure), Process Standard 3.6(practice safety procedures in labs), Process Standard 4.5(communicate scientific processes), Process Standard 5.5(form and communicate a valid conclusion), Content Standard 1.1(substances react chemically to form new substances), Content Standard 1.2(in chemical reactions and physical changes, matter is conserved)

HOURS	MONDAY 2/17/14	TUESDAY 2/18/14	WEDNESDAY 2/19/14	THURSDAY 2/20/14	FRIDAY 2/21/14
5th Hour 8th Grade Advanced Science	**Purpose:** Evaluate understanding of Chapter 11: Introduction to Atoms and Chapter 12: The Periodic Table. 8.RST 4, P. Std. 2.1, P. Std. 2.2, C. Std. 1.1, C. Std. 1.2 **Activities:** • Bell Activity #28: Read the passages on pg.330 and answer the 4 reading comprehension questions that follow. OCCT Item Spec. Question **Eval:** Introduction to Atoms and The Periodic Table Test	**Purpose:** Describe chemical bonding. Identify the number of valence electrons in an atom. Predict whether an atom is likely to form bonds. 8.RST 3, 8.RST 4, 8.RST 7, 8.RST 9, P. Std. 1.1, P. Std.1.2, P. Std. 3.5, P. Std. 3.6, P. Std. 4.5, P. Std. 5.5, C. Std.1.1, C. Std.1.2 **Activities:** • Bell Activity #30:Identify the elements in different chemical formulas. Then predict whether the compounds are similar to each other and explain why. Finally, identify and discuss the compounds. OCCT Item Spec. Question • Electrons and Chemical bonding (Sect. 13.1 pg.364-367) PowerPoint Read/ Lecture/Discuss **Eval:** From Glue to Goop (chemical bonding lab activity) pg.363. Students will answer the lab analysis questions and turn in.	**Purpose:** Review content matter of Chapter 11: Introduction to Atoms and Chapter 12: The Periodic Table. 8.RST 4, P. Std. 2.1, P. Std. 2.2, C. Std. 1.1, C. Std. 1.2 **Activities:** • Bell Activity #29: Interpreting Graphics pg.331 #1-2 OCCT Item Spec. Question **Eval:** Periodic Table Review Worksheet	**Purpose:** Explain how ionic bonds form. Describe how positive ions form. Describe how negative ions form. Explain why ionic compounds are neutral. 8.RST 4, 8.RST 7, C. Std. 1.1, C. Std. 1.2 **Activities:** • Bell Activity #31: Critical thinking questions pg.367 #5-6 and Interpreting graphics question #7 OCCT Item Spec. Question • Ionic Bonds (Sect. 13.2 pg.368-371) PowerPoint Read/ Lecture/Discuss **Eval:** Science Journal Entry #4: Draw electron shell diagrams for various atoms. Identify the number of valence electrons in each atom, the charge on each atom, and if they could form ionic bonds with other atoms.	**Purpose:** Explain how covalent bonds form. Describe molecules. Explain how metallic bonds form. Describe the properties of atoms. Use cereal to represent electrons when making electron-dot diagrams. 8.RST 4, 8.RST 7, C. Std. 1.1, C. Std.1.2 **Activities:** • Bell Activity #32: Math Skills question pg.371 #6 OCCT Item Spec. Question • Covalent and Metallic Bonds (Sect. 13.3 pg.372-377) PowerPoint Read/ Lecture/Discuss **Eval:** Cereal Dot Diagrams pg.372 (Students will use different colors of cereal to make electron dot diagrams of water and ammonia.)

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Describe how chemical reactions produce new substances that have different chemical and physical properties. Identify four signs that indicate that a chemical reaction might be taking place. Explain what happens to chemical bonds during a chemical reaction. Interpret and write simple chemical formulas. Write and balance simple chemical equations. Explain how a balanced equation shows the law of conservation of mass. Review how the periodic table is arranged. Describe four types of chemical reactions. Classify a chemical equation as one of four types of chemical reactions. Compare exothermic and endothermic reactions. Explain activation energy. Interpret an energy diagram. Describe five factors that affect the rate of reaction.

PASS OBJECTIVES AND COMMON CORE STANDARDS:
Common Core: 8.RST 4(determine the meaning of key terms), 8.RST 7(integrate information expressed in words with version of that info. expressed visually), 8.RST 9(compare info. gained from experiments and videos with that gained from reading a text on the same topic), 8.WHST 2(write informative/explanatory texts), 8.WHST 2a(introduce a topic clearly; include graphics when useful to aiding comprehension), 8.WHST 2b(develop the topic with relevant, well-chosen facts), 8.WHST 2d(use precise language and domain-specific vocabulary), 8.WHST 2e(establish and maintain a formal style), 8.WHST 2f(provide a concluding statement), 8.WHST 4(produce clear and coherent writing) **PASS:** Process Standard 1.1 (identify qualitative and quantitative changes given conditions), Process Standard 2.2(identify properties by which a set of objects could be ordered), Content Standard 1.1(substances react chemically to form new substances), Content Standard 1.2(in chemical reactions and physical changes, matter is conserved)

HOURS	MONDAY 2/24/14	TUESDAY 2/25/14	WEDNESDAY 2/26/14	THURSDAY 2/27/14	FRIDAY 2/28/14
5th Hour 8th Grade Advanced Science	**Purpose:** Describe how chemical reactions produce new substances that have different chemical and physical properties. Identify four signs that indicate that a chemical reaction might be taking place. Explain what happens to chemical bonds during a chemical reaction. 8.RST 4, 8.RST 7, 8.RST 9, P. Std. 1.1, P. Std.4.5, P. Std. 5.5, C. Std. 1.1, C. Std.1.2 **Activities:** • Bell Activity #33: Applying Concepts Questions pg.381 #18 OCCT Item Spec. Question • Forming New Substances (Sect. 14.1 pg.388-391) PowerPoint **Eval:** Reaction Ready Quick Lab pg. 391 Observe the chemical reaction of chalk and vinegar. Answer quick lab questions pg.391 #3-4	**Purpose:** Interpret and write simple chemical formulas. Write and balance simple chemical equations. Explain how a balanced equation shows the law of conservation of mass. 8.RST 4, 8.RST 7, C. Std. 1.1, C. Std. 1.2 **Activities:** • Bell Activity #34: Critical Thinking and Interpreting Graphics Questions pg.391 #4-7 OCCT Item Spec. Question • Chemical Formulas and Equations (Sect. 14.2 pg.392-396) PowerPoint **Eval:** Balancing Chemical Reactions Worksheet	**Purpose:** Review how the periodic table is arranged. 8.RST 4, P. Std. 2.2 **Activities/Eval:** • 8th Grade Writing Test in the Morning. • Periodic Table Worksheet for afternoon classes.	**Purpose:** Describe four types of chemical reactions. Classify a chemical equation as one of four types of chemical reactions. Write and balance simple chemical equations. Explain how a balanced equation shows the law of conservation of mass. 8.RST 4, C. Std. 1.1, C. Std. 1.2 **Activities:** • Bell Activity #35: Questions pg.397 #5-6 OCCT Item Spec. Question • Types of Chemical Reactions (Sect. 14.3 pg.398-401) PowerPoint Read/Lecture/ Discuss **Eval:** Practice balancing chemical equations using the interactive Smart Board lesson.	**Purpose:** Compare exothermic and endothermic reactions. Explain activation energy. Interpret an energy diagram. Describe five factors that affect the rate of reaction. 8.RST 4, 8.RST 7, 8.WHST 2, 8.WHST 2a, 8.WHST 2b, 8.WHST 2d, 8.WHST 2e, 8.WHST 2f, 8.WHST 4, C. Std. 1.1, C. Std. 1.2 **Activities:** • Bell Activity #36: Question pg. 397 #8 OCCT Item Spec. Question • Energy and Rates of Chemical Reactions (Sect. 14.4 pg.402-407) PowerPoint Read/ Lecture/Discuss **Eval:** Students will **w**rite a paragraph summarizing what they learned today. They must also include drawings of the energy diagrams with an explanation for each one.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Describe the properties of ionic and covalent compounds. Classify compounds as ionic or covalent based on their properties. Describe four properties of acids. Identify four uses of acids. Describe four properties of bases. Identify four uses of bases. Determine if certain household liquids are acids or bases. Use blue and red litmus paper to determine if the liquids are acids or bases. Use pH paper to determine the pH of the liquids. Create a graph of the results and formulate conclusions. Describe how chemical reactions produce new substances that have different chemical and physical properties. Identify four signs that indicate that a chemical reaction might be taking place. Explain what happens to chemical bonds during a chemical reaction. Interpret and write simple chemical formulas. Write and balance simple chemical equations. Explain how a balanced equation shows the law of conservation of mass. Describe how chemical reactions produce new substances that have different chemical and physical properties. Identify four signs that indicate that a chemical reaction might be taking place. Explain what happens to chemical bonds during a chemical reaction. Interpret and write simple chemical formulas. Write and balance simple chemical equations. Explain how a balanced equation shows the law of conservation of mass. Describe four types of chemical reactions. Classify a chemical equation as one of four types of chemical reactions.	**PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core:** 8.RST 3(follow a multistep procedure), 8.RST 4(determine the meaning of key terms), 8.RST 7(integrate information expressed in words with version of that info. expressed visually), 8.RST 9(compare info. gained from experiments and videos with that gained from reading a text on the same topic) , 8.WHST 2(write informative/explanatory texts), 8.WHST 2a(introduce a topic clearly; include graphics when useful to aiding comprehension), 8.WHST 2b(develop the topic with relevant, well-chosen facts), 8.WHST 2d(use precise language and domain-specific vocabulary), 8.WHST 2e(establish and maintain a formal style), 8.WHST 2f(provide a concluding statement), 8.WHST 4(produce clear and coherent writing) **PASS:** Process Standard 1.1 (identify qualitative and quantitative changes given conditions), Process Standard 1.2(use appropriate tools), Process Standard 3.5(follow a multistep procedure), Process Standard 3.6(practice safety procedures in labs), Process Standard 4.5(communicate scientific processes), Process Standard 5.5(form and communicate a valid conclusion), Content Standard 1.1(substances react chemically to form new substances acid/base reactions), Content Standard 1.2(in chemical reactions and physical changes, matter is conserved)

HOURS	MONDAY 3/3/14	TUESDAY 3/4/14	WEDNESDAY 3/5/14	THURSDAY 3/6/14	FRIDAY 3/7/14
5th Hour 8th Grade Advanced Science	**Purpose:** Describe the properties of ionic and covalent compounds. Classify compounds as ionic or covalent based on their properties. 8.RST 4, C. Std. 1.1, C. Std. 1.2 **Activities:** • Bell Activity #37: Interpreting graphics questions pg.413 #1-3 OCCT Item Spec. Question • Ionic and Covalent Bonds (Sect. 15.1 pg.418-421) PowerPoint Read/ Lecture/Discuss **Eval:** Science Journal #5: Students will predict whether a compound is ionic or covalent by considering the elements that compose it.	**Purpose:** Describe four properties of acids. Identify four uses of acids. Describe four properties of bases. Identify four uses of bases. 8.RST 4, C. Std. 1.1 **Activities:** • Bell Activity #38: Read Passage 1 on pg.412. Then answer the 3 reading comprehension questions that follow. OCCT Item Spec. Question • Acids and Bases (Sect. 15.2 pg.422-427) PowerPoint Read/ Lecture/Discuss • If time allows, watch the Brain Pop video over Acids and Bases. Complete the review activity and quiz over the video. **Eval:** Turn in Bell Activities and Science Journal Entries	**Purpose:** Determine if certain household liquids are acids or bases. Use blue and red litmus paper to determine if the liquids are acids or bases. Use pH paper to determine the pH of the liquids. Create a graph of the results and formulate conclusions. 8.RST 3, 8.RST 7, 8.RST 9, 8.WHST 2, 8.WHST 2a, 8.WHST 2d, 8.WHST 2e, 8.WHST 2f, 8.WHST 4, P. Std. 1.1, P. Std. 1.2, P. Std. 3.5, P. Std. 3.6, P. Std. 4.5, P. Std. 5.5 **Activities:** • Bell Activity #1: Read passage 2 on pg.412. Then answer the two reading comprehension questions that follow. OCCT item Spec. Question • Acid/Base Indicator Lab **Eval:** Students will complete the table for the lab, create a graph of the pH results, and write a conclusion.	**Purpose:** Describe how chemical reactions produce new substances that have different chemical and physical properties. Identify four signs that indicate that a chemical reaction might be taking place. Explain what happens to chemical bonds during a chemical reaction. Interpret and write simple chemical formulas. Write and balance simple chemical equations. Explain how a balanced equation shows the law of conservation of mass. 8.RST 4, C.Std. 1.1, C. Std. 1.2 Describe four types of chemical reactions. Classify a chemical equation as one of four types of chemical reactions. **Activities/Eval:** • Chapter 14 Review Worksheet	**Purpose:** Describe how chemical reactions produce new substances that have different chemical and physical properties. Identify four signs that indicate that a chemical reaction might be taking place. Explain what happens to chemical bonds during a chemical reaction. Interpret and write simple chemical formulas. Write and balance simple chemical equations. Explain how a balanced equation shows the law of conservation of mass. Describe four types of chemical reactions. Classify a chemical equation as one of four types of chemical reactions. 8.RST 4, C. Std. 1.1, C. Std. 1.2 **Activities/Eval:** • Chapter 14 Review Worksheet #1-23 and Science, Puzzlers, Twisters, and Teasers Worksheet

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Describe chemical bonding. Explain how metallic bonds form. Compare exothermic and endothermic reactions. Explain activation energy. Describe five factors that affect the rate of reaction. Describe the properties of ionic and covalent compounds. Classify compounds as ionic or covalent based on their properties. Explain the difference between strong acids and bases and weak acids and bases. Identify acids and bases by using the pH scale. Describe the formation and uses of salts. Review content matter of Chapters 13-15: Chemical Bonding, Reactions, and Compounds. Practice drawing electron shell diagrams, electron dot diagrams, and balancing equations. Evaluate understanding of Chapters 13-15: Chemical Bonding, Reactions, and Compounds.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 4(determine the meaning of key terms) **PASS:** Process Standard 1.1 (identify qualitative and quantitative changes given conditions), Content Standard 1.1(substances react chemically to form new substances acid/base reactions), Content Standard 1.2(in chemical reactions and physical changes, matter is conserved)

HOURS	MONDAY 3/10/14	TUESDAY 3/11/14	WEDNESDAY 3/12/14	THURSDAY 3/13/14	FRIDAY 3/14/14
5th Hour 8th Grade Advanced Science	**Purpose:** Describe chemical bonding. Explain how metallic bonds form. Compare exothermic and endothermic reactions. Explain activation energy. Describe five factors that affect the rate of reaction. Describe the properties of ionic and covalent compounds. Classify compounds as ionic or covalent based on their properties. 8.RST 4, C. Std. 1.1, C. Std. 1.2 **Activities:** • Bell Activity #2: **Eval:** Review answers to Chapters 13-15 Worksheets.	**Purpose:** Explain the difference between strong acids and bases and weak acids and bases. Identify acids and bases by using the pH scale. Describe the formation and uses of salts. Review content matter of Chapters 13-15: Chemical Bonding, Reactions, and Compounds. 8.RST 4, C. Std.1.1, C. Std. 1.2 **Activities:** • Bell Activity #3: Suppose you are given an unknown chemical solution. What two tests could you perform on the chemical to determine whether it is an acid or abase? What results would help you decide if the chemical was an acid or a base? OCCT Item Spec. Question • Solutions of Acids and Bases (Sect. 15.3 pg.428-431) PowerPoint Read/ Lecture/Discuss **Eval:** Begin reviewing for the Chemical Bonding, Reactions, and Compounds Test.	**Purpose:** Review content matter of Chapters 13-15: Chemical Bonding, Reactions, and Compounds. Practice drawing electron shell diagrams, electron dot diagrams, and balancing equations. 8.RST 4, C. Std. 1.1, C. Std.1.2 **Activities:** • Bell Activity #4: Interpreting Graphics Questions pg.443 #1-3 OCCT Item Spec. Question • Finish reviewing for the Chemical Bonding, Reactions, and Compounds Test • Play a review game to review for the test. **Eval:** Review game	**Purpose:** Evaluate understanding of Chapters 13-15: Chemical Bonding, Reactions, and Compounds. 8.RST 4, C. Std. 1.1, C. Std. 1.2 **Activities:** • Bell Activity #5: Read passage 2 on pg.442. Answer the 3 reading comprehension questions that follow. OCCT Item Spec. Question **Eval:** Chemical Bonding, Reactions, and Compounds Test	NO SCHOOL

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Prepare for the OCCT by identifying qualitative and quantitative changes. Use appropriate tools to measure. Use appropriate SI units. Use observable properties to place an object in a classification system such as biological hierarchy and dichotomous keys. Identify properties by which a set of objects could be ordered. Prepare for the OCCT by designing investigations that lead to scientific inquiry. Identify testable questions based on prior knowledge and evaluate the design of a scientific investigation. Identify a testable hypothesis, variables, and controls in an experimental setup. Follow a multistep procedure when carrying out experiments and recognize potential hazards and in science activities. Ask questions that can be answered through scientific investigation. Record data in an appropriate method. Interpret tables and graphs, Evaluate data to develop explanations. Determine is results support or reject hypotheses. Communicate scientific processes. Use the design process to address a problem or need. Prepare for the OCCT by reviewing how substances react chemically with other substances to form new substances with different characteristics. Review the physical properties and chemical properties of matter. Explain how in chemical reactions and physical changes, matter is conserved. Compare and contrast physical and chemical changes. Prepare for the OCCT by reviewing how the motion of an object can be measured. Represent the position of an object, its speed, and direction on a graph. Explain why an object that is not being subjected to a net force will continue to move at a constant velocity. Review the terms inertia, balanced forces, and unbalanced forces.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 3(follow a multistep procedure), 8.RST 4(determine the meaning of key terms) **PASS:** Process Standard 1.1 (identify qualitative and quantitative changes), Process Standard 1.2(use appropriate tools to measure), Process Standard 1.3(Use appropriate SI units), Process Standard 2.1 (place an object into a classification system), Process Standard 2.2(identify properties by which objects could be ordered). Process Standard 3.1(ask questions and design investigations), Process Standard 3.2(evaluate the design of an investigation), Process Standard 3.3(identify variables and controls), Process Standard 3.4(identify hypotheses), Process Standard 3.5(follow a multistep procedure), Process Standard 3.6(practice safety procedures), Process Standard 4.1(record data in an appropriate method), Process Standard 4.2(interpret data tables and graphs), Process Standard 4.3(evaluate to develop explanations), Process Standard 4.4(determine is results support hypotheses), Process Standard 4.5(communicate scientific processes), Process Standard 5.1(ask questions that can be answered through investigations), Process Standard 5.3(use the design process to address a problem), Content Standard 1.1(substances react to form new substances), Content Standard 1.2(matter has physical and chemical properties that can be observed), Content Standard 2.1(the motion of an object can be measured), Content Standard 2.2(an object that is not being subjected to a net force will continue to move at a constant velocity)

HOURS	MONDAY 3/24/14	TUESDAY 3/25/14	WEDNESDAY 3/26/14	THURSDAY 3/27/14	FRIDAY 3/28/14
5th Hour 8th Grade Advanced Science	**Purpose:** Prepare for the OCCT by taking a benchmark test and discussing the answers. Review types of landforms and global weather patterns. 8.RST 4 **Activities/Eval:** • Bell Activity #1: Explain how a glacier forms a lake. OCCT Item Spec. Question • Take the USA Test Prep Benchmark Test. Discuss answers as a class. Review landforms and global weather patterns by answering practice questions on USA Test Prep.	**Purpose:** Prepare for the OCCT by identifying qualitative and quantitative changes. Use appropriate tools to measure. Use appropriate SI units. Use observable properties to place an object in a classification system such as biological hierarchy and dichotomous keys. Identify properties by which a set of objects could be ordered. 8.RST 4, Process Standard 1.1, 1.2, 1.3, 2.1, 2.2 **Activities:** • Bell Activity #2: Write down three qualitative and three quantitative characteristics about the organism. OCCT Item Spec. Question **Eval:** Work in the Buckle Down OCCT workbook. Complete Review 1 (Observe and Measure) pg.6-10, 15-16. Complete Review 2 (Classify) pg.17-25.	**Purpose:** Prepare for the OCCT by designing investigations that lead to scientific inquiry. Identify testable questions based on prior knowledge and evaluate the design of a scientific investigation. Identify a testable hypothesis, variables, and controls in an experimental setup. Follow a multistep procedure when carrying out experiments and recognize potential hazards and in science activities. Ask questions that can be answered through scientific investigation. Record data in an appropriate method. Interpret tables and graphs, Evaluate data to develop explanations. Determine is results support or reject hypotheses. Communicate scientific processes. Use the design process to address a problem or need. 8.RST 3, 8.RST 4, Process Standards 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 4.1, 4.2, 4.3, 4.4, 4.5, 5.1, 5.3 **Activities:** • Bell Activity #3: Identify the variables and control after reading about an experiment. OCCT Item Spec. Question **Eval:** Work in the Buckle Down OCCT workbook. Complete Review 3(Experiment) pg.26-31, 37-38. Complete Review 4 (Communicate and Interpret) pg.39-50.	**Purpose:** Prepare for the OCCT by reviewing how substances react chemically with other substances to form new substances with different characteristics. Review the physical properties and chemical properties of matter. Explain how in chemical reactions and physical changes, matter is conserved. Compare and contrast physical and chemical changes. 8.RST 4, Content Standard 1.1, 1.2 **Activities:** • Bell Activity #4: Identify changes as physical or chemical. OCCT Item Spec. Question **Eval:** Work in the Buckle Down OCCT workbook. Complete Review 5(Physical Properties of Matter) pg.52-60, 63-64. Complete Review 6(Chemical Properties of Matter) pg.65-68, 72.	**Purpose:** Prepare for the OCCT by reviewing how the motion of an object can be measured. Represent the position of an object, its speed, and direction on a graph. Explain why an object that is not being subjected to a net force will continue to move at a constant velocity. Review the terms inertia, balanced forces, and unbalanced forces. 8.RST 4, Content Standard 2.1, 2.2 **Activities:** • Bell Activity #5: Identify the type of energy used in various examples. OCCT Item Spec. Question **Eval:** Work in the Buckle Down OCCT workbook. Complete Review 7(Motions and Forces) pg.73-86. Complete Review 8 (Transfer of Energy) pg.87-93, 96.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Prepare for the OCCT by considering the details of internal and external structures to infer the degree of relatedness among organisms. Describe some of the internal and external structures organisms have that enable them to survive in a specific habitat. Prepare for the OCCT by taking a practice test. Prepare for the OCCT by reviewing answers to the practice test.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 4(determine the meaning of key terms) **PASS:** Content Standard 3.1(consider details of internal and external structure of organisms to infer the degree of relatedness), Content Standard 3.2(organisms have internal and external structures that enable them to survive a specific habitat)

HOURS	MONDAY 3/31/14	TUESDAY 4/1/14	WEDNESDAY 4/2/14	THURSDAY 4/3/14	FRIDAY 4/4/14
5th Hour 8th Grade Advanced Science	**NO SCHOOL**	**Purpose:** Prepare for the OCCT by considering the details of internal and external structures to infer the degree of relatedness among organisms. Describe some of the internal and external structures organisms have that enable them to survive in a specific habitat. 8.RST 4, Content Standard 3.1, 3.2 **Activities:** • Bell Activity #6: List as many cell organelles as possible. Then tell if they are found in animal cells, plant cells, or both. OCCT Item Spec. Question • Take the practice test found in the parent, student, and teacher guide. Review answers. **Eval:** Work in the Buckle Down OCCT workbook. Complete Review 9 (Structure and Function in Living Systems) pg.98-103, 107. Complete Review 10 (Adaptations and Interactions) pg.108-115, 119.	**Purpose:** Prepare for the OCCT by considering the details of internal and external structures to infer the degree of relatedness among organisms. Describe some of the internal and external structures organisms have that enable them to survive in a specific habitat. 8.RST 4, Content Standard 3.1, 3.2 **Activities:** • Bell Activity #7: Given a list of factors, determine if they are biotic or abiotic. OCCT Item Spec. Question **Eval:** Work in the Buckle Down OCCT workbook. Complete Review 11 (Populations and Ecosystems) pg.120-127, 131-132. Complete Review 12 (Diversity and Adaptations of Organisms) pg.133-138, 142.	**Purpose:** Prepare for the OCCT by taking a practice test. 8.RST 4 **Activities:** • Bell Activity #8: Name one adaptation a bobcat living in Oklahoma may have. OCCT Item Spec. Question **Eval:** Buckle Down OCCT Practice Test A (50 questions).	**Purpose:** Prepare for the OCCT by reviewing answers to the practice test. 8.RST 4 **Activities:** • Bell Activity #9: Name a common structure that scientists look at when trying to infer the degree of relatedness between two organisms. OCCT Item Spec. Question **Eval:** Review and discuss all of the practice test answers from yesterday.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Prepare for the OCCT by reviewing how atmospheric and ocean circulation patterns affect weather on a global scale. Recognize that landforms result from constructive forces such as crustal deformation, volcanic eruption, and deposition of sediments. Recognize that landforms also form from destructive forces such as weathering and erosion. Prepare for the OCCT by reviewing the parts of the rock cycle including the formation, weathering, sedimentation, and reformation of rock. List examples of occasional catastrophic events in Earth's history such as asteroids, comets, volcanic eruptions, continental glaciations, and changes in sea levels. Explain how fossils provide evidence of how life and environmental conditions have changed. Prepare for the OCCT by reviewing the parts of the rock cycle including the formation, weathering, sedimentation, and reformation of rock. List examples of occasional catastrophic events in Earth's history such as asteroids, comets, volcanic eruptions, continental glaciations, and changes in sea levels. Explain how fossils provide evidence of how life and environmental conditions have changed. Prepare for the OCCT by **p**laying a review game. Prepare for the OCCT by taking a practice test and reviewing the answers.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 4(determine the meaning of key terms) **PASS:** Content Standard 4.1 (landforms result from constructive forces and destructive forces), Content Standard 4.2(the formation, weathering, sedimentation, and reformation of rock constitute a continuing rock cycle), Content Standard 4.3(Atmospheric and ocean circulation patterns affect weather on a global scale), Content Standard 5.1(Earth's history has been punctuated by occasional catastrophic events), Content Standard 5.2(fossils provide evidence of how life has changed)

HOURS	MONDAY 4/7/14	TUESDAY 4/8/14	WEDNESDAY 4/9/14	THURSDAY 4/10/14	FRIDAY 4/11/14
5th Hour 8th Grade Advanced Science	**Purpose:** Prepare for the OCCT by reviewing how atmospheric and ocean circulation patterns affect weather on a global scale. Recognize that landforms result from constructive forces such as crustal deformation, volcanic eruption, and deposition of sediments. Recognize that landforms also form from destructive forces such as weathering and erosion. 8.RST 4, Content Standard 4.1, 4.3 **Activities:** • Bell Activity #10: Compare and contrast the terms constructive forces and destructive forces. OCCT Item Spec. Question **Eval:** Work in the Buckle Down OCCT workbook. Complete Review 13 (Earth Systems) pg.144-154, 157-158. Complete Review 14 (Features on the Earth's Surface) pg.159-172, 175-176.	**Purpose:** Prepare for the OCCT by reviewing the parts of the rock cycle including the formation, weathering, sedimentation, and reformation of rock. List examples of occasional catastrophic events in Earth's history such as asteroids, comets, volcanic eruptions, continental glaciations, and changes in sea levels. Explain how fossils provide evidence of how life and environmental conditions have changed. 8.RST 4, Content Standard 4.2, 5.1, 5.2 **Activities:** • Bell Activity #11: Draw a picture of the rock cycle. The picture should include the three types of rocks and the processes that form them. OCCT Item Spec. Question **Eval:** Work in the Buckle Down OCCT workbook. Complete Review 15 (The Rock Cycle) pg. 177-182, 185. Complete Review 16 (Earth's History) pg. 186-190, 193. Complete Review 17 (The Solar System) pg.194-202, 205.	**Purpose:** Prepare for the OCCT by taking a practice test and reviewing the answers. 8.RST 4 **Activities:** • Bell Activity #12: Design an experiment to support an argument and describe what the results of the experiment will be. OCCT Item Spec. Question **Eval: T**ake the practice test of the released test items from 2011-2012. Students will be given substantial time to complete 5 questions. Then the questions will be reviewed and discussed as a class. This process of answering 5 questions and then discussing answers will continue until the end of the hour.	8th Grade Online Testing for Reading **Purpose:** Prepare for the OCCT by taking a practice test and reviewing the answers. 8.RST 4 **Activities/Eval:** Begin taking the Buckle Down OCCT Practice Test B (50 questions). Students will be given substantial time to complete 5 questions. Then the questions will be reviewed and discussed as a class. This process of answering 5 questions and then discussing answers will continue until the end of the hour.	8th Grade Online Testing for Math **Purpose:** Prepare for the OCCT by taking a practice test and reviewing the answers. 8.RST 4 **Activities/Eval:** Finish taking the Buckle Down OCCT Practice Test B (50 questions). Students will be given substantial time to complete 5 questions. Then the questions will be reviewed and discussed as a class. This process of answering 5 questions and then discussing answers will continue until the end of the hour.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Learn interesting facts about various elements on the periodic table. Introduce new academic vocabulary words. Describe the function of each of the cell organelles. Identify if the organelles are found in plant cells, animal cells, or both. Identify the parts of the cell when shown on a cell diagram. Review the academic vocabulary words. Describe the function of each of the cell organelles. Identify if the organelles are found in plant cells, animal cells, or both. Identify the parts of the cell when shown on a cell diagram.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 4(determine the meaning of key terms), 8.RST 9(compare and contrast information gained from video with that gained from reading a text on the same topic) **PASS:** Process Standard 2.1(using observable characteristics, place an object into a classification system such as a periodic table), Process Standard 2.2(identify properties by which a set of objects could be ordered)

HOURS	MONDAY 4/14/14	TUESDAY 4/15/14	WEDNESDAY 4/16/14	THURSDAY 4/17/14	FRIDAY 4/18/14
5th Hour 8th Grade Advanced Science	8th Grade Science Test 4th, 5th, and 7th hours will be back in class. **Purpose:** Learn interesting facts about various elements on the periodic table. Process Standard 2.1 **Activities:** • Begin watching the video "Hunting the Elements". **Eval:** Write down ten elements mentioned in the video. Then write one interesting fact about each.	8th Grade History Test 4th, 5th, and 7th hours will be back in class. **Purpose:** Learn interesting facts about various elements on the periodic table. Process Standard 2.1 **Activities:** • Finish watching the video "Hunting the Elements". **Eval:** Write down ten elements mentioned in the video. Then write one interesting fact about each.	**Purpose:** Introduce new academic vocabulary words. Describe the function of each of the cell organelles. Identify if the organelles are found in plant cells, animal cells, or both. Identify the parts of the cell when shown on a cell diagram. 8.RST 4, Process Standard 2.2 **Activities:** • Bell Activity #13: Draw a picture of a plant cell and label as many organelles as you can. • Academic Vocabulary PowerPoint. The words for this week are cell wall, cell membrane, cytoplasm, nucleus, nuclear membrane, organelles, vacuole, chloroplast, ribosome, mitochondria, and lysosome. Students will write the definitions and draw the pictures. **Eval:** Identify the parts of a plant and animal cell using the Smart board.	**Purpose:** Review the academic vocabulary words. Describe the function of each of the cell organelles. Identify if the organelles are found in plant cells, animal cells, or both. Identify the parts of the cell when shown on a cell diagram. 8.RST 4, 8.RST 9, Process Standard 2.2 **Activities:** • Bell Activity #14: Which organelle in the cell produces energy? • Watch the Brain Pop video clip over cell structures. Take the review quiz as a class. Label the parts of the cell and complete the graphic organizer on Brain Pop. **Eval:** Complete the academic vocabulary word organizer.	**Purpose:** Review the academic vocabulary words. Describe the function of each of the cell organelles. Identify if the organelles are found in plant cells, animal cells, or both. Identify the functions of major organelles in a cell and think critically to describe as a structure in a city. 8.RST 4 **Activities/Eval:** • Bell Activity #15: If the cell was a functioning city, what building in the city would represent the nucleus of a cell? • Students will create a cell collage using a picture to represent each organelle.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Present Cell Collage posters to the class. Describe the function of each of the cell organelles. Identify if the organelles are found in plant cells, animal cells, or both. Evaluate understanding of the academic vocabulary words. Introduce new academic vocabulary words. Review the academic vocabulary words.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 4(determine the meaning of key terms), 8.RST 9(compare and contrast information gained from video with that gained from reading a text on the same topic) **PASS:** Process Standard 4.5 (communicate scientific processes, procedures, and conclusions)

HOURS	MONDAY 4/21/14	TUESDAY 4/22/14	WEDNESDAY 4/23/14	THURSDAY 4/24/14	FRIDAY 4/25/14
5th Hour 8th Grade Advanced Science	**Purpose:** Present Cell Collage posters to the class. 8.RST 4, Process Standard 4.5 **Activities:** • Bell Activity #16: If you had to be a cell organelle, which one would you choose to be and why? Your answer must be based on the function of the organelle. • Finish Cell Collage poster and begin presenting them to the class. **Eval:** Cell Collage Presentations	**Purpose:** Describe the function of each of the cell organelles. Identify if the organelles are found in plant cells, animal cells, or both. 8.RST 4 **Activities:** • Bell Activity #17: In which cell organelle does photosynthesis take place? **Eval:** 1. Critical Thinking and Section Review Questions over Cells. 2. Plant and animal cell coloring sheet.	**Purpose:** Evaluate understanding of the academic vocabulary words. Present Cell Collage posters to the class. 8.RST 4, Process Standard 4.5 **Activities:** • Bell Activity #18: Which cell organelle acts a storage molecule? • Finish presenting Cell Collage Posters to the class. **Eval:** Academic Vocabulary Quiz #11	**Purpose:** Introduce new academic vocabulary words. 8.RST 4, Process Standard 4.5 **Activities:** • Bell Activity #19: Compare and contrast multicellular and unicellular organisms using a Venn diagram. • Academic Vocabulary PowerPoint. The words for this week are asexual reproduction, chromosome, gene, heredity, homeostasis, mitosis, meiosis, multicellular, unicellular, sexual reproduction. Students will write the definitions and draw the pictures. **Eval:** Oral questions	**Purpose:** Review the academic vocabulary words. 8.RST 4, 8.RST 9 **Activities:** • Bell Activity #20: Look at the pictures of the phases of mitosis and explain what is happening in each one. • Watch the Brain Pop video clips over mitosis and heredity. Take the review quizzes as a class. **Eval:** Complete the academic vocabulary word organizer.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Explain how probability is used to predict the results of genetic crosses. Use Punnett squares to predict genetic results. Evaluate understanding of the academic vocabulary words. Correctly identify the phases of mitosis. Introduce new academic vocabulary words. Correctly identify the phases of mitosis. Review the academic vocabulary words. Review the steps of the scientific method. Distinguish between observations and inferences. Write scientific hypotheses. Define independent variable, dependent variable, and control.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 4(determine the meaning of key terms), 8.RST 9(compare and contrast information gained from video with that gained from reading a text on the same topic) **PASS:** Process Standard 1.1 (identify qualitative and quantitative changes), Process Standard 3.3(identify variables and/or controls in an experiment), Process Standard 3.4 (identify a testable hypothesis).

HOURS	MONDAY 4/28/14	TUESDAY 4/29/14	WEDNESDAY 4/30/14	THURSDAY 5/1/14	FRIDAY 5/2/14
5th Hour 8th Grade Advanced Science	**Purpose:** Explain how probability is used to predict the results of genetic crosses. Use Punnett squares to predict genetic results. 8.RST 4 **Activities:** • Bell Activity #21: Compare and contrast sexual and asexual reproduction using a Venn diagram. • Human Genetics Lab **Eval:** Lab Questions	**Purpose:** Evaluate understanding of the academic vocabulary words. Correctly identify the phases of mitosis. 8.RST 4 **Activities:** • Bell Activity #22: Write one way that mitosis and meiosis are different. Then, write one way that mitosis and meiosis are similar. • When everyone is finished with the quiz, we will work on the Mitosis web quest as a class. We will visit websites and answer questions about the various phases of mitosis. **Eval:** Academic Vocabulary Quiz #12	**Purpose:** Introduce new academic vocabulary words. Correctly identify the phases of mitosis. 8.RST 4, Process Standard 1.1 **Activities:** • Bell Activity #23: List three qualitative characteristics and three quantitative characteristics about the animal. • Academic Vocabulary PowerPoint. The words for this week are organ, organ system, tissue, diffusion, osmosis, transport, molecule, atoms, qualitative, and quantitative. Students will write the definitions and draw the pictures. **Eval:** Finish the mitosis web quest. If time allows, play the "Control of the cell cycle" game on Brain pop.	**Purpose:** Review the academic vocabulary words. 8.RST 4, 8.RST 9 **Activities:** • Bell Activity #24: How are tissues, organs, and organ systems related? • Watch the Brain Pop video clips over Active Transport, Passive Transport, and Human Body Systems. Take the review quizzes as a class. **Eval:** Complete the academic vocabulary word organizer.	**Purpose:** Review the steps of the scientific method. Distinguish between observations and inferences. Write scientific hypotheses. Define independent variable, dependent variable, and control. 8.RST 4, 8.RST 9, Process Standard 3.3, Process Standard 3.4 **Activities:** • Bell Activity #25: Give one example of how humans maintain homeostasis in their bodies. • Watch the Brain Pop video on the Scientific Method. Review observations, inferences, hypotheses, and variables. **Eval:** Scientific Method worksheet and Attributes of an Experiment Worksheet

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Evaluate understanding of the academic vocabulary words. Review acids and bases. Determine if certain household liquids are acids or bases. Use blue and red litmus paper to determine if the liquids are acids or bases. Use pH paper to determine the pH of the liquids. Create a graph of the results and formulate conclusions. Define Newton's Three Laws of Motion and give examples of each. Learn about the history of HIV and AIDS. Discuss the modes of transmission, symptoms, and treatment of HIV, AIDS, and STDs. Recognize how easily STDs can spread to a large number of people. Inform and discuss statistics about tobacco, alcohol, and various drugs.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 3(follow a multistep procedure), 8.RST 4(determine the meaning of key terms), 8.RST 7(integrate information expressed in words with version of that info. expressed visually), 8.RST 9(compare info. gained from experiments and videos with that gained from reading a text on the same topic) , 8.WHST 2(write informative/explanatory texts), 8.WHST 2a(introduce a topic clearly; include graphics when useful to aiding comprehension), 8.WHST 2d(use precise language and domain-specific vocabulary), 8.WHST 2e(establish and maintain a formal style), 8.WHST 2f(provide a concluding statement), 8.WHST 4(produce clear and coherent writing) **PASS:** Process Standard 1.1 (identify qualitative and quantitative changes given conditions), Process Standard 1.2(use appropriate tools), Process Standard 3.5(follow a multistep procedure), Process Standard 3.6(practice safety procedures in labs), Process Standard 4.5(communicate scientific processes), Process Standard 5.5(form and communicate a valid conclusion), C. Std. 1.1 (substances react chemically to form new substances), Content Standard 2.2 (an object that is not subjected to a net force will continue to move at a constant velocity)

HOURS	MONDAY 5/5/14	TUESDAY 5/6/14	WEDNESDAY 5/7/14	THURSDAY 5/8/14	FRIDAY 5/9/14
5th Hour 8th Grade Advanced Science	**Purpose:** Evaluate understanding of the academic vocabulary words. Review acids and bases. 8.RST 4, Process Standard 1.1, C. Std. 1.1 **Activities:** • Bell Activity #26:Give an example of an organism that goes through asexual reproduction. • After the quiz, review acids and bases using the web quest. http://sciencespot.net/Pages/kdzchem.html **Eval:** Academic Vocabulary Quiz #13	**Purpose:** Determine if certain household liquids are acids or bases. Use blue and red litmus paper to determine if the liquids are acids or bases. Use pH paper to determine the pH of the liquids. Create a graph of the results and formulate conclusions. 8.RST 3, 8.RST 7, 8.RST 9, 8.WHST 2, 8.WHST 2a, 8.WHST 2d, 8.WHST 2e, 8.WHST 2f, 8.WHST 4, P. Std. 1.1, P. Std. 1.2, P. Std. 3.5, P. Std. 3.6, P. Std. 4.5, P. Std. 5.5 **Activities:** • Bell Activity #27: Compare and contrast acids and bases using a Venn diagram. • Acid/Base Indicator Lab **Eval:** Students will complete the table for the lab, create a graph of the pH results, and write a conclusion.	**Purpose:** Define Newton's Three Laws of Motion and give examples of each. 8.RST 4, C. Std. 1.1 **Activities:** • Bell Activity #28: Explain how a ball rolling on the ground obeys Newton's First Law of Motion. Also, identify the forces acting on the ball. • Watch the Newton's Laws of Motion video clip on Brain Pop. • Take the Newton's Laws of Motion Brain Pop quiz. **Eval:** 1. Brain Pop quiz 2. Forces and Newton's Laws Worksheet 3. Forces and Laws Worksheet	**Purpose:** Learn about the history of HIV and AIDS. Discuss the modes of transmission, symptoms, and treatment of HIV, AIDS, and STDs. Recognize how easily STDs can spread to a large number of people. **Activities:** • Complete the anonymous questionnaire, "Talking with you parents/guardians". • Lecture and discuss the HIV, AIDS, and STDs PowerPoint. • Complete the HIV/STD Handshake Activity.	**Purpose:** Inform and discuss statistics about tobacco, alcohol, and various drugs. **Activities:** • Lecture and discuss the Tobacco, Alcohol, and Drugs PowerPoint. • Work in groups to complete the Choosing Abstinence and Saying No to Tobacco, Alcohol, and Drug Use Worksheets.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Identify forces acting upon objects at various lab stations. Calculate net force. Define Newton's Three Laws of Motion and give examples of each. Determine the speed of a toy car by following a procedure and using the formula for speed. Review for the semester test.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 3(follow a multistep procedure), 8.RST 4(determine the meaning of key terms), **PASS:** Process Standard 1.1 (identify qualitative and quantitative changes given conditions), Process Standard 1.2(use appropriate tools), Process Standard 1.3(use appropriate SI units), Process Standard 3.5(follow a multistep procedure), Process Standard 4.1(record quantitative data), Process Standard 4.3(Evaluate to develop reasonable explanations), Content Standard 2.1 (the motion of an object can be measured), Content Standard 2.2 (an object that is not subjected to a net force will continue to move at a constant velocity)

HOURS	MONDAY 5/12/14	TUESDAY 5/13/14	WEDNESDAY 5/14/14	THURSDAY 5/15/14	FRIDAY 5/16/14
5th Hour 8th Grade Advanced Science	**Purpose:** Identify forces acting upon objects at various lab stations. Calculate net force. 8.RST 3, P. Std. 3.5, P. Std. 4.3, C. Std 2.1, C. Std. 2.2 **Activities:** • Review how to calculate net forces. • May the Force Be With You Lab (Work at 8 lab stations to determine the forces acting on objects. **Eval:** 1. May the Force Be With You Lab Questions 2. Calculating Net Force Problems 3. Write a conclusion for the "May the Force Be With You Lab".	**Purpose:** Define Newton's Three Laws of Motion and give examples of each. 8.RST 4, C. Std. 2.2 **Activities:** • Watch the video over Newton's 3 Laws of Motion (the Science of Disney Imagineering). • Watch the "Try it Yourself" video clip over Newton's 3rd Law of Motion. • Demonstrate Newton's 3rd Law of Motion using a basketball and a tennis ball. **Eval:** Take the Newton's 3 Laws of Motion Quiz from the video.	**Purpose:** Determine the speed of a toy car by following a procedure and using the formula for speed. 8.RST 3, P. Std. 1.1, P. Std. 1.2, P. Std. 1.3, P. Std. 3.5, P. Std. 4.1, P. Std. 4.3, C. Std. 2.1 **Activities:** • Speed of a Toy Car Lab **Eval:** Data Sheet and Post Lab Questions	**Purpose:** Review for the semester test. 8.RST 4 **Activities/Eval:** • Begin working on the Semester Test Study Guide.	**Purpose:** Review for the semester test. 8.RST 4 **Activities/Eval:** • Finish working on the Semester Test Study Guide. • Go over the answers to the study guide at the end of the class period.

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE: Prepare for the semester exam by playing a review game. Prepare for the semester exam by taking a practice test on the Smart Board.

PASS OBJECTIVES AND COMMON CORE STANDARDS: Common Core: 8.RST 4(determine the meaning of key terms)

HOURS	MONDAY 5/19/14	TUESDAY 5/20/14	WEDNESDAY 5/21/14	THURSDAY 5/22/14	FRIDAY 5/23/14
5th Hour 8th Grade Advanced Science	**Purpose:** Prepare for the semester exam by playing a review game. 8.RST 4 **Activities:** • Take the 8th Grade Pre-Test from the beginning of the year. Discuss answers and compare results from August. • Review for the semester test by playing a review game with dry erase boards and markers.	**Purpose:** Prepare for the semester exam by taking a practice test on the Smart Board. 8.RST 4 **Activities:** • Take the practice test using the information on the Smart Board. Grade the practice test and review answers as a class.	SEMESTER EXAMS	SEMESTER EXAMS	

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN

OVERVIEW AND PURPOSE:	**PASS OBJECTIVES AND COMMON CORE STANDARDS:**

HOURS	**MONDAY**	**TUESDAY**	**WEDNESDAY**	**THURSDAY**	**FRIDAY**
5th Hour 8th Grade Advanced Science					

HILLDALE MIDDLE SCHOOL LESSON PLANS

GRADE LEVEL: 8TH SUBJECT: ADVANCED SCIENCE TEACHER: AMBER HORN