

GRADE 7 SCIENCE PROGRAM 2011-2012

Resources:

- **Scott Foresman – Addison Wesley *Science Insights – Exploring Earth and Space***
- **Prentice Hall *Science Explorer – Human Biology and Health***
- **Class notes and handouts**

CALENDAR	LESSONS	OBJECTIVES	ACTIVITIES/PROJECTS/ LABS/TESTS
<i>September</i>	Introduction to the Scientific method Procedure	Students should be able to identify and apply the steps of the scientific method.	Activity: Observation
<i>September</i>	EARTH SCIENCE Chapter: Structure of the Earth Earth's layers; Earth's interior	Students should be able to <ul style="list-style-type: none"> • describe and compare the different layers of the Earth and define how convection works; • identify different seismic waves, their movement, and explain how scientists use seismic waves to infer about the Earth's layers. 	Activity: observing the earth's layers Laboratory: Convection CHAPTER TEST
<i>October</i>	Chapter: Time and Change A trip through geological time	Students should be able to <ul style="list-style-type: none"> • describe the origin and early history of the Earth; • describe processes of change on the Earth's surface, infer how sedimentary rocks form; • understand how to make a model of major life changes using a timeline; • infer how sedimentary rock layers and geologic time scales are related. 	Laboratory: Measuring time differently PROJECT: representing geological time on ticker tape PROJECT: comparing life spans of different organisms.
<i>October</i>	Chapter: Plate tectonics Continental drift; theory	Students should be able to <ul style="list-style-type: none"> • observe the shapes of the continents and describe how they have moved over time predicting how the Atlantic Ocean will look 50 million years from now; • construct a model of Gondwanaland using evidence for continental drift; • describe the process of sea-floor spreading; • identify the different plate boundaries; 	Laboratory: different seed dispersal Laboratory: What happens at a divergent boundary? Project:

		<ul style="list-style-type: none"> infer, from observation of large surfaces, what plate boundary process produced it; compare and contrast models explaining sea-floor spreading. 	<p>Gondwanaland CHAPTER TEST</p> <p>Excursion Proposal: The Riserva Regionale di Monterano or Monumento naturale della Caldara (Objectives: observation of post-volcanic activity and woodland environment. The trip ties into volcanic studies.)</p>
October-November	<p>Chapter: Earthquakes and Volcanoes Faults; earthquake safety; locating an epicenter</p>	<p>Students should be able to</p> <ul style="list-style-type: none"> identify different crustal stresses and distinguish different faults; describe what happens during an earthquake; explain the difference between focus and epicentre; compare and contrast the different seismic waves produced by earthquakes; understand the difference between magnitude and intensity of an earthquake; locate the epicentre of an earthquake on a map using appropriate scale and conversions; study historical earthquakes and learn to infer ways to reinforce structures for survival and analyze behaviours to adopt in seismic areas. 	<p>Activity: Making waves Laboratory: modelling the Richter scale Activity: locating an epicentre Documentary: “When the Earth was made-San Andreas Fault”-History Channel</p>
November	<p>Volcanoes; predicting and monitoring</p>	<p>Students should be able to</p> <ul style="list-style-type: none"> describe how volcanoes form; identify different volcanic structures and relate this to lava composition and types of eruptions; identify the formation of caldera lakes, specifically in the Lazio Region, taking a close look at Italy’s complex geological history; describe the volcanic structure of major volcanoes around the planet (specifically Italian volcanoes); 	<p>PROJECT: Choose an active volcano and research it. Present to class. CHAPTER TEST Documentary: “When the Earth was made-Krakatoa”-History</p>

		<ul style="list-style-type: none"> understand how volcanoes are monitored and the effect of their presence on the surrounding population. 	Channel
<i>December</i>	Chapter: Minerals/Rocks and the rock cycle Formation and structure; identification; uses Definition: igneous; sedimentary; metamorphic	Students should be able to <ul style="list-style-type: none"> observe minerals and describe how their formation affects composition and crystal structure; identify physical properties and chemical structure of minerals; identify minerals and classify three types of rock through observation. 	Laboratory: observation of rocks and minerals and their properties CHAPTER TEST Laboratory: the rock cycle
<i>December</i>	Use of a microscope Components; how to handle; scientific illustration	Students should be able to independently handle a microscope and identify components and their function using the instrument to observe and illustrate cell structure.	QUIZ
<i>January</i>	The Human Body Body Organization and Cells	Students should be able to identify the levels of organization in the body and define homeostasis.	TEST LABS/ACTIVITIES PER SECTION
	Bones, muscles and skin	Students should be able to <ul style="list-style-type: none"> identify skeletal functions and bones; explain the role joints play in the body; describe the characteristics of bones and how to keep them healthy; identify the muscle types in the body; explain why skeletal muscles work in pairs; describe skin functions and structures and identify good habits that help keep the skin healthy. 	QUIZ (on Skeletal system) TEST (on Muscles and Skin) LABS/ACTIVITIES PER SECTION
<i>January – March</i>	Full Science Fair Preparation Period	During the Science Fair preparation students will learn how to follow the scientific method procedure. Specifically, they should be able to <ul style="list-style-type: none"> learn how to plan an experiment in detail; do appropriate background research; identify appropriate resources (including internet websites); 	A calendar of deadlines and science fair work expectations will be given to each individual student at the end of

		<ul style="list-style-type: none"> • collect data and interpret experimental information in a discussion so that proper conclusions may be drawn; • work independently on their science fair project, using class time wisely when given, respecting deadlines and continuing their grade 7 science program. 	January.
<i>February</i>	Science Fair Preparation + Food and digestion	In the chapter on food and digestion students should be able to <ul style="list-style-type: none"> • explain why food is important for the body; • describe the nutrients needed by the body; • understand how the food pyramid can help plan a healthy diet; • read food labels; • describe main digestive functions and apparatus’. 	TEST LABS/ACTIVITIES PER SECTION Documentary: “The Incredible Machine”- National Geographic
<i>February-March</i>	Science Fair Preparation + Circulation	Students should be able to <ul style="list-style-type: none"> • explain cardiovascular functions; • describe structure and function of heart; • sequence the path of blood; • describe structures and function of blood vessels; • describe blood components; • name lymphatic system components; • identify cardiovascular diseases. 	TEST LABS/ACTIVITIES PER SECTION
<i>March - April</i>	Science Fair Preparation + Respiration and Excretion	Students should be able to <ul style="list-style-type: none"> • describe respiratory system functions; • identify structures; • describe the breathing process; • identify harmful chemicals in smoke; • identify structures and functions of the excretory system and how this system contributes to homeostasis. 	TEST LABS/ACTIVITIES PER SECTION
<i>May</i>	Science Fair Preparation The Nervous System	Students should be able to <ul style="list-style-type: none"> • identify the structures and functions of the nervous system and explain how nerve impulses work; • identify how the five senses work and how drug abuse can cause immediate and long term effects. 	TEST LABS/ACTIVITIES PER SECTION
<i>June</i>	Fighting Disease The Endocrine	Students should be able to <ul style="list-style-type: none"> • explain the relationship between pathogens and infectious disease; 	2 TESTS LABS/ACTIVITIES

	System and Reproduction	<ul style="list-style-type: none"> • identify how pathogens can spread and what types cause infections in humans; • identify how body uses defence guards against disease and how it acquires immunity; • describe how the endocrine system controls body processes; • identify endocrine glands, and describe the main structures and functions of the reproductive system. 	PER SECTION
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QUIZZES: Depending on length of chapter and student responsiveness, quizzes may be done in the middle of a chapter to assess if students are assimilating concepts correctly.

STUDENT ASSESSMENT: Homework, class notebooks, tests/quizzes, activities, projects

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