

**RIDGECROFT SCHOOL
GRADE 6 SCIENCE**

PACING GUIDE

TOPICS/CONCEPTS	TIME	CURRICULUM OBJECTIVES GOAL 1 Inquiry and GOAL 2 Technology will be integrated throughout content	RESOURCE(S) SCIENCE MODULES (Prentice Hall)
FIRST GRADING PERIOD			
ATMOSPHERE	30	3.01, 3.02, 3.03, 3.04, 3.05, 3.06	TEXTBOOK MODULE: WEATHER AND CLIMATE
SECOND GRADING PERIOD			
ATMOSPHERE	5	3.01, 3.02, 3.03, 3.04, 3.05, 3.06	TEXTBOOK MODULE: WEATHER AND CLIMATE
HYDROSPHERE	25	5.01, 5.02, 5.03, 5.04, 5.05, 5.06, 5.07, 5.08	TEXTBOOK: MODULE: EARTH'S WATERS
THIRD GRADING PERIOD			
HYDROSPHERE	10	5.01, 5.02, 5.03, 5.04, 5.05, 5.06, 5.07, 5.08	TEXTBOOK: MODULE: EARTH'S WATERS
SOLAR SYSTEM	15	7.01, 7.02, 7.03, 7.04, 7.05, 7.06	TEXTBOOK MODULE: ASTRONOMY
REVIEW AND ASSESSMENT	5		
FOURTH GRADING PERIOD			
SOLAR SYSTEM	10	7.01, 7.02, 7.03, 7.04, 7.05, 7.06	TEXTBOOK MODULE: ASTRONOMY
LITHOSPHERE	20	4.01, 4.02, 4.03, 4.04, 4.05, 4.06, 4.07, 4.08	TEXTBOOK: MODULE: INSIDE EARTH
FIFTH GRADING PERIOD			
LITHOSPHERE	15	4.01, 4.02, 4.03, 4.04, 4.05, 4.06, 4.07, 4.08	TEXTBOOK: MODULE: INSIDE EARTH
EVOLUTION AND LANDFORMS	15	6.01, 6.02, 6.03, 6.04, 6.05	TEXTBOOK MODULE: EARTH'S CHANGING SURFACE
SIXTH GRADING PERIOD			
EVOLUTION AND LANDFORMS	15	6.01, 6.02, 6.03, 6.04, 6.05	TEXTBOOK MODULE: EARTH'S CHANGING SURFACE
POPULATION DYNAMICS • Environmental Science	10	8.01, 8.02, 8.03, 8.04, 8.05, 8.06	TEXTBOOK MODULE: ENVIRONMENTAL SCIENCE
REVIEW AND ASSESSMENT	5		

8/1/06

GOALS AND OBJECTIVES

NOTE: The goals and objectives for Grades 6-8 science are based on a recluster of the NC Standard Course of Study.

GOAL 1: THE LEARNER WILL DESIGN AND CONDUCT INVESTIGATIONS TO DEMONSTRATE AN UNDERSTANDING OF SCIENTIFIC INQUIRY.	
<p>1.01 Identify and create questions and hypotheses that can be answered through scientific investigations.</p> <p>1.02 Develop appropriate experimental procedures for:</p> <ul style="list-style-type: none"> • Given questions, • Student generated questions <p>1.03 Apply safety procedures in the laboratory and in field studies:</p> <ul style="list-style-type: none"> • Recognize potential hazards • Manipulate materials and equipment • Conduct appropriate procedures <p>1.04 Analyze variables in scientific investigations:</p> <ul style="list-style-type: none"> • Identify dependent and independent • Use of a control • Manipulate • Describe relationships between • Define operationally <p>1.05 Analyze evidence to:</p> <ul style="list-style-type: none"> • Explain observations • Make inferences and predictions • Develop the relationship between evidence and explanation 	<p>1.06 Use mathematics to gather, organize, and present quantitative data resulting from scientific investigations:</p> <ul style="list-style-type: none"> • Measurement • Analysis of data • Graphing • Prediction models <p>1.07 Prepare models and/or computer simulations to:</p> <ul style="list-style-type: none"> • Test hypothesis • Evaluate how data fit <p>1.08 Use oral and written information systems to:</p> <ul style="list-style-type: none"> • Communicate findings • Defend conclusions of scientific investigations <p>1.09 Use technologies and information systems to:</p> <ul style="list-style-type: none"> • Research • Gather and analyze data • Visualize data • Disseminate findings to others <p>1.10 Analyze and evaluate information from a scientifically literate viewpoint by reading, hearing, and/or viewing:</p> <ul style="list-style-type: none"> • Scientific text • Articles • Events in the popular press
GOAL 2: THE LEARNER WILL DEMONSTRATE AN UNDERSTANDING OF TECHNOLOGICAL DESIGN	
<p>2.01 Explore evidence that “technology” has many definitions.</p> <ul style="list-style-type: none"> • Artifact or hardware • Methodology or technique • System of production • Social-technical system <p>2.02 Use information systems to:</p> <ul style="list-style-type: none"> • Identify scientific needs, human needs, or problems that are subject to technological solution • Locate resources to obtain and test ideas 	<p>2.03 Evaluate technological designs for:</p> <ul style="list-style-type: none"> • Application of scientific principles • Risks and benefits • Constraints of design • Consistent testing protocols <p>2.04 Apply tenets of technological design to make informed consumer decisions about:</p> <ul style="list-style-type: none"> • Products • Processes • Systems
GOAL 3: THE LEARNER WILL CONDUCT INVESTIGATIONS AND UTILIZE APPROPRIATE TECHNOLOGIES AND INFORMATION SYSTEMS TO BUILD AN UNDERSTANDING OF THE ATMOSPHERE.	
<p>3.01 Explain the composition, properties and structure of the atmosphere:</p> <ul style="list-style-type: none"> • Mixture of gases • Stratified layers • Each layer has distinct properties • As altitude increases, air pressure decreases • Equilibrium <p>3.02 Describe properties that can be observed and measured to predict air quality:</p> <ul style="list-style-type: none"> • Particulate matter • Ozone <p>3.03 Conclude that the good health of environments and organisms requires:</p> <ul style="list-style-type: none"> • The monitoring of air quality 	<p>3.05 Examine evidence that atmospheric properties can be studied to predict atmospheric conditions and weather hazards:</p> <ul style="list-style-type: none"> • Humidity • Temperature • Wind speed and direction • Air pressure • Precipitation • Tornados • Hurricanes • Floods • Storms <p>3.06 Assess the use of technology in studying atmospheric phenomena and weather hazards:</p>

<ul style="list-style-type: none"> • Taking steps to maintain healthy air quality • Stewardship <p>3.04 Evaluate how humans impact air quality including:</p> <ul style="list-style-type: none"> • Air quality standards • Point and non-point sources of air pollution in North Carolina • Financial and economic trade-offs, local air quality issues 	<ul style="list-style-type: none"> • Satellites • Weather maps • Predicting • Recording • Communicating information about conditions
<p>GOAL 4: THE LEARNER WILL BUILD AN UNDERSTANDING OF THE GEOLOGICAL CYCLES, FORCES, PROCESSES, AND AGENTS WHICH SHAPE THE LITHOSPHERE.</p>	
<p>4.01 Evaluate the forces that shape the lithosphere including:</p> <ul style="list-style-type: none"> • Crustal plate movement • Folding and faulting • Deposition • Volcanic activity • Earthquakes <p>4.02 Examine earthquake and volcano patterns.</p> <p>4.03 Explain the model for the interior of the earth.</p> <p>4.04 Describe the processes which form and the uses of earth materials.</p> <ul style="list-style-type: none"> • Rock cycle • Minerals • Characteristics of rocks • Economic use of rocks and minerals • Value of gems and precious metals • Common gems, minerals, precious metals and rocks found in North Carolina <p>4.05 Analyze soil properties that can be observed and measured to predict soil quality including:</p> <ul style="list-style-type: none"> • Color • Horizon profile • Infiltration • Soil temperature • Structure • Consistency • Texture • Particle size • Ph • Fertility, • Soil moisture 	<p>4.06 Evaluate ways in which human activities have affected Earth's pedosphere and the measures take to control the impact:</p> <ul style="list-style-type: none"> • Vegetative cover • Agriculture • Land use • Nutrient balance • Soil as a vector <p>4.07 Assess the use of technology and information systems in monitoring lithospheric phenomenon.</p> <p>4.08 Conclude that the good health of environments and organisms requires:</p> <ul style="list-style-type: none"> • Monitoring of the pedosphere • Taking steps to maintain soil quality • Stewardship
<p>GOAL 5: THE LEARNER WILL CONDUCT INVESTIGATIONS AND UTILIZE APPROPRIATE TECHNOLOGIES AND INFORMATION SYSTEMS TO BUILD AN UNDERSTANDING OF THE HYDROSPHERE.</p>	
<p>5.01 Analyze the unique properties of water including:</p> <ul style="list-style-type: none"> • Universal solvent • Cohesion and adhesion • Polarity • Density and buoyancy • Specific heat <p>5.02 Explain the structure of the hydrosphere including:</p> <ul style="list-style-type: none"> • Water distribution on earth • Local river basin • Local water availability <p>5.03 Evaluate evidence that Earth's oceans are a reservoir of nutrients, minerals, dissolved gases, and life forms:</p>	<p>5.05 Analyze hydrosphere data over time to predict the health of a water system including:</p> <ul style="list-style-type: none"> • Temperature • Dissolved oxygen • pH, • Nitrates • Turbidity • Bio-indicators <p>5.06 Evaluate technologies and information systems used to monitor the hydrosphere.</p> <p>5.07 Describe how humans affect the quality of water:</p> <ul style="list-style-type: none"> • Point and non-point sources of water pollution in

<ul style="list-style-type: none"> • Estuaries • Marine ecosystems • Upwelling • Behavior of gases in the marine environment • Value and sustainability of marine resources • Deep ocean technology and understandings gained <p>5.04 Describe how terrestrial and aquatic food webs are interconnected.</p>	<p>North Carolina,</p> <ul style="list-style-type: none"> • Possible effects of excess nutrients in North Carolina waters • Economic trade-offs • Local water issues <p>5.08 Recognize that the good health of environments and organisms requires:</p> <ul style="list-style-type: none"> • Monitoring of the hydrosphere • Water quality standards • Methods of water treatment • Maintaining safe water quality • Stewardship.
<p>GOAL 6: THE LEARNER WILL CONDUCT INVESTIGATIONS AND UTILIZE APPROPRIATE TECHNOLOGIES AND INFORMATION SYSTEMS TO BUILD AN UNDERSTANDING OF EVIDENCE OF EVOLUTION IN ORGANISMS AND LANDFORMS.</p>	
<p>6.01 Interpret ways in which rocks, fossils, and ice cores record Earth’s geologic history and the evolution of life including:</p> <ul style="list-style-type: none"> • Geologic time scale • Index fossils • Law of superposition • Unconformity • Evidence for climate change • Extinction of species • Catastrophic events <p>6.02 Correlate evolutionary theories and processes:</p> <ul style="list-style-type: none"> • Biological • Geological • Technological 	<p>6.03 Examine evidence that the geologic evolution has had significant global impact including:</p> <ul style="list-style-type: none"> • Distribution of living things • Major geological events • Mechanical and chemical weathering <p>6.04 Analyze satellite imagery as a method to monitor Earth from space:</p> <ul style="list-style-type: none"> • Spectral analysis • Reflectance curves <p>6.05 Use maps, ground truthing and remote sensing to make predictions regarding:</p> <ul style="list-style-type: none"> • Changes over time • Land use • Urban sprawl • Resource management
<p>GOAL 7: THE LEARNER WILL BUILD UNDERSTANDING OF THE SOLAR SYSTEM.</p>	
<p>7.01 Analyze the components and cycles of the solar system including:</p> <ul style="list-style-type: none"> • Sun • Planets and moons • Asteroids and meteors • Comets • Phases • Seasons • Day/year • Eclipses <p>7.02 Compare and contrast the Earth to other planets in terms of:</p> <ul style="list-style-type: none"> • Size • Composition • Relative distance from the sun • Ability to support life <p>7.03 Relate the influence of the sun and the moon’s orbit to the gravitational effects produced on Earth.</p> <ul style="list-style-type: none"> • Solar storms • Tides 	<p>7.04 Describe space explorations and the understandings gained from them including:</p> <ul style="list-style-type: none"> • N.A.S.A. • Technologies used to explore space • Historic timeline • Apollo mission to the moon • Space Shuttle • International Space Station • Future goals) <p>7.05 Describe the setting of the solar system in the universe including:</p> <ul style="list-style-type: none"> • Galaxy • Size • The uniqueness of Earth) <p>7.06 Analyze the spin-off benefits generated by space exploration technology including:</p> <ul style="list-style-type: none"> • Medical • Materials • Transportation • Processes • Future research
<p>GOAL 8: THE LEARNER WILL CONDUCT INVESTIGATIONS AND USE TECHNOLOGIES AND INFORMATION SYSTEMS TO BUILD AN UNDERSTANDING OF POPULATION DYNAMICS.</p>	
<p>8.01 Describe ways in which organisms interact with each other and with non-living parts of the environment:</p>	<p>8.03 Explain how changes in habitat may affect organisms.</p> <p>8.04 Evaluate data related to human population growth,</p>

<ul style="list-style-type: none"> • Coexistence/cooperation/competition • Symbiosis • Mutual dependence <p>8.02 Investigate factors that determine the growth and survival of organisms including:</p> <ul style="list-style-type: none"> • Light • Temperature range • Mineral availability • Soil/rock type • Water • Energy 	<p>along with problems and solutions:</p> <ul style="list-style-type: none"> • Waste disposal • Food supplies • Resource availability • Transportation • Socio-economic patterns <p>8.05 Examine evidence that overpopulation by any species impacts the environment.</p> <p>8.06 Investigate processes which, operating over long periods of time, have resulted in the diversity of plant and animal life present today:</p> <ul style="list-style-type: none"> • Natural election • Adaptation
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