

General Brown Central School District Curriculum Map

Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn										
Time Frame: 8 – 9 days	Unit/Theme 1a - Foundations: <i>Scientific Investigation</i>										
<p>Essential Questions:</p> <p>How are inferences derived from observations?</p> <p>What are the correct procedures for making measurements?</p> <p>How is the metric system structured?</p> <p>Why is percent deviation important?</p>											
<p>NYS Standards:</p> <p>HS-ESS2-2</p> <p>HS-ESS3-1</p>	<p>Vocabulary:</p> <table style="width: 100%; border: none;"> <tr> <td>% Deviation</td> <td>Calibration</td> </tr> <tr> <td>Classification</td> <td>Inference</td> </tr> <tr> <td>Meniscus</td> <td>Metric System</td> </tr> <tr> <td>Observation</td> <td>Scale</td> </tr> <tr> <td>Smallest Calibrated Unit</td> <td></td> </tr> </table>	% Deviation	Calibration	Classification	Inference	Meniscus	Metric System	Observation	Scale	Smallest Calibrated Unit	
% Deviation	Calibration										
Classification	Inference										
Meniscus	Metric System										
Observation	Scale										
Smallest Calibrated Unit											
<p>Student Objectives (The student will...):</p> <p>TSW be able to distinguish between observations and inferences.</p> <p>TSW demonstrate the skills required to make proper measurements.</p> <p>TSW use the metric system in both class and lab work.</p> <p>TSW evaluate the effects of errors in measurement on data and results.</p>											
<p>Assessments:</p> <p>Topic 1a Test</p> <p>Quiz: Observation + Inference</p> <p>Labs: Basic Lab Instruments / Direct Measurement / Measurement by Difference</p> <p>Ext Labs: Metric Conversions / % Deviation</p>											
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Earth Science</i></p>	<p>Resources:</p> <p>Teacher-created materials:</p> <p>PowerPoint Presentations</p> <p>Student Notes (Fill-In)</p> <p>Worksheets, Quizzes, Skill Exercises</p> <p>Lab report forms</p>										

General Brown Central School District Curriculum Map

Castle Learning Exercises	
Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn
Time Frame: 10 days	Unit/Theme 1b - Foundations: <i>Fundamental Concepts</i>
<p>Essential Questions:</p> <p>How does the density of a fluid affect its behavior?</p> <p>How can the density of a substance be changed?</p> <p>In what ways is water a unique substance?</p> <p>How is energy transferred?</p> <p>How is heat energy measured?</p> <p>How do common Earth materials differ in their reaction to heat energy?</p>	
<p>NYS Standards:</p> <p>HS-ESS2-2</p> <p>HS-ESS3-1</p>	<p>Vocabulary:</p> <p>Conduction</p> <p>Convection</p> <p>Density</p> <p>Heat</p> <p>Joules</p> <p>Mass</p> <p>Pressure</p> <p>Radiation</p> <p>Specific Heat</p> <p>Temperature</p> <p>Volume</p>
<p>Student Objectives (The student will...):</p> <p>TSW predict how differences and changes in density will affect the behavior and properties of a system.</p> <p>TSW describe the unique physical and chemical properties of water.</p> <p>TSW identify the methods of energy transfer involved in a variety of Earth processes.</p> <p>TSW describe how certain factors are used to measure heat energy.</p> <p>TSW predict how various Earth materials will differ in their reaction to the addition of heat energy.</p>	
<p>Assessments:</p> <p>Topic 1b Test</p> <p>Labs: Density of Solids / Density Factors / Heat Transfer / Heating Curve for Water</p> <p>Ext Lab: Density Problems</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Earth Science</i></p>	<p>Resources:</p> <p>PowerPoints</p> <p>Student Notes</p> <p>Worksheets, etc</p> <p>Lab reports</p>

General Brown Central School District Curriculum Map

	<i>Castle Learning</i>
--	------------------------

Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn														
Time Frame: 4 days	Unit/Theme 2 - Data Analysis														
<p>Essential Questions:</p> <p>How do graphs show relationships among variables?</p> <p>How can rates of change be determined from a graph?</p>															
NYS Standards:	<p>Vocabulary:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 70%;">Constant</td> <td style="width: 30%;">Cyclic</td> </tr> <tr> <td>Dependent</td> <td>Direct</td> </tr> <tr> <td>Gradient</td> <td>Graph</td> </tr> <tr> <td>Independent</td> <td>Inverse</td> </tr> <tr> <td>Rate of Change</td> <td>Regular</td> </tr> <tr> <td>Relationship</td> <td>Slope</td> </tr> <tr> <td>Variable</td> <td></td> </tr> </table>	Constant	Cyclic	Dependent	Direct	Gradient	Graph	Independent	Inverse	Rate of Change	Regular	Relationship	Slope	Variable	
Constant	Cyclic														
Dependent	Direct														
Gradient	Graph														
Independent	Inverse														
Rate of Change	Regular														
Relationship	Slope														
Variable															
<p>Student Objectives (The student will...):</p> <p>TSW prepare graphs from data sets.</p> <p>TSW analyze graphs to determine the types of relationships shown.</p> <p>TSW use graphs to determine past events and predict future outcomes.</p> <p>TSW determine rates of change from graph slopes.</p> <p>TSW compare rates of change for multiple variables shown on from graphs.</p>															
<p>Assessments:</p> <p>Topic 2 Test Lab: Density Graphs</p>															
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Earth Science</i></p>	<p>Resources:</p> <p>PowerPoints Student Notes Worksheets, etc Lab reports</p>														

General Brown Central School District Curriculum Map

	<i>Castle Learning</i> Graphing Exercises
Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn
Time Frame: 5 days	Unit/Theme 3a – Mapping Earth: <i>Earth Model</i>
Essential Questions: How do we know Earth is a sphere? What are the properties of Earth’s three surface layers? What are the uses of the latitude-longitude system?	
NYS Standards:	Vocabulary: Altitude Atmosphere Hydrosphere Latitude Lithosphere Longitude Polaris Prime meridian
Student Objectives (The student will...): TSW explain how certain evidence indicates that Earth has a spherical shape. TSW compare key properties of Earth’s three surface layers. TSW describe how latitude and longitude of a location can be determined.	
Assessments: Topic 3a Test Lab: Shipwrecks of Lake Ontario Ext Lab: Tp 3a Overview	
Recommended Texts: Text: <i>The Physical Setting – Earth Science</i>	Resources: PowerPoints

General Brown Central School District Curriculum Map

	Student Notes Worksheets, etc Lab reports <i>Castle Learning</i>
Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn
Time Frame: 10 days	Unit/Theme 3b – Mapping Earth: <i>Field Mapping</i>
Essential Questions: How do field maps show patterns of change over an area? How are gradients (rates of change) determined from a field map? How are profiles constructed using a field map?	
NYS Standards:	Vocabulary: Contour Interval Contour Line Gradient Iso- Isoline Topographic
Student Objectives (The student will...): TSW demonstrate the ability to derive and interpret information from a field map. TSW determine rates of change between points on a field map. TSW construct profiles showing patterns of change in field quantities.	
Assessments: Topic 3b Test Labs: Contour Mapping / Field Mapping Ext Labs: Topo Maps	
Recommended Texts: Text: <i>The Physical Setting – Earth Science</i>	Resources: PowerPoints Student Notes Worksheets, etc

General Brown Central School District Curriculum Map

	Lab reports <i>Castle Learning</i> Field Mapping Exercises
Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn
Time Frame: 10 days	Unit/Theme 4a – Astronomy: <i>The Sun’s Changing Path</i>
Essential Questions: What paths do stars appear to follow across the night sky when viewed from different locations on Earth? What is the annual pattern of change shown by the daily path of the Sun at different locations on Earth? How does the position of Earth in its orbit relate to the apparent path of the Sun across the sky?	
NYS Standards: HS-ESS1-4	Vocabulary: Altitude Apparent Celestial Equinox Horizon Meridian Solstice Tropic Zenith
Student Objectives (The student will...): TSW explain how the apparent paths of the stars vary over time and at different locations. TSW predict the daily path of the Sun for various locations across Earth’s surface on a variety of days through the year. TSW identify the orbital positions of Earth at which a variety of daily solar paths would be observed.	
Assessments: Topic 4a Test Quiz: Celestial Coordinates Lab: Changing Path of the Sun Ext Lab: Sun’s Path	
Recommended Texts:	Resources:

General Brown Central School District

Curriculum Map

Text: <i>The Physical Setting – Earth Science</i>	PowerPoints Student Notes Worksheets, etc Lab reports <i>Castle Learning</i>
---	--

Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn																
Time Frame: 12 days	Unit/Theme 4b – Astronomy: <i>The Solar System</i>																
<p>Essential Questions:</p> <p>How do observed motions of the planets relate to actual motions?</p> <p>How does Earth’s rotation create observable forces on the planet’s surface?</p> <p>Why did the heliocentric model of the Solar System replace the geocentric model?</p> <p>How do the forces and energies involved determine the mechanics of planetary orbits?</p> <p>How is our system of measuring time related to Earth’s motions?</p>																	
NYS Standards: HS-ESS1-4	<p>Vocabulary:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Aphelion</td> <td>Coriolis effect</td> </tr> <tr> <td>Eccentricity</td> <td>Elliptical</td> </tr> <tr> <td>Epicyle</td> <td>Focal distance</td> </tr> <tr> <td>Foucault Pendulum</td> <td>Focus / Foci</td> </tr> <tr> <td>Geocentric</td> <td>Heliocentric</td> </tr> <tr> <td>Major axis</td> <td>Perihelion</td> </tr> <tr> <td>Retrograde</td> <td>Revolution</td> </tr> <tr> <td>Rotation</td> <td></td> </tr> </table>	Aphelion	Coriolis effect	Eccentricity	Elliptical	Epicyle	Focal distance	Foucault Pendulum	Focus / Foci	Geocentric	Heliocentric	Major axis	Perihelion	Retrograde	Revolution	Rotation	
Aphelion	Coriolis effect																
Eccentricity	Elliptical																
Epicyle	Focal distance																
Foucault Pendulum	Focus / Foci																
Geocentric	Heliocentric																
Major axis	Perihelion																
Retrograde	Revolution																
Rotation																	
<p>Student Objectives (The student will...):</p> <p>TSW explain how the orbital motions of the planets, combined with Earth’s motions, produce the observed paths of the planets across Earth’s sky.</p> <p>TSW explain how Earth’s rotation causes certain observable phenomena on Earth’s surface.</p> <p>TSW identify the ways in which the heliocentric theory provides a better explanation of observed phenomena than the geocentric theory.</p> <p>TSW describe how the interactions of forces and energies determine the orbital motions of a planet.</p> <p>TSW describe how key motions of Earth are related to the units of time based on those motions.</p>																	
Assessments: Topic 4b Test Quiz: Orbits Labs: Planetary Orbits / Solar System Data Chart																	

General Brown Central School District

Curriculum Map

<p>Recommended Texts: Text: <i>The Physical Setting – Earth Science</i></p>	<p>Resources: PowerPoints Student Notes Worksheets, etc Lab reports <i>Castle Learning</i> Video: <i>Cosmic Voyage</i></p>
---	--

Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn
Time Frame: 8 days	Unit/Theme 4c – Astronomy: <i>Modern Astronomy</i>

<p>Essential Questions:</p> <p>How are objects in the Solar System classified?</p> <p>How does the classification of stars result from our understanding of stellar evolution?</p> <p>On what is our current understanding of the evolution and structure of the Universe based?</p>
--

<p>NYS Standards:</p> <p>HS-ESS1-1 HS-ESS1-2 HS-ESS1-3</p>	<p>Vocabulary:</p> <table style="width: 100%; border: none;"> <tr> <td>Asteroid</td> <td>Big Bang</td> </tr> <tr> <td>Blue Shift</td> <td>Black Hole</td> </tr> <tr> <td>Cosmic Background Radiation</td> <td>Galaxy</td> </tr> <tr> <td>Jovian</td> <td>Luminosity</td> </tr> <tr> <td>Main Sequence</td> <td>Meteor</td> </tr> <tr> <td>Meteorite</td> <td>Nebula</td> </tr> <tr> <td>Neutron Star</td> <td>Nuclear fusion</td> </tr> <tr> <td>Planet</td> <td>Red Shift</td> </tr> <tr> <td>Red (Super)Giant</td> <td>Star</td> </tr> <tr> <td>Supernova</td> <td>Terrestrial</td> </tr> <tr> <td>White Dwarf</td> <td></td> </tr> </table>	Asteroid	Big Bang	Blue Shift	Black Hole	Cosmic Background Radiation	Galaxy	Jovian	Luminosity	Main Sequence	Meteor	Meteorite	Nebula	Neutron Star	Nuclear fusion	Planet	Red Shift	Red (Super)Giant	Star	Supernova	Terrestrial	White Dwarf	
Asteroid	Big Bang																						
Blue Shift	Black Hole																						
Cosmic Background Radiation	Galaxy																						
Jovian	Luminosity																						
Main Sequence	Meteor																						
Meteorite	Nebula																						
Neutron Star	Nuclear fusion																						
Planet	Red Shift																						
Red (Super)Giant	Star																						
Supernova	Terrestrial																						
White Dwarf																							

<p>Student Objectives (The student will...):</p> <p>TSW identify the factors used to classify objects in the Solar System.</p> <p>TSW relate the various types of stars to stages of stellar evolution.</p> <p>TSW explain how our understanding of the evolution and current structure of the Universe has developed from key evidence compiled over the past century.</p>

<p>Assessments:</p> <p>Topic 4c Test Quiz: H-R Diagram</p>	
--	--

General Brown Central School District Curriculum Map

Lab: Stars of the Northern Sky	
Recommended Texts: Text: <i>The Physical Setting – Earth Science</i>	Resources: PowerPoints Student Notes Worksheets, etc Lab reports <i>Castle Learning</i>

Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn
Time Frame: 7-8 days	Unit/Theme 5a – Meteorology: <i>Solar Radiation</i>
Essential Questions: In what ways does the changing path of the Sun in our sky influence our seasons? How can we use radiative balance to predict maximum and minimum temperatures? How does the Earth’s atmosphere affect radiation from the Sun and Earth?	
NYS Standards: HS-ESS2-4 HS-ESS3-5 HS-ETS1-2	Vocabulary: Aerosol Deficit Duration Greenhouse Effect Ice age Insolation Intensity Ozone Radiative Balance Reradiation Surplus
Student Objectives (The student will...): TSW summarize how and why the insolation reaching the Earth’s surface varies during the year. TSW summarize how the atmosphere interacts with various forms of radiation. TSW predict how environmental changes (eruptions, pollution, etc.) could influence Earth’s climate.	
Assessments: Topic 5a Test Quiz: Insolation Factors Lab: Duration of Insolation	
Recommended Texts: Text: <i>The Physical Setting – Earth Science</i>	Resources: PowerPoints

General Brown Central School District Curriculum Map

	Student Notes Worksheets, etc Lab reports <i>Castle Learning</i> Video: <i>Stellar Evolution</i>
--	--

Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn
-----------------------------	---------------------------------------

Time Frame: 7 days	Unit/Theme 5b – Meteorology: <i>Weather Basics</i>
-----------------------	---

Essential Questions: How do changes in temperature affect barometric pressure, and relative humidity? What instruments are used to measure key weather variables? How do clouds form (in detail)?	
--	--

NYS Standards: HS-ESS2-8	Vocabulary: Anemometer Barometric Pressure Cloudbase Condensation Condensation Nuclei Dewpoint Evaporation Humidity Hygrometer Psychrometer Relative Humidity Saturated Sublimation Transparency Transpiration Wind
-----------------------------	---

Student Objectives (The student will...): TSW predict how pressure, temperature, and relative humidity will change during a typical day. TSW describe the name and function of meteorological instruments (thermometer, barometer, anemometer, sling psychrometer, etc.). TSW summarize the process of cloud formation and precipitation.	
--	--

Assessments: Topic 5b Test Labs: Dew Point & Relative Humidity / Weather Instruments	
--	--

General Brown Central School District Curriculum Map

Ext Labs: Dew Pts + RH / Temperature + Pressure Conversions	
Recommended Texts: Text: <i>The Physical Setting – Earth Science</i>	Resources: PowerPoints Student Notes Worksheets, etc Lab reports <i>Castle Learning</i>

Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn
Time Frame: 3 days	Unit/Theme 5c – Meteorology: <i>Weather Maps</i>
<p>Essential Questions:</p> <p>How are weather variables represented on station models?</p> <p>What does the pressure trend tell you?</p> <p>How are high or low gradients visible on weather maps?</p>	
NYS Standards: HS-ESS2-8	Vocabulary: Knots Pressure Conversion Station model Trend
<p>Student Objectives (The student will...):</p> <p>TSW interpret the information contained on a station model diagram.</p> <p>TSW calculate the previous barometric pressure of a location based upon a station model.</p> <p>TSW recognize the patterns associated with areas of high and low pressure gradients on a weather map.</p>	
Assessments:	

General Brown Central School District Curriculum Map

Quiz on Station Models	
Recommended Texts: Text: <i>The Physical Setting – Earth Science</i>	Resources: PowerPoints Student Notes Worksheets, etc Lab reports <i>Castle Learning</i> Internet: NWS, Accuweather

Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn																		
Time Frame: 10 days	Unit/Theme 5d – Meteorology: <i>Weather Systems</i>																		
Essential Questions: What are the similarities and differences of the four types of fronts? How are storm tracks used to forecast the weather? How are mid-latitude cyclones formed?																			
NYS Standards: HS-ESS2-8	Vocabulary: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Air mass</td> <td style="width: 50%;">Anticyclone</td> </tr> <tr> <td>Cold front</td> <td>Continental</td> </tr> <tr> <td>Convection cell</td> <td>Eye</td> </tr> <tr> <td>High Pressure</td> <td>Hurricane</td> </tr> <tr> <td>Low Pressure</td> <td>Maritime</td> </tr> <tr> <td>Mid-latitude Cyclone</td> <td>Occluded front</td> </tr> <tr> <td>Source region</td> <td>Stationary front</td> </tr> <tr> <td>Storm track</td> <td>Tornado</td> </tr> <tr> <td>Tropical storm</td> <td>Warm front</td> </tr> </table>	Air mass	Anticyclone	Cold front	Continental	Convection cell	Eye	High Pressure	Hurricane	Low Pressure	Maritime	Mid-latitude Cyclone	Occluded front	Source region	Stationary front	Storm track	Tornado	Tropical storm	Warm front
Air mass	Anticyclone																		
Cold front	Continental																		
Convection cell	Eye																		
High Pressure	Hurricane																		
Low Pressure	Maritime																		
Mid-latitude Cyclone	Occluded front																		
Source region	Stationary front																		
Storm track	Tornado																		
Tropical storm	Warm front																		
Student Objectives (The student will...): TSW describe the temperature, humidity, and precipitation patterns found in the four fronts. TSW infer the path of a weather system based upon knowledge of storm tracks.																			

General Brown Central School District Curriculum Map

<p>Assessment:</p> <p>Topic 5d Test Labs: Isobaric Map / Weather Graph</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Earth Science</i></p>	<p>Resources:</p> <p>PowerPoints Student Notes Worksheets, etc Lab reports <i>Castle Learning</i> Internet: NWS, Accuweather</p>

Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn																		
<p>Time Frame:</p> <p>8 days + 6 lab sessions for Moon, Tides, Ocean Currents</p>	<p>Unit/Theme</p> <p>6a – Climate: <i>Climate Factors</i></p>																		
<p>Essential Questions:</p> <p>What factors are used to define the climate of a region? How do geographic factors affect the climate of a region? How are coastal wind patterns determined by the differing specific heats of land and water? How are climate and weather flow affected by patterns of atmospheric circulation? How are tidal cycles related to lunar cycles? How do wind-driven surface ocean currents affect climates?</p>																			
<p>NYS Standards:</p> <p>HS-ESS1-7 HS-ESS2-2 HS-ESS3-3 HS-ESS3-4 HS-ESS3-6 HS-ETS1-1 HS-ETS1-3 HS-ETS1-4</p>	<p>Vocabulary:</p> <table style="width: 100%; border: none;"> <tr> <td>Climate</td> <td>Convergence</td> </tr> <tr> <td>Divergence</td> <td>Heat island</td> </tr> <tr> <td>Lunar Phase</td> <td>Neap Tide</td> </tr> <tr> <td>Onshore</td> <td>Prevailing</td> </tr> <tr> <td>Rain shadow</td> <td></td> </tr> <tr> <td>Range</td> <td></td> </tr> <tr> <td>Spring Tide</td> <td></td> </tr> <tr> <td>Tidal Bulge</td> <td></td> </tr> <tr> <td>Trade winds</td> <td></td> </tr> </table>	Climate	Convergence	Divergence	Heat island	Lunar Phase	Neap Tide	Onshore	Prevailing	Rain shadow		Range		Spring Tide		Tidal Bulge		Trade winds	
Climate	Convergence																		
Divergence	Heat island																		
Lunar Phase	Neap Tide																		
Onshore	Prevailing																		
Rain shadow																			
Range																			
Spring Tide																			
Tidal Bulge																			
Trade winds																			
<p>Student Objectives (The student will...):</p> <p>TSW identify the factors used to define a region's climate. TSW describe the effect of key geographic features on a region's climate. TSW summarize how an onshore or offshore wind develops due to temperature and pressure differences. TSW explain the relation between atmospheric circulation and climate patterns. TSW describe patterns of weather flow resulting from atmospheric circulation. TSW identify the relation between tidal cycles and phases of the Moon. TSW describe the effect of ocean currents on climate patterns.</p>																			
Assessments:																			

General Brown Central School District Curriculum Map

<p>Topic 6a Test Labs: Land and Water / Climate Analysis / Climate Factors / Adiabatic Change / The Moon / Tides / Surface Ocean Currents Ext Lab: Climate Zones</p>	
<p>Recommended Texts: Text: <i>The Physical Setting – Earth Science</i></p>	<p>Resources: Text PowerPoints Student Notes Worksheets, etc Lab reports <i>Castle Learning</i> Video: <i>If There Were No Moon</i></p>

Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn																		
Time Frame: 7 days	Unit/Theme 6b – Climate: <i>Soils</i>																		
<p>Essential Questions:</p> <p>How is precipitation falling on a land area affected by surface characteristics?</p> <p>What factors determine how moisture will move through a soil layer, and what effect does each have?</p> <p>How do moisture zones in the soil shift as the amount of precipitation changes?</p>																			
<p>NYS Standards: HS-ESS3-2</p>	<p>Vocabulary:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Adhesion</td> <td style="width: 50%;">Capillary action</td> </tr> <tr> <td>Capillary fringe</td> <td>Capillary water</td> </tr> <tr> <td>Cohesion</td> <td>Groundwater</td> </tr> <tr> <td>Impermeable</td> <td>Infiltration</td> </tr> <tr> <td>Packing</td> <td>Permeability</td> </tr> <tr> <td>Porosity</td> <td>Saturation</td> </tr> <tr> <td>Runoff</td> <td>Water cycle</td> </tr> <tr> <td>Sorted / Unsorted</td> <td>Zone of aeration</td> </tr> <tr> <td>Water table</td> <td></td> </tr> </table>	Adhesion	Capillary action	Capillary fringe	Capillary water	Cohesion	Groundwater	Impermeable	Infiltration	Packing	Permeability	Porosity	Saturation	Runoff	Water cycle	Sorted / Unsorted	Zone of aeration	Water table	
Adhesion	Capillary action																		
Capillary fringe	Capillary water																		
Cohesion	Groundwater																		
Impermeable	Infiltration																		
Packing	Permeability																		
Porosity	Saturation																		
Runoff	Water cycle																		
Sorted / Unsorted	Zone of aeration																		
Water table																			
<p>Student Objectives (The student will...):</p> <p>TSW describe the effect of surface characteristics of a land area on precipitation.</p> <p>TSW explain the effect of various factors on moisture moving through a layer of soil.</p>																			

General Brown Central School District Curriculum Map

TSW identify the moisture zones found in a soil layer and describe the effect of precipitation on the positions of the zones.	
Assessments: Topic 6b Test Quiz: Soil Relationships Lab: Soil Factors	
Recommended Texts: Text: <i>The Physical Setting – Earth Science</i>	Resources: PowerPoints Student Notes Worksheets, etc Lab reports <i>Castle Learning</i>

Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn																								
Time Frame: 8 days	Unit/Theme 7 – Earth’s Changing Surface																								
<p>Essential Questions: What are weathering, erosion, and deposition</p> <p>In terms of erosion and deposition due to velocity patterns describe the formation of an oxbow lake.</p> <p>How do different agents of erosion vary in terms of size of particles moved, shape of particles resulting, and deposition pattern?</p>																									
NYS Standards: HS-ESS2-1 HS-ESS2-2 HS-ESS2-5	<p>Vocabulary:</p> <table style="width: 100%; border: none;"> <tr> <td>Base flow</td> <td>Channel</td> </tr> <tr> <td>Cross bedding</td> <td>Deposition</td> </tr> <tr> <td>Discharge</td> <td>Drainage basin</td> </tr> <tr> <td>Drumlin</td> <td>Erosion</td> </tr> <tr> <td>Frost action</td> <td>Frosted</td> </tr> <tr> <td>Glacier</td> <td>Horizontal Sorting</td> </tr> <tr> <td>Humus</td> <td>Insoluble / Soluble</td> </tr> <tr> <td>Ion</td> <td>Meander</td> </tr> <tr> <td>Oxbow lake</td> <td>Reactive</td> </tr> <tr> <td>Residual</td> <td>Striations</td> </tr> <tr> <td>Topsoil</td> <td>Tributary</td> </tr> <tr> <td>Vertical Sorting</td> <td>Weathering</td> </tr> </table>	Base flow	Channel	Cross bedding	Deposition	Discharge	Drainage basin	Drumlin	Erosion	Frost action	Frosted	Glacier	Horizontal Sorting	Humus	Insoluble / Soluble	Ion	Meander	Oxbow lake	Reactive	Residual	Striations	Topsoil	Tributary	Vertical Sorting	Weathering
Base flow	Channel																								
Cross bedding	Deposition																								
Discharge	Drainage basin																								
Drumlin	Erosion																								
Frost action	Frosted																								
Glacier	Horizontal Sorting																								
Humus	Insoluble / Soluble																								
Ion	Meander																								
Oxbow lake	Reactive																								
Residual	Striations																								
Topsoil	Tributary																								
Vertical Sorting	Weathering																								
<p>Student Objectives (The student will...):</p> <p>TSW compare and contrast weathering, erosion, and deposition.</p> <p>TSW predict the future development of a stream channel based on flow patterns that have been studied.</p> <p>TSW classify particles as being transported by air, wind, water, glaciers, or gravity</p>																									

General Brown Central School District Curriculum Map

Assessments: Topic 7 Test		
Recommended Texts: Text: <i>The Physical Setting – Earth Science</i>	Resources: PowerPoints Student Notes Worksheets, etc Lab reports <i>Castle Learning</i>	
Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn	
Time Frame: 12 days	Unit/Theme 8 – Rocks and Minerals	
Essential Questions: Describe how material can move to different stages of the rock cycle. What is a mineral and by what properties are they identified? What properties are used to classify igneous, sedimentary, and metamorphic rocks?		
NYS Standards: HS-ESS2-3 HS-ESS3-2	Vocabulary: Banding Clastic / Bioclastic Compaction Crystal lattice Evaporate Foliations Fracture Igneous Intrusive Lithified Mafic Metamorphic Molten Precipitate Sedimentary Stratified Tetrahedron Cementation Cleavage Contact Crystallization Felsic Fossil Hardness Inorganic Extrusive Luster Magma / Lava Mineral Poly- / Mono- mineralic Regional Specific gravity Streak	
Student Objectives (The student will...):		

General Brown Central School District Curriculum Map

<p>TSW interpret the rock cycle diagram in the ESRTs to describe the processes involved in the formation of different rock types.</p> <p>TSW identify minerals bases upon observed physical properties (lab).</p> <p>TSW classify rocks based upon observed physical properties (lab).</p>	
<p>Assessments: Topic 8 Test Quiz: Minerals Quiz: Igneous Rock Chart Labs: Mineral Identification / Rock Classification / Rock Charts Ext Lab: Specific Gravity</p>	
<p>Recommended Texts: Text: <i>The Physical Setting – Earth Science</i></p>	<p>Resources: PowerPoints Student Notes Worksheets, etc Lab reports <i>Castle Learning</i></p>

Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn																								
Time Frame: 5 days	Unit/Theme 9a – Planetary Geology: <i>Seismology</i>																								
<p>Essential Questions: What factors determine the strength of an earthquake? How is the strength of an earthquake measured? How can seismic waves be used to determine the location of an earthquake’s epicenter? How do seismic waves indicate the structure and composition of Earth’s interior? How does the interaction of temperature and pressure determine the properties of Earth’s interior?</p>																									
<p>NYS Standards: HS-ESS1-6 HS-ESS2-3</p>	<p>Vocabulary:</p> <table style="width: 100%; border: none;"> <tr> <td>Amplitude</td> <td>Arrival-time</td> </tr> <tr> <td>Asthenosphere</td> <td>Compressional</td> </tr> <tr> <td>Core</td> <td>Crust</td> </tr> <tr> <td>Earthquake</td> <td>Epicenter</td> </tr> <tr> <td>Fault</td> <td>Focus</td> </tr> <tr> <td>Intensity Scale</td> <td>Lag-time</td> </tr> <tr> <td>Magnitude scale</td> <td>Mantle</td> </tr> <tr> <td>Moho</td> <td>Origin-time</td> </tr> <tr> <td>Plastic</td> <td>Richter Scale</td> </tr> <tr> <td>Seismic waves (S, P, L)</td> <td>Seismograph</td> </tr> <tr> <td>Shadow zone</td> <td>Transverse</td> </tr> <tr> <td>Triangulate</td> <td></td> </tr> </table>	Amplitude	Arrival-time	Asthenosphere	Compressional	Core	Crust	Earthquake	Epicenter	Fault	Focus	Intensity Scale	Lag-time	Magnitude scale	Mantle	Moho	Origin-time	Plastic	Richter Scale	Seismic waves (S, P, L)	Seismograph	Shadow zone	Transverse	Triangulate	
Amplitude	Arrival-time																								
Asthenosphere	Compressional																								
Core	Crust																								
Earthquake	Epicenter																								
Fault	Focus																								
Intensity Scale	Lag-time																								
Magnitude scale	Mantle																								
Moho	Origin-time																								
Plastic	Richter Scale																								
Seismic waves (S, P, L)	Seismograph																								
Shadow zone	Transverse																								
Triangulate																									

General Brown Central School District Curriculum Map

<p>Student Objectives (The student will...):</p> <p>TSW identify the effects of various factors on the strength of an earthquake.</p> <p>TSW use Richter scale readings to compare the strengths and predict the effects of various earthquakes.</p> <p>TSW demonstrate the ability to locate an earthquake's epicenter and determine its origin time from seismic data.</p> <p>TSW explain how the structure of Earth's interior is derived from evidence provided by seismic data.</p> <p>TSW use patterns of change in temperature and pressure to explain the properties of Earth's interior.</p>	
<p>Assessments:</p> <p>Topic 9 Test</p> <p>Lab: Epicenter Plots</p> <p>Ext Lab: Seismic Wave Graph</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Earth Science</i></p>	<p>Resources:</p> <p>PowerPoints</p> <p>Student Notes</p> <p>Worksheets, etc</p> <p>Lab reports</p> <p><i>Castle Learning</i></p> <p>Internet: Seismic Data</p>

Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn														
Time Frame: 10 days	Unit/Theme 9b – Planetary Geology: <i>Plate Tectonics</i>														
<p>Essential Questions:</p> <p>What factors determine the strength of an earthquake?</p> <p>How is the strength of an earthquake measured?</p> <p>How can seismic waves be used to determine the location of an earthquake's epicenter?</p> <p>How do seismic waves indicate the structure and composition of Earth's interior?</p> <p>How does the interaction of temperature and pressure determine the properties of Earth's interior?</p>															
<p>NYS Standards:</p> <p>HS-ESS1-5</p> <p>HS-ESS1-6</p> <p>HS-ESS2-1</p>	<p>Vocabulary:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Continental Drift</td> <td style="width: 50%;">Convergent Boundary</td> </tr> <tr> <td>Correlation</td> <td>Divergent Boundary</td> </tr> <tr> <td>Fossil</td> <td>Mantle Convection</td> </tr> <tr> <td>Mid-ocean ridge</td> <td>Pangea</td> </tr> <tr> <td>Plate tectonics</td> <td>Rift valley</td> </tr> <tr> <td>Seafloor Spreading</td> <td>Subduction zone</td> </tr> <tr> <td>Transform Boundary</td> <td>Trench</td> </tr> </table>	Continental Drift	Convergent Boundary	Correlation	Divergent Boundary	Fossil	Mantle Convection	Mid-ocean ridge	Pangea	Plate tectonics	Rift valley	Seafloor Spreading	Subduction zone	Transform Boundary	Trench
Continental Drift	Convergent Boundary														
Correlation	Divergent Boundary														
Fossil	Mantle Convection														
Mid-ocean ridge	Pangea														
Plate tectonics	Rift valley														
Seafloor Spreading	Subduction zone														
Transform Boundary	Trench														
<p>Student Objectives (The student will...):</p> <p>TSW delineate evidence for continental drift.</p>															

General Brown Central School District Curriculum Map

<p>TSW describe plate tectonic theory in terms of convection, subduction, divergence, and convergence.</p> <p>TSW describe the relationships between various surface features and the types of plate boundaries where those features are found.</p> <p>TSW identify zones of geologic activity and explain the relationship of those zones to the various types of plate boundaries.</p>	
<p>Assessments: Topic 9 Test</p>	
<p>Recommended Texts: Text: <i>The Physical Setting – Earth Science</i></p>	<p>Resources: PowerPoints Student Notes Worksheets, etc Lab reports <i>Castle Learning</i></p>

<p>Course Title: Earth Science</p>	<p>Prepared By: W. Covey & R. Jaspersohn</p>												
<p>Time Frame: 8 days</p>	<p>Unit/Theme 10a – Geologic History: <i>Interpreting the Evidence</i></p>												
<p>Essential Questions:</p> <p>How can the absolute age of igneous rocks be determined?</p> <p>How can the relative age of rocks be determined?</p> <p>What properties describe an index fossil?</p>													
<p>NYS Standards: HS-ESS2-6</p>	<p>Vocabulary:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Absolute Dating</td> <td style="width: 50%;">Correlation</td> </tr> <tr> <td>Contact Metamorphism</td> <td>Half-life</td> </tr> <tr> <td>Daughter Element</td> <td>Igneous Intrusion</td> </tr> <tr> <td>Igneous Extrusion</td> <td>Outcrop</td> </tr> <tr> <td>Index Fossil</td> <td>Radioactive Decay</td> </tr> <tr> <td>Parent Element</td> <td></td> </tr> </table>	Absolute Dating	Correlation	Contact Metamorphism	Half-life	Daughter Element	Igneous Intrusion	Igneous Extrusion	Outcrop	Index Fossil	Radioactive Decay	Parent Element	
Absolute Dating	Correlation												
Contact Metamorphism	Half-life												
Daughter Element	Igneous Intrusion												
Igneous Extrusion	Outcrop												
Index Fossil	Radioactive Decay												
Parent Element													

General Brown Central School District Curriculum Map

	Radioactive Isotope Relative Dating Original Horizontality Uniformitarianism	Radiocarbon Dating Unconformity Superposition
<p>Student Objectives (The student will...):</p> <p>TSW interpret a graph of parent vs. daughter element to determine the number of half lives that have occurred.</p> <p>TSW determine the relative ages of rock layers and structures as portrayed in diagrams of regional bedrock.</p> <p>TSW describe the characteristics that make a 'good' index fossil.</p>		
<p>Assessments:</p> <p>Topic 10 Test Quiz: Relative Dating Lab: Geologic Correlation</p>		
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Earth Science</i></p>	<p>Resources:</p> <p>Text PowerPoints Student Notes Worksheets, etc Lab reports <i>Castle Learning</i></p>	

Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn
Time Frame: 7 days	Unit/Theme 10b – Geologic History: <i>History of Planet Earth</i>
<p>Essential Questions:</p> <p>How can the movement of tectonic plates provide explanation of events from Earth's geologic history? How has geologic time been divided into distinct segments?</p>	
<p>NYS Standards:</p> <p>HS-ESS2-6 HS-ESS2-7</p>	<p>Vocabulary:</p> <p>Eon/Era/Period/Epoch Evolutionary Development Mass Extinction Orogeny</p>

General Brown Central School District Curriculum Map

	Trilobite
<p>Student Objectives (The student will...):</p> <p>TSW correlate geologic events that have occurred in Earth’s past with the emergence or extinction of groups of organisms (using the ESRTs).</p> <p>TSW interpret the “Geologic History of New York State” chart in the ESRTs.</p>	
<p>Assessments:</p> <p>Topic 10 Test</p> <p>Lab: Geologic Correlation</p>	
<p>Recommended Texts:</p> <p>Text: <i>The Physical Setting – Earth Science</i></p>	<p>Resources:</p> <p>Text</p> <p>PowerPoints</p> <p>Student Notes</p> <p>Worksheets, etc</p> <p>Lab reports</p> <p><i>Castle Learning</i></p> <p>Video: <i>Rise + Fall of the Great Lakes</i></p> <p>Video: <i>The Day Earth Nearly Died</i></p>

Course Title: Earth Science	Prepared By: W. Covey & R. Jaspersohn										
Time Frame: 4 days	Unit/Theme 10c – Geologic History: <i>Landscape Development</i>										
<p>Essential Questions:</p> <p>Describe how natural forces determine how a landscape develops.</p> <p>What determines how the drainage pattern of a stream forms?</p> <p>Compare and contrast the surface and bedrock features of plateaus, plains, and mountains.</p>											
<p>NYS Standards:</p> <p>HS-ESS1-6</p>	<p>Vocabulary:</p> <table style="width: 100%; border: none;"> <tr> <td>Annular</td> <td>Block or Trellis</td> </tr> <tr> <td>Competence</td> <td>Dendritic</td> </tr> <tr> <td>Distorted Bedrock</td> <td>Divide</td> </tr> <tr> <td>Drainage Basin</td> <td>Escarpment</td> </tr> <tr> <td>Free Face</td> <td>Glacial Abrasions</td> </tr> </table>	Annular	Block or Trellis	Competence	Dendritic	Distorted Bedrock	Divide	Drainage Basin	Escarpment	Free Face	Glacial Abrasions
Annular	Block or Trellis										
Competence	Dendritic										
Distorted Bedrock	Divide										
Drainage Basin	Escarpment										
Free Face	Glacial Abrasions										

General Brown Central School District Curriculum Map

	Glacial Trough Jointed Bedrock Mainstream Mountains Plateau Relief Topography Watershed	Hanging Valley Karst Landscape Moraine Plains Radial Resistance Tributary
<p>Student Objectives (The student will...):</p> <p>TSW infer how a landscape will change over time if influenced by different agents of erosion.</p> <p>TSW describe the situations which cause different stream patterns to develop.</p> <p>TSW classify landscapes as mountain, plain, or plateaus based upon surface and bedrock characteristics.</p>		
Assessments: Topic 10c Test Lab: New York Landscapes		
Recommended Texts: Text: <i>The Physical Setting – Earth Science</i>	Resources: Text Student Notes Lab reports	PowerPoints Worksheets, etc <i>Castle Learning</i>

Course Title: Earth Science	Prepared By: W. Covey
Time Frame:	Unit/Theme
Essential Questions:	
NYS Standards:	Vocabulary:

General Brown Central School District Curriculum Map

Student Objectives (The student will...):	
Assessments:	
Recommended Texts:	Resources:

Course Title: Earth Science	Prepared By: W. Covey
Time Frame:	Unit/Theme
Essential Questions:	
NYS Standards:	Vocabulary:

General Brown Central School District Curriculum Map

Student Objectives (The student will...):	
Assessments:	
Recommended Texts:	Resources:

Course Title: Earth Science	Prepared By: W. Covey
Time Frame:	Unit/Theme
Essential Questions:	

General Brown Central School District Curriculum Map

NYS Standards:	Vocabulary:
Student Objectives (The student will...):	
Assessments:	
Recommended Texts:	Resources:

Course Title: Earth Science	Prepared By: W. Covey
Time Frame:	Unit/Theme
Essential Questions:	

General Brown Central School District Curriculum Map

NYS Standards:	Vocabulary:
Student Objectives (The student will...):	
Assessments:	
Recommended Texts:	Resources:

Course Title: Earth Science	Prepared By: W. Covey
Time Frame:	Unit/Theme
Essential Questions:	

General Brown Central School District Curriculum Map

NYS Standards:	Vocabulary:
Student Objectives (The student will...):	
Assessments:	
Recommended Texts:	Resources:

Course Title: Earth Science	Prepared By: W. Covey
Time Frame:	Unit/Theme
Essential Questions:	

General Brown Central School District Curriculum Map

NYS Standards:	Vocabulary:
Student Objectives (The student will...):	
Assessments:	
Recommended Texts:	Resources:

Course Title: Earth Science	Prepared By: W. Covey
Time Frame:	Unit/Theme
Essential Questions:	

General Brown Central School District Curriculum Map

NYS Standards:	Vocabulary:
Student Objectives (The student will...):	
Assessments:	
Recommended Texts:	Resources:
Course Title: Earth Science	Prepared By: W. Covey
Time Frame:	Unit/Theme

General Brown Central School District Curriculum Map

Essential Questions:	
NYS Standards:	Vocabulary:
Student Objectives (The student will...):	
Assessments:	
Recommended Texts:	Resources:

Course Title: Earth Science	Prepared By: W. Covey
-----------------------------	-----------------------

General Brown Central School District Curriculum Map

Time Frame:	Unit/Theme
Essential Questions:	
NYS Standards:	Vocabulary:
Student Objectives (The student will...):	
Assessments:	
Recommended Texts:	Resources: