

Science 11 SDC (NGSS-aligned from 4-Course Model for SDC Earth Science)							
Semester 1				Semester 2			
Quarter 1		Quarter 2		Quarter 3		Quarter 4	
Instructional Segment #5: Causes and Effects of Earthquakes		Instructional Segment #6: Urban Geoscience		Instructional Segment #7: Star Stuff		Instructional Segment #8: Motion in the Universe	
<a href="#">HS-ESS1-5</a> <sub>1</sub> <a href="#">HS-ESS2-1</a> <sub>7</sub> <a href="#">HS-ESS2-3</a> <sub>5</sub> <a href="#">HS-ESS3-1</a> <sub>2</sub> *		<a href="#">HS-ESS3-1</a> <sub>2</sub> * <a href="#">HS-ESS3-4</a> <sub>7</sub> <a href="#">HS-ETS1-2</a> <a href="#">HS-ETS1-4</a> <sub>4</sub>		<a href="#">HS-ESS1-1</a> <sub>3</sub> <a href="#">HS-ESS1-3</a> <sub>5</sub> <a href="#">HS-ESS1-6</a> <sub>7</sub> *		<a href="#">HS-ESS1-2</a> <sub>5</sub> <a href="#">HS-ESS1-4</a> <sub>3</sub> <a href="#">HS-ESS1-6</a> <sub>7</sub> *	
* = standard is taught more than once within this course							
<b>EP&amp;Cs Connections:</b> Principle 1, 2, 3, 4, 5	<b>ELD Connections:</b> ELD.PI.11-12.1,5,6a-b,9,10,11a	<b>EP&amp;Cs Connections:</b> Principles 1, 2, 3, 4, 5	<b>ELD Connections:</b> ELD.PI.11-12.1,5,6a-b,9,10,11a	<b>EP&amp;Cs Connections:</b> Principles 1, 2, 3, 4, 5	<b>ELD Connections:</b> ELD.PI.11-12.1,5,6a-b,9,10,11a	<b>EP&amp;Cs Connections:</b> Principles 1, 2, 3, 4, 5	<b>CCSS ELD Connections:</b> ELD.PI.11-12.1,5,6a-b,9,10,11a
<b>CCSS ELA Connections:</b> WHST.9-12.1a-e; <a href="#">SL.11-12.5</a> ; RST.11-12.1, 2, 7, 8	<b>CCSS Math Connections:</b> <a href="#">N-Q.1-3</a> ; <a href="#">MP.2</a> ; <a href="#">MP.4</a>	<b>CCSS ELA Connections:</b> <a href="#">SL.11-12.5</a> ; <a href="#">RST.11-12.1</a> , 2, 7, 8, 9; <a href="#">WHST.9-12.2.a-e</a> , 7	<b>CCSS Math Connections:</b> <a href="#">N-Q.1-3</a> ; <a href="#">MP.2</a> ; <a href="#">MP.4</a>	<b>CCSS ELA Connections:</b> <a href="#">SL.11-12.5</a> ; <a href="#">RST.11-12.1</a> , 2, 7, 8, 9; <a href="#">WHST.9-12.2.a-e</a>	<b>CCSS Math Connections:</b> <a href="#">MP.2</a> ; <a href="#">MP.4</a> ; <a href="#">N-Q.1-3</a>	<b>CCSS ELA Connections:</b> <a href="#">SL.11-12.4</a> ; <a href="#">RST.11-12.1</a> , 2, 7, 8, 9; <a href="#">WHST.9-12.1.a-e</a> , 2.a-e, 7	<b>CCSS Math Connections:</b> <a href="#">N-Q.1-3</a> ; <a href="#">A-SSE.1a-b</a> ; <a href="#">A-CED.2.4</a> ; <a href="#">F-IF.5</a> ; <a href="#">S-ID.6a-c</a> <a href="#">MP.2</a> ; <a href="#">MP.4</a>

### Science & Engineering Practices (SEPs)

- 1.) [Asking questions and defining problems](#)
- 2.) [Developing and using models](#)
- 3.) [Planning and carrying out investigations](#)
- 4.) [Analyzing and interpreting data](#)
- 5.) [Using mathematics and computational thinking](#)
- 6.) [Constructing explanations and designing solutions](#)
- 7.) [Engaging in argument from evidence](#)
- 8.) [Obtaining, evaluating and communicating information](#)

### Crosscutting Concepts (CCCs)

- 1.) [Patterns](#)
- 2.) [Cause and Effect](#)
- 3.) [Scale, Proportion, Quantity](#)
- 4.) [Systems and System Models](#)
- 5.) [Energy and Matter](#)
- 6.) [Structure and Function](#)
- 7.) [Stability and Change](#)

<b>Guiding Questions:</b>			
<b><i>Instructional Segment #5:</i></b> Causes and Effects of Earthquakes	<b><i>Instructional Segment #6:</i></b> Urban Geoscience	<b><i>Instructional Segment #7:</i></b> Star Stuff	<b><i>Instructional Segment #8:</i></b> Motion in the Universe
<ul style="list-style-type: none"> <li>• What causes earthquakes?</li> </ul>	<ul style="list-style-type: none"> <li>• How do Earth's natural systems influence our cities?</li> <li>• How do cities affect Earth's natural systems?</li> </ul>	<ul style="list-style-type: none"> <li>• How do we know what stars are made of?</li> <li>• What fuels our Sun? Will it ever run out of that fuel?</li> <li>• Do other stars work the same way as our Sun?</li> </ul>	<ul style="list-style-type: none"> <li>• What are the predictable patterns of movement in our solar system and beyond?</li> <li>• What can those motions tell us about the origin of the universe and our planet?</li> </ul>



**5 Causes and Effects of Earthquakes**  
Earthquakes and motion at the surface give clues to what goes on deep inside the Earth.



**6 Urban Geo-science**  
The majority of California residents live in urban areas that are shaped by the natural environment. Our urban expansion in these areas requires that we also think about how human activity in turn affects the natural environment.



**7 Star Stuff**  
Everything on Earth is made of "star-stuff." Earth depends on its closest star, the Sun, for almost all its energy. The light from all stars provides clues about what they are and how they shine.



**8 Motion in the Universe**  
The structure of objects in our universe and the motions of all bodies within it are driven by the competition between the explosive force of the Big Bang and the attractive force of gravity.

Science 11 SDC- Quarter 1 Overview			
Quarter Topic Focus: Causes and Effects of Earthquakes			
<u>Science &amp; Engineering Practice (SEP)</u>	<u>Disciplinary Core Idea (DCI)</u>	<u>Crosscutting Concept (CCC)</u>	<u>Performance Expectation (PE)</u>
<b>How</b> students will demonstrate their understanding...	<b>What</b> students will understand...	How students will connect their understanding across units and courses... ( <b>Why</b> they should know it)	A complete standard ( <b>SEP + DCI + CCC = PE</b> ) <i>*colors are associated with SEP (see page 1 for key)</i>
<u>Evaluate evidence of</u>	<u>continental and oceanic crust and the theory</u> of plate tectonics to explain the ages of crustal rocks.	( <u>patterns</u> )	<b>HS-ESS1-5</b> Textbook: pgs. 233-237, 254-270 <a href="#">CK-12 resources</a>
<u>Develop a model</u> to illustrate how	<u>Earth's internal and surface</u> processes operate at different spatial and	<u>temporal scales</u> to form continental and ocean-floor features. (stability and change)	<b>HS-ESS2-1</b> Textbook: pgs. 254-264, 293-294 <a href="#">CK-12 resources</a>
<u>Develop a model based on evidence of</u>	<u>Earth's interior to describe the cycling of matter by thermal convection.</u>	( <u>energy and matter</u> )	<b>HS-ESS2-3</b> Textbook: pgs. 269-270 <a href="#">CK-12 resources</a>
Construct an <u>explanation based</u> on evidence of how	the availability of <u>natural resources</u> , occurrence of natural hazards, and changes in climate	have <u>influenced human activity</u> . (cause and effect)	<b>HS-ESS3-1</b> Textbook: pgs. 20-21, 113-116, 600-603 <a href="#">CK-12 resources</a>

Science 11 SDC- Quarter 2 Overview			
Quarter Topic Focus: Urban Geoscience			
<u>Science &amp; Engineering Practice (SEP)</u>	<u>Disciplinary Core Idea (DCI)</u>	<u>Crosscutting Concept (CCC)</u>	<u>Performance Expectation (PE)</u>
<b>How</b> students will demonstrate their understanding...	<b>What</b> students will understand...	How students will connect their understanding across units and courses... ( <b>Why</b> they should know it)	A complete standard ( <b>SEP + DCI + CCC = PE</b> ) <i>*colors are associated with SEP (see page 1 for key)</i>
Construct an <u>explanation based</u> on evidence of how	the availability of <u>natural resources</u> , occurrence of natural hazards, and changes in climate	have <u>influenced human activity</u> . (cause and effect)	HS-ESS3-1 Textbook: pgs. 20-21, 113-116, 600-603 <a href="#">CK-12 resources</a>
<u>Evaluate or refine a technological</u> solution	of <u>human activities</u> or natural systems	that <u>reduces impact</u> . (stability and change)	HS-ESS3-4 Textbook: pgs. 111-115, 128-129 <a href="#">CK-12 resources</a>
<u>Design a solution to a complex real-world problem</u>	by <u>breaking it down into smaller, more manageable problems</u> that can be solved through engineering.	n/a *Textbook page numbers are only suggestions for topics.	HS-ETS1-2 Textbook: pgs. 102-107, 140-142, 168-170 <a href="#">CK-12 resources</a>
<u>Use a computer simulation to model</u>	the <u>impact of proposed solutions</u> to a complex real-world problem with numerous criteria and constraints on	<u>interactions within and between systems</u> relevant to the problem. (systems and system models)	HS-ETS1-4 Textbook: pgs. Same as above <a href="#">CK-12 resources</a>

Science 11 SDC - Quarter 3 Overview			
Quarter Topic Focus: Star Stuff			
<u>Science &amp; Engineering Practice (SEP)</u>	<u>Disciplinary Core Idea (DCI)</u>	<u>Crosscutting Concept (CCC)</u>	<u>Performance Expectation (PE)</u>
<b>How</b> students will demonstrate their understanding...	<b>What</b> students will understand...	How students will connect their understanding across units and courses... <b>(Why</b> they should know it)	A complete standard <b>(SEP + DCI + CCC = PE)</b> <small>*colors are associated with SEP (see page 1 for key)</small>
<u>Develop a model</u> based on evidence to illustrate	the life span of the <u>sun and the role of nuclear fusion</u> in the sun's core to release energy that eventually reaches earth in the form of radiation.	<u>(scale, proportion and quantity)</u>	HS-ESS1-1 Textbook: pgs. 689-690 <a href="#">CK-12 resources</a>
<u>Communicate</u> scientific ideas about the way	stars over their <u>life cycle</u>	<u>produce elements.</u> (energy and matter)	HS-ESS1-3 Textbook: pgs. 707-712 <a href="#">CK-12 resources</a>
<u>Apply scientific reasoning and evidence</u>	<u>from ancient earth materials, meteorites, and other planetary surfaces</u>	to <u>construct an account</u> of earth's formation and early history. (stability and change)	HS-ESS1-6 Textbook: pgs. 3-4, 237, 644-648, 664 <a href="#">CK-12 resources</a>



## Quarter Topic Focus: Motion in the Universe

<u>Science &amp; Engineering Practice (SEP)</u>	<u>Disciplinary Core Idea (DCI)</u>	<u>Crosscutting Concept (CCC)</u>	<u>Performance Expectation (PE)</u>
<b>How</b> students will demonstrate their understanding...	<b>What</b> students will understand...	How students will connect their understanding across units and courses... ( <b>Why</b> they should know it)	A complete standard ( <b>SEP + DCI + CCC = PE</b> ) *colors are associated with SEP (see page 1 for key)
<u>Construct an explanation of</u>	the <u>Big Bang theory</u> based on astronomical evidence of light spectra, motion of galaxies in the universe	and <u>composition of matter.</u> (energy and matter)	HS-ESS1-2 Textbook: pgs. 674-677, 715-720 <a href="#">CK-12 resources</a>
<u>Use a computer simulation to model</u>	the <u>impact of proposed solutions</u> to a complex real-world problem with numerous criteria and constraints on	<u>interactions within and between systems</u> relevant to the problem. (systems and system models)	<b>HS-ESS1-4</b> Textbook: pgs. 102-107, 140-142, 168-170 <a href="#">CK-12 resources</a>
<u>Apply scientific reasoning and evidence</u>	<u>from ancient earth materials, meteorites, and other planetary surfaces</u>	to <u>construct an account</u> of earth's formation and early history. (stability and change)	HS-ESS1-6 Textbook: pgs. 3-4, 237, 644-648, 664 <a href="#">CK-12 resources</a>