Do the Science

Northwest Educational Service District 189
Together We Can
Math & Science Collaborative Inquiry Project

Instructional materials (text; kit) McDougal Littell Science The *Changing Earth* **Grade Level** 8

Science lesson: Earth has Layers

Big Idea: Energy from within the planet moves huge plates on the Earth's surface causing changes in landforms. 6-8 ES2E & F	
Lesson Learning Target: To compare the major layers of the Earth. 6-8 ES2E	**Common Misconceptions**: Believe the Earth is as it has always been. Have no knowledge of earthquake and volcano origins Believe changes in the Earth are sudden and all inclusive
Success Criteria: I can sketch and label . . . • The relative positions • The approximate thicknesses • The relative consistencies • The approximate temperatures Of each major layer of the Earth	**Vocabulary:** asthenosphere, compare, consistency, core (inner and outer), crust, l density, lithosphere, mantle, tectonic plates

Elicitation Activity*		**Discourse type:**	**Discourse Tool:**
10 to 15 min.	Text activity, p. 9: Will a denser material sink or float? Demonstration ***Predict.** Record observations. Elicit questions from students. Discuss questions in groups.	 Individual Individual Individual Small group	 Written/notebook Notation/notebook Written/notebook Verbal
Topic introduction/lesson Activities: ***refer students to the lesson learning target***			
3 to 5 min.	"What would a cross-section of the Earth look like?" Discuss with partner. ***Draw a cross section. Display whiteboards.	Pairs Small group	Verbal Graphic/whiteboard
15 to 20 min.	Text, p. 12: How can you model Earth's layers? -- Gravel and bead activity Observe/Reflect	Small group Individual	Verbal Notation/notebook
10 min.	"How are these three activities related? What do you think?' Respond in journal Discuss idea/s with partner ***Class discussion**	Individual Pairs Class	Written/notebook Verbal Verbal
15 to 20 min.	Text: read pp. 9-13, Fill out Reading Study Guide with partner. Discuss those sections of the study guide that relate to the target.	Pairs Class	Verbal & written Verbal
10 min.	***Exit slip:** ***refer students to the success criteria***	Individual	Graphic/paper

Embedded Formative Assessment/s:
*Science notebook response, *whiteboard activity, *exit slip

Adjustment Trigger *Any score below level 3.*

Score 4.0	**In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.**	
	3.5	**In addition to score 3.0 performance, in-depth inferences and applications with partial success.**
Score 3.0	**The student will:** • **sketch and label the major layers of Earth, showing the approximate relative thicknesses and consistency of the crust, core, and mantle** **The student exhibits no major errors or omissions.**	
	2.5	**No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content**
Score 2.0	**There are no major errors or omissions regarding the simpler details and processes as the student:** • **lists the major layers of the Earth** **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.**	
	1.5	**Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content**
Score 1.0	**With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.**	
	0.5	**With help, a partial understanding of the 2.0 content but not the 3.0 content**
Score 0.0	**Even with help, no understanding or skill demonstrated.**	

Instructional Adjustment (if needed): Peer instruction

Lesson Closure*:
3 min. Reflection: Student self-assessment based on success criteria.

*** Opportunity for formative assessment**