

## Literacy Strategies

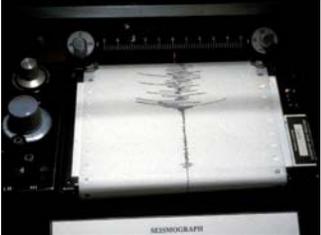
Strategy	Explanation	Example from IES
Personal Vocabulary Connections	Students identify new words in a text selection, list these, and then write examples of how each word is connected to their lives.	<p><i>Dynamic Planet</i>, p. 16, paragraph 1 of the Digging Deeper</p> <p>Vocabulary Word: <b>Wave</b></p> <p>Life Connections: My brother and I looked at waves on a vacation trip. We watched as wave after wave hit the sandy beach near our beach house on South Padre Island.</p>
First Impression Words	Go through the first section of each Investigation and list new words as a class. Have students define these with the module’s glossary or through another source.	<p><i>Dynamic Planet</i>, p. 1, paragraph 1</p> <p>New word: <b>Model</b></p> <p>Definition:  <u>Model</u>- a model is a representation of a process, system, or object that is too big, too small, too unwieldy, or too unsafe to test directly.</p>
Pictures Worth . . .	Have visuals around the room illustrating their current activity or just the module’s topic in general.	<p><i>Dynamic Planet</i>, Investigation 1 is about <b>models</b>.</p> <p>Before starting this investigation make sure they have examples of models around the room (i.e., a globe, a solar system model, etc).</p>
Look at concepts first.	<p>Looking at concepts first is a pre-reading activity that can draw students’ focus into the activity.</p> <ol style="list-style-type: none"> <li>1. With the students, skim a section to see what the text is about.</li> <li>2. Then ask students to read the text for details.</li> </ol>	<p><i>Dynamic Planet</i>, p.67 Volcano Hazards</p> <p>In this passage, if they skim it quickly, they will note that it is about Volcano Hazards. The most dangerous type of volcano is the explosive volcano because of the ash flow and volcanic gases.</p>

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Word Wall	<p>On a wall in the classroom place the alphabet. Anytime a student comes to word that he or she does not know, the student should write it down on an index card. When there are lots of words on the cards, have the students illustrate the words on the index cards and then place them on the word wall under the correct letter in the alphabet. This way, students have a reference that they have created.</p>	<p><i>Dynamic Planet</i>, p.16-17 Sample Word Wall:</p> <p style="text-align: center;"> <b>A    B    C    D    E    F    G    H    I    J    K    L    M</b>  <span style="margin-left: 100px;">COMPRESSED    EXPAND</span>  <span style="margin-left: 50px;">COMPRESSIONAL WAVE</span>  <span style="margin-left: 300px;">MAGNITUDE</span> </p> <p style="text-align: center;"> <b>N    O    P    Q    R    S    T    U    V    W    X</b>  <span style="margin-left: 150px;">RICHTER SCALE    SHEAR WAVE</span>  <span style="margin-left: 200px;">VIBRATION    WAVES</span> </p> <p style="text-align: center;"> <b>Y    Z</b> </p>
Context Clues <sup>1</sup>	<p>Text book writers often include other words or phrases to help with the understanding of a new word. These words or phrases are referred to as <b>context clues</b>. They are built into the sentences around the difficult word. Students, who become more aware of the words around the difficult words that they encounter in their reading, will save themselves many trips to the dictionary. Students will be able to make logical guesses about the meanings of many words.</p>	<p><i>Dynamic Planet</i>, p. 25 paragraph 1</p> <p><u>Convection</u> is a motion in a fluid that is caused by heating from below and cooling from above. The corn syrup and oatmeal in the investigation were convecting. When a liquid is heated, it expands slightly. That makes its density slightly less. The fluid with lower density then rises up, in the same way that a party balloon filled with helium rises up. With the balloon, they can even feel the upward tug on the string! When the heated liquid reaches cool surroundings, it shrinks again, making its density greater. It then sinks down toward where it was first heated. This circulation, which they observed in the corn syrup, and in the water/oatmeal mixture, is called a convection cell.</p> <p>The “Vocabulary” word is underlined (convection). From this passage, using context clues, students can surmise that the definition of convection is a motion in a fluid that is caused by heating and cooling.</p>

<sup>1</sup> <http://www.scc.losrios.edu/~langlit/reading/contextclues/intro1.htm>

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Student Glossary	<p>Students create their own glossary of terms. Students will:</p> <ol style="list-style-type: none"> <li>1. locate a word they do not know,</li> <li>2. write it down,</li> <li>3. find and record the definition,</li> <li>4. illustrate the term, and</li> <li>5. write a sentence using the term.</li> </ol>	<p><i>Dynamic Planet</i>, p. 16, paragraph 1 of the Digging Deeper.            Term: <b>Vibration</b>            Definition:  <u>Vibration</u>: to move back and forth or to and from rhythmically and rapidly</p>  <p>Sentence: The music was so loud they could feel the <i>vibrations</i> pulsing from the speakers.</p>
“Think-Pair-Share” <sup>2</sup>	<p>Think-Pair-Share results in increased student participation and improved retention of information. Students learn from one another and try out their ideas in a non-threatening context before venturing to make their ideas more public. Learner confidence improves and all students are given a way to participate in class, rather than the few who usually volunteer.</p> <ol style="list-style-type: none"> <li>1. Have a list of vocabulary words that are giving their students difficulty.</li> <li>2. Read off a word.</li> <li>3. Give the students 10 min. to <b>think</b> of their definitions for the word.</li> <li>4. <b>Pair</b> students up to develop a definition.</li> <li>5. Randomly call on a few students to <b>share</b> their definitions.</li> </ol>	<p>Example of a list from IES <i>Dynamic Planet</i>, Digging Deeper p.16-20.</p> <p>Vibrations, waves, energy, compressional wave, compress, expand, shear wave, earthquake, seismic waves, seismographs, Richter Scale, magnitude, low wave speed, high wave speed, refraction, mantle, zone, shadow zone, core, magnetic field, crust</p> <p>Example of a <b>shared</b> definition:  <u>Compress</u>- squeezed together</p>

<sup>2</sup> It is recommended to use Questioning Strategies for these, so you reach all of the thought processes.  
<http://curry.edschool.virginia.edu/go/edis771/notes/THNKPRSH.html>

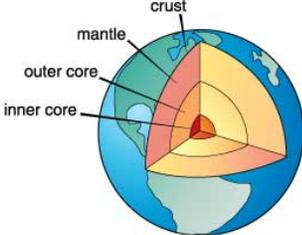
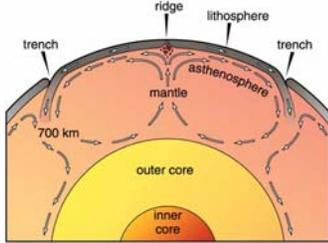
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<p>Guide questions to answer during reading.<sup>3</sup></p>	<p>Come up with a list of questions to ask students as they read a passage.</p>	<p><i>Dynamic Planet</i>, p. 27-28 Mid-Ocean Ridges.            Sample list of questions:</p> <ol style="list-style-type: none"> <li>1. What is a mid-ocean ridge? (<b>Answer:</b> a continuous mountain range in the ocean)</li> <li>2. Where are mid-ocean ridges found? (<b>Answer:</b> Above rising currents in mantle convection cells.)</li> <li>3. True or False? Rocks shrink when heated. Explain their answer. (<b>Answer:</b> False, Rocks EXPAND when heated.)</li> <li>4. What is magma? (<b>Answer:</b> molten rock)</li> <li>5. What are the differences between an igneous rock and magma? (<b>Answer:</b> Magma is under the surface in the mantle. Igneous rocks are formed within the lithosphere by cooled magma.)</li> <li>6. What is formed on mid-oceanic ridges? (<b>Answer:</b> New crust is formed in the ocean.)</li> <li>7. What is sea-floor spreading and how does it work? (<b>Answer:</b> Plate movement of new oceanic crust in both directions away from the crest of a mid oceanic ridge. It is the result of the Earth's convection cell.)</li> <li>8. Draw a diagram illustrating sea floor spreading. (<b>Answer:</b> p. 28)</li> </ol>

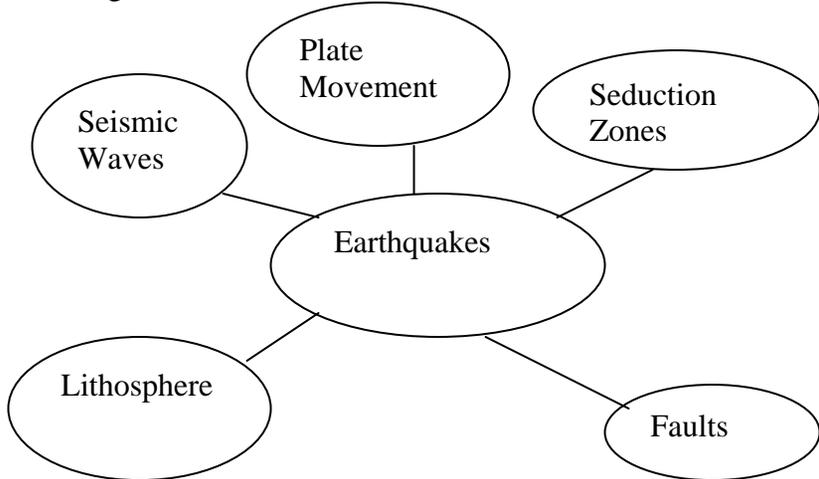
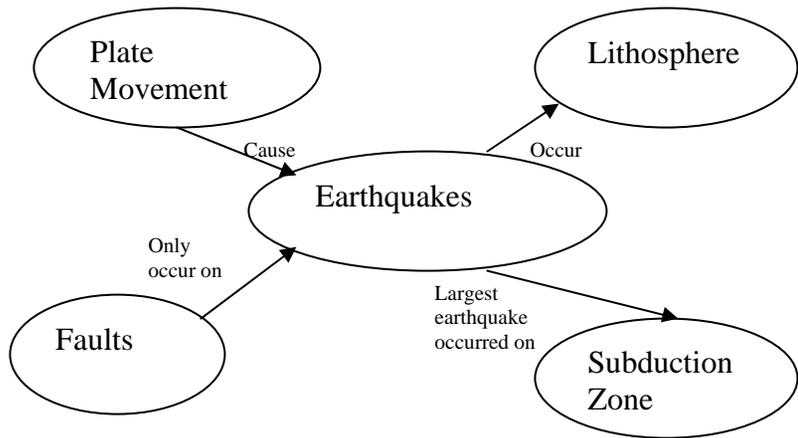
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<p>Peer teaching on vocabulary.</p>	<p>Peer teaching on vocabulary can be done in many ways. In this activity, we use the jigsaw method. The activity can take one day or a few days. Here, peer teaching is used to reinforce concepts or vocabulary.</p> <ol style="list-style-type: none"> <li>1. Generate a list of vocabulary words.</li> <li>2. Break students up into small groups.</li> <li>3. Have each group “research” a word and tell them that in about 10 min. they should be prepared to “teach” the words to the class. (“Research” means look it up in a dictionary, glossary, or other source. “Teach” means define the word and explain the importance of the word.)</li> </ol>	<p><i>Dynamic Planet</i>, p. 35-36 Digging Deeper – The Earth’s Lithosphere</p> <p>Sample list:</p> <ul style="list-style-type: none"> <li>• Lithosphere</li> <li>• Asthenosphere</li> <li>• Boundary</li> <li>• Basalt</li> <li>• Continental crust</li> </ul> <p>Sample Explanation:</p> <p><u>Lithosphere</u> is the outermost part of the Earth made up of the Earth’s crust and uppermost part of the mantle.</p>  <p>(Please note it is more effective if students generate their own diagrams.) On this diagram, identify the lithosphere (crust and mantle).</p>  <p>On this diagram, it shows the Lithosphere’s movement in the Earth’s convection cell. Notice how there are areas in which the lithosphere moves back into the Earth.</p>

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<p>Concept maps and webs.<sup>4</sup></p>	<p>Create a class concept map as a large group to review while the class reads sections of the book.</p> <p><b>Webbing</b> Making a picture like a big spider web helps students decide what parts of a big topic are related. Students start in the middle of a piece of paper with a circle, and put their topic inside the circle.</p> <p>As they think of things they know are related to or about their topic they can add them in little circles around the topic circle. They can then connect the little circles to the topic circle with straight lines.</p> <p><b>Concept Maps</b> Concept maps represent knowledge in the visual format. In a concept map, students use a web, but in the circles they put ideas about their topics. On the lines that connect the circles, they add a verb/phrase that helps explain the connection between the ideas in the circles.</p>	<p><i>Dynamic Planet</i> p. 46 Earthquakes.</p> <p>Webbing:</p>  <p>Concept Map:</p> 

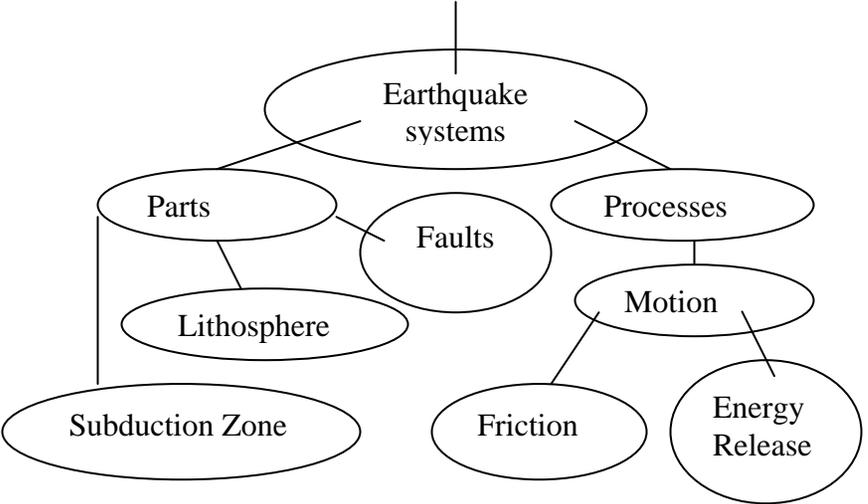
<sup>4</sup> <http://www.squires.fayette.k12.ky.us/library/research/problem.htm>, <http://www.ericfacility.net/ericdigests/ed407938.html>

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Text to text, text to self, text to world. <sup>5</sup>	<ol style="list-style-type: none"> <li>1. Have the students take a quick look at the text to discover what the meaning of the text is.</li> <li>2. Ask them to pick out a word that they are unfamiliar with.</li> <li>3. <b>Text-to-text:</b> Students relate the word to the text around it to come up with the word's meaning.</li> <li>4. <b>Text-to-self:</b> Students relate the text/word to themselves. They can use these questions/statements, if necessary:               <ul style="list-style-type: none"> <li>• That reminds me of...</li> <li>• That made me think of the time...</li> <li>• I can relate....</li> <li>• It reminds me of the time I ... because ...</li> </ul> </li> <li>5. <b>Text-to-world:</b> Students relate the text/word to the world. They can use these questions/statements, if necessary:               <ul style="list-style-type: none"> <li>• That reminds me of...</li> <li>• This is like...</li> <li>• I can find that in the world....</li> <li>• I know about this... but I didn't know that.</li> <li>• It reminds me of something I heard about because ...</li> </ul> </li> </ol>	<p><i>Dynamic Planet</i>, p.65 Digging Deeper- Earthquake Hazards</p> <p>My word is:  <b>Earthquakes</b>  <b>Text-to-text:</b> Earthquakes take place when sudden movement of two rock masses occurs along a fault.  <b>Text-to-self:</b> Oh, like in the television movie 10.5 when California fell into the Ocean. (Please note that it is not possible to have an earthquake that big and it is not scientifically possible for California to fall into the ocean. Please see <a href="http://earthquake.usgs.gov/bytopic/megaquakes.html">http://earthquake.usgs.gov/bytopic/megaquakes.html</a> for more details.)  <b>Text-to-world:</b> Turkey recently had a 5.2 earthquake. Russia recently had a 6.9 earthquake. Lakeview, Oregon recently had a 4.4 earthquake.</p>

<sup>5</sup> <http://instruction.nsd.org/elementary/reading/>

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<p>Word mobile</p>	<p>There are many different ways in which students can do this. Often, this is used as another form of a concept map.</p> <ol style="list-style-type: none"> <li>1. Pick a big topic.</li> <li>2. Write it on a card.</li> <li>3. Write “sub topics” on other cards to hang off the big topic card.</li> <li>4. Have students illustrate the topics.</li> <li>5. Hang the mobiles up around the classroom.</li> </ol>	<p><i>Dynamic Planet</i>, p.46 Earthquakes</p>  <pre> graph TD     A([Earthquake systems]) --- B([Parts])     A --- C([Processes])     B --- D([Lithosphere])     B --- E([Subduction Zone])     C --- F([Motion])     F --- G([Friction])     F --- H([Energy Release])     </pre>

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Tic-Tac-Toe word game.	Tic-Tac-Toe is a good review of concepts and vocabulary. <ol style="list-style-type: none"> <li>1. On the board draw a tic-tac-toe grid. In each box write a vocabulary word.</li> <li>2. Split the class up into two groups. (Group "X" and Group "O").</li> <li>3. Have the groups pick one person to be the speaker.</li> <li>4. Have the speaker call on a word.</li> <li>5. The group has to give a quick definition of the word. If they get it right, write an "X", if they are team an "X", or an "O" if they are team "O" in the box.</li> <li>6. The object is to form a line of "O" or "X" just like tic-tac-toe.</li> </ol>	<i>Dynamic Planet</i> , p. 16-18, of the Digging Deeper.			
		<del>Vibrations</del>	<del>Waves</del>	<del>Compressional waves</del>	
		Earthquake	Seismic waves	<del>Richter scale</del>	
		Magnitude	Seismograph	Refraction	

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<p>Anticipation Guide<sup>6</sup></p>	<p>Anticipation Guides appraise prior knowledge at the pre-reading stage and evaluate the acquisition of content based on post-reading responses to guide questions.</p> <p>Teachers should:</p> <ol style="list-style-type: none"> <li>1. Select a concept and supporting details from the text.</li> <li>2. Create 3-5 statements using the concepts and supporting details, plus their knowledge of the students.</li> <li>3. Place the statements on an overhead or blackboard.</li> <li>4. Have the students respond to the statements.</li> <li>5. Facilitate, engage, and encourage students to get into a pre-reading discussion about the text.</li> </ol> <p>Please note: Some students might answer with an “I don’t know.” Accept this answer, as it will show you what the students do not know.</p>	<p><i>Dynamic Planet</i>, p. 67 Volcanic Hazards</p> <p>Sample statements for the board or overhead:</p> <ol style="list-style-type: none"> <li>1. Ash can collapse roofs and kill crops.</li> <li>2. Ash flows and volcanic gases are the worst hazard associated with explosive volcanoes.</li> <li>3. Ash flows can bury cities and towns like Pompeii.</li> </ol>

<sup>6</sup> [http://www.litandlearn.lpb.org/strategies/strat\\_4antic.pdf](http://www.litandlearn.lpb.org/strategies/strat_4antic.pdf)

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Directed Reading-Thinking Activity <sup>7</sup>	<p>Directed Reading-Thinking activities engage students in the step-by-step reading process. Questions are asked and answered. Predictions are made and tested. New questions and predictions are formulated.</p> <ol style="list-style-type: none"> <li>1. With students, look at the pictures that illustrate the section they are about to read. Have the students predict what they will be reading about. Record the predictions on a blackboard or overhead.</li> <li>2. Ask students to read a small section of the text.</li> <li>3. Prompt students with questions about what they read, pointing out key concepts and vocabulary.</li> <li>4. Continue steps 2 and 3 until the students have finished reading the passage.</li> <li>5. Revisit the predictions made in step 1. Ask the students questions such as:               <ol style="list-style-type: none"> <li>a. Were you correct?</li> <li>b. What do you think now?</li> <li>c. How have your ideas changed?</li> </ol> </li> </ol>	<p><i>Dynamic Planet</i>, p. 37 Subduction Zone</p> <p>Teacher: “Look at the pictures on p. 37. Predict what we are going to talk about.” (Teacher records predictions.)</p> <p>Students:</p> <ul style="list-style-type: none"> <li>• “Earth’s movement”</li> <li>• “Volcanoes”</li> <li>• “Faults”</li> <li>• “Earthquakes”</li> </ul> <p>Students then read the paragraph.</p> <p>Teacher asks the following questions:</p> <ol style="list-style-type: none"> <li>1. “Does the Earth’s surface change over time?” (<b>Answer:</b> Yes)</li> <li>2. “What is a subduction zone?” (<b>Answer:</b> Plate boundaries where one plate dives down underneath another.)</li> <li>3. “What evidence do we have to support this?” (<b>Answer:</b> Earthquakes, volcanoes, ocean floor trenches)</li> </ol> <p>Teacher: (Points out the recorded predictions) “Were you correct in their prediction? Was this passage about Earthquakes?....”</p>

<sup>7</sup> [http://www.litandlearn.lpb.org/strategies/strat\\_3drta.pdf](http://www.litandlearn.lpb.org/strategies/strat_3drta.pdf)