Learning Project 5

Reading a Long Passage: Science

This Learning Project features the long science passage. As in Learning Project 4, the passage is printed separately to ease copying and handling with several Inquiry Activities.

The topic of this passage is soil conservation. The passage is well designed for charting details; that is, developing a simple chart with two categories. Readers can put the details they find that pertain to each category on a chart and use it to answer the questions. Learners will realize that a great deal of complicated information can be more readily understood in a chart rather than in paragraph form. Here, they can move from the relatively complicated passage of several paragraphs to an easily grasped chart.

Inquiry 5-2 requires the test takers to draw a conclusion. This higher order thinking skill requires readers to assess the information they have read and evaluate what they think it means. The answers to questions that ask readers to draw a conclusion are not found directly in the text. If you believe your learners can use more practice with drawing conclusions, you may turn them to Inquiry Activity 3-2 in the Reading volume. You may wish to begin with the reading Inquiry and use this social studies Inquiry as an extension activity.

Inquiry 5-3 presents an additional passage that adds to the passage used in 5-1 and 5-2. In this situation, the additional passage offers no new information, but it does provide a context or build a sense of urgency for the facts presented in the longer passage. This Inquiry offers the opportunity for learners to develop a sense of where to spend time reading and where to skim in the tests they take. Once again, the test taker must reach a conclusion, this time by evaluating the information in both passages.

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Learners will need to use the following passage when answering the questions for IAs 5-1, 5-2, and 5-3.

Agriculture depends on a layer of soil that averages only 15 centimeters in depth over Earth's surface. Crop plants rely on this rich upper layer called "topsoil." Erosion is a natural process by which topsoil is removed by the action of wind or water. Plant cover helps hold soil in place and limits the amount of erosion that takes place.

Soil formation takes thousands of years, but across the world, topsoil is being lost at ten times the rate at which new soil is formed. People have accelerated the rate of erosion by using the land in an uncontrolled manner.

However, erosion can be reduced in several ways. Contour plowing (plowing along the contour of the land) and terracing (making a series of level plots in a steplike fashion along a slope) reduce water runoff. To minimize soil loss when crop plants are spaced far apart, a method called strip cropping is used. In strip cropping, farmers grow low strips of vegetation that hold down the soil between the crops. Trees called windbreaks are planted between fields to help prevent the wind from carrying away topsoil.

Soil depletion also threatens topsoil. In a natural setting, nutrients from plants are returned to the soil as a result of decay. Farmers use fertilizers to return nutrients to the soil. A technique of alternating crops, called crop rotation, can also return nutrients to the soil. Legumes such as alfalfa and beans can add nitrogen to the soil. Legumes can be alternately grown with plants like wheat or sorghum, which deplete nitrogen from the soil.