



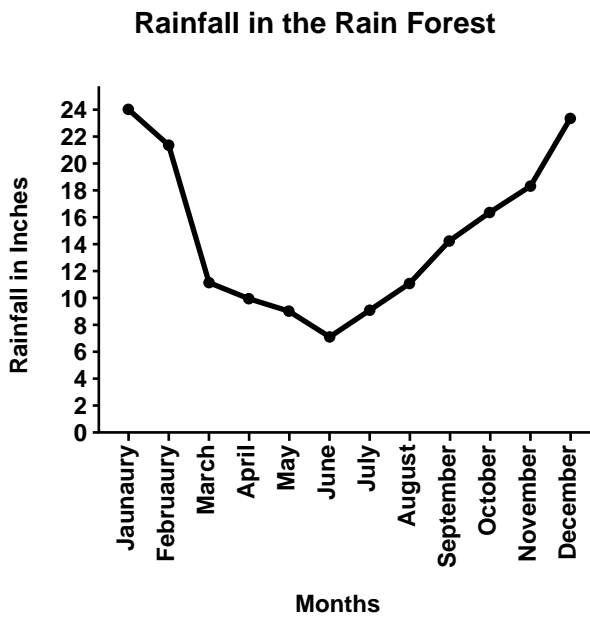
## Learning Project 1 Understanding Graphs

### Inquiry Activity 1-3: Interpreting Line Graphs

*(Note: Italicized portions should be directed to the students.)*

#### 1. Identifying the Problem (Items 1 and 20, Science PA)

*Read the question first, then look at the graph.*



1. Based on the data provided in the chart, in which months is the rainfall about the same?

- (1) March and August
- (2) January and November
- (3) February and June
- (4) May and September
- (5) October and December

*Where have you seen graphs like this before?*

*What words or symbols might be important to understand in order to answer the question, and what are they telling you?*

*Is there anything in the graph you do not understand?*

#### 2. Becoming Familiar with the Problem

*Ask yourself questions like the following, taking note of those that were helpful so you can use them again.*



*Re-read the question. What are you being asked to find out?*

Since we know that test-takers often misread the question, it is important for your learners to read it carefully and recognize what they are being asked to do in order to answer the question correctly. Multiple choice questions, which offer a number of enticing distractors, can feed into the incorrect readings.

*From reading the title, what do you already know about the topic of this graph?*

*Read the labels on the sides. What information do the points on the line tell you?*

The labels show that rainfall in inches by the months of the year is being graphed.

*What do you already know about the information on the graph from your previous reading or experiences?*

Many of your learners will know about measuring rainfall in inches. The fact that the measurements are from the rain forest is irrelevant to answering the question. The enormous amounts of rain in inches might be an interesting discussion.

*Does the topic attract your attention?*

### 3. Planning, Assigning, and Performing Tasks

*You may wish to do this Activity in a small group.*

*Try to answer the test question any way that you can, even if you have to guess. Be aware of the reasoning and steps you use. The following questions can be helpful.*

*What information does the graph provide that can answer the questions in the problem?*

*Find your answer to the question.*

The correct answer is (1) March and August.

*Is your answer completely covered by the information in the graph?*

*Be able to defend your answer and the way you found it.*

Some may go through the months as given in the answer choices, while others will study the graph to find their answers before considering the choices. While we often suggest that learners consider all the answers carefully, a question like this can be answered quickly and accurately by studying the graph first.

### 4. Sharing with Others

*Telling other people what you know helps you to understand the material better. So take this opportunity not only to share the knowledge, but also to learn it more completely.*

*Small Groups:* Compare your answer choice with the others in the group. Explain why you selected this answer and why you think it is correct. Agree on the correct answer and the steps you would recommend for solving this problem.

*Whole class:* Share with the whole class the steps you used in order to answer the question.

*Take notes on any different ways of answering the question the other groups used.*

### 5. Reflecting, Extending, Evaluating

**Reflecting:** Think about what you have learned.

*Thinking about what you have learned and experienced is part of the learning process. When the focus is only on the answer, you don't get much time to think about what was learned.*



1. *What have you learned about answering questions that feature graphs?*
2. *If this graph had been on a grid, would you have found it easier to get the answer? Explain your answer.*
3. *Would you find this question easier if the information was given in a bar graph? Explain your answer.*

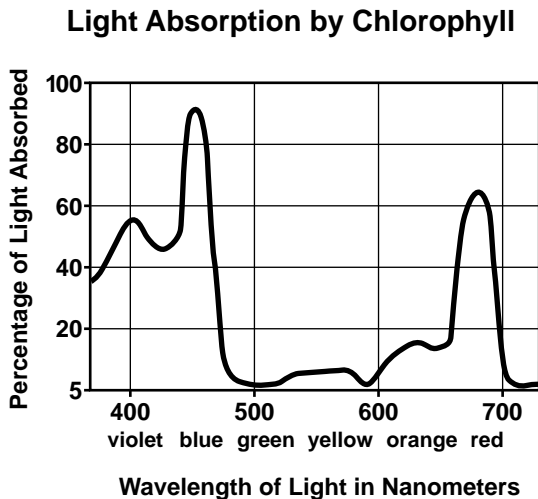
**Extending: Extend what you learned to new situations.**

*In extending, you are being asked to transfer the information presented in the Practice Test question to other information or situations.*

This Extension section focuses on another graph question. In this case, the material appears highly technical and difficult. However, the problem posed by the question is virtually identical to the rain forest question.

*The following question asks you again to compare the data found in the graph.*

20. The graph below shows the percentage of light of different wavelengths that is absorbed by chlorophyll.



For a plant to achieve the maximum rate of photosynthesis, what wavelengths of light would be MOST effective?

- (1) violet and blue
- (2) blue and red
- (3) green and orange
- (4) orange and red
- (5) violet and yellow

1. *How is this question like the question about rainfall?*

It is asking the learner to find two points of similarity on the graph.

2. *What do you need to understand on this graph to be able to get the correct answer?*



All they need to understand is how to find the similar points. This question appears to be very difficult and highly technical, with polysyllabic, scientific vocabulary (nanometer, wavelength, light absorption). A careful reading of the graph will give the answer and perhaps some understanding of wavelength and color; but even a cursory identification of the question will lead your learners to the two highest peaks, and the correct answer, (2) blue and red.

3. *Is there information on this graph that you do not need to know in order to answer the question?*
4. *What do your answers to questions 2 and 3 mean to you as a test taker?*
5. *What do you know about the properties of color?*

Here, you might want to lead a discussion about the nature of color absorption and reflection. You could use questions about the color of plants and what wavelengths of light are absorbed/reflected back to the eye if a plant is green, red, yellow, etc. Black absorbs all wavelengths; white reflects all.

**Evaluating: Assess what you learned and how you learned it.**

*In this last step, you get a chance to review the content of what you learned and the methods used to learn. These questions have no right or wrong answers; it is your chance to look more closely at your learning style and the opportunity to state how you benefited or didn't benefit from the content and/or the methods presented in this IA.*

1. *What parts of the activity worked best for you? Explain.*
2. *What parts did not work well for you? Explain.*
3. *What parts of this Inquiry Activity will you use when taking the GED test? Why?*
4. *How did following this 5-step format make you feel?*