

Module IV

How can the interpretation of item analysis data inform your decisions about curriculum, instruction and assessment?

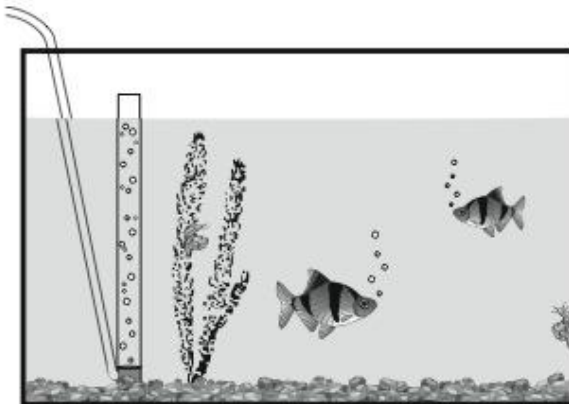
We recommend that you take this pre-test to guide your facilitator in the choice of course activities and materials for Module IV. Your responses will also help you evaluate the knowledge you already have about the interpretation and use of item analysis data.

Name: _____ Date of course: _____

Interpretation and Use of Item Analysis Data

Part One - Multiple Choice Question Analysis – Science 2007, Grade 5, Ohio Achievement Test

An air hose extends above and below the surface of the water.



Which statement explains why the air hose looks broken at the surface of the water?

- A. Light is refracted as it moves from air to water.
- B. Light is reflected as it moves from air to water.
- C. Light is absorbed as it moves from air to water.
- D. Light is destroyed as it moves from air to water.

Please complete the following information concerning this test question. If additional space is required to record your responses, use the other side of this form.

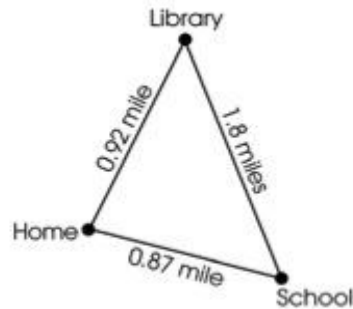
1. Thinking like a fifth grade student, what might be confusing about this graphic?
2. Are there words in the question or possible answers that might confuse students?
3. If you listed words for the above question, please identify these words as being either content or process words.
4. Identify the performance verb in the question. Why is it important?
5. This question reflects the following level in Bloom’s Taxonomy: (please circle as many as apply)
 - Knowledge/Recall
 - Application
 - Comprehension
 - Analysis
 - Syntheses
 - Evaluation
6. Explain what makes the distractors plausible.

Module IV

How can the interpretation of item analysis data inform your decisions about curriculum, instruction and assessment?

Part Two - Constructed Response Question Analysis – Mathematics 2006, Grade 5, Ohio Achievement Test

The diagram shows how far it is from Anna's home to her school, from her school to the library, and from the library to her home.



Each school day, Anna rides her bike from her home to her school. After school, she rides to the library and then home. On Saturday, Anna rides her bike from home to the library and back home. She does not ride her bike on Sunday. Anna's mother says that her daughter rides about 30 miles every week between her home, the school, and the library.

In your **Answer Document**, use estimation to determine whether Anna's mother has made a reasonable estimate. Show or explain your work. (4 points)

Please complete the following information concerning this test question. Use the other side of this form for additional space to record your responses.

1. Thinking like a fifth grade student, what might be confusing about this graphic?

2. Are there words in the question that might confuse students?

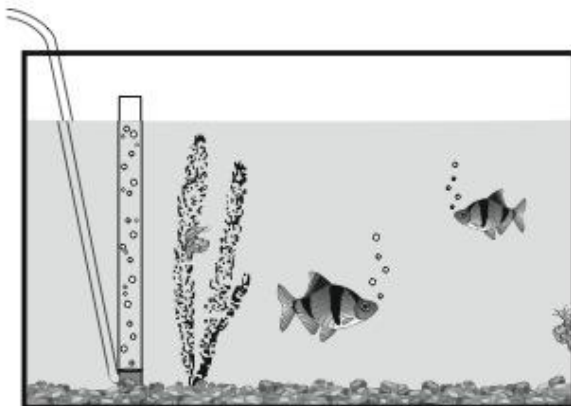
3. What exactly is the question asking students to do?

4. What do students have to do to answer the question?

5. What needs to be included for this to be a complete, correct answer?

ANSWER KEY: Part One – Multiple Choice Question Analysis – Science 2007, Grade 5, Ohio Achievement Test

An air hose extends above and below the surface of the water.



Which statement explains why the air hose looks broken at the surface of the water?

- A. Light is refracted as it moves from air to water.
- B. Light is reflected as it moves from air to water.
- C. Light is absorbed as it moves from air to water.
- D. Light is destroyed as it moves from air to water.

Correct Response: A

Benchmark: Describe the properties of light and sound energy.

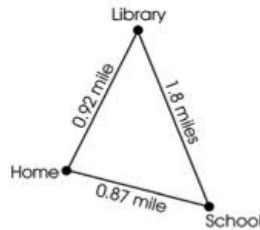
Explanation: Light that moves from air to water is bent if it enters the water at an angle. The bending of the light as it travels from one material through a different material is called refraction. This makes the tube look bent. For more information visit ODE's Success Web site - <http://portal.success-ode-state-oh-us.info/>

Please complete the following information concerning this test question.

1. Thinking like a fifth grade student, what might be confusing about this graphic?
Students may not see the break and/or think it is just a print flaw.
2. Are there words in the question or possible answers that might confuse students?
Refracted – Students may not understand this term.
Reflected – Students may confuse reflection and refraction.
Absorbed – Students may be confusing refraction with absorption.
Destroyed – Students may not understand that light is a form of energy and energy cannot be created or destroyed.
3. If you listed words for the above question, please identify these words as being either content or process words.
Refracted Content
Reflected Content
Absorbed Content
Destroyed Content
4. Identify the performance verb in the question. Why is it important?
Explain – Students must be able to recognize the factor that caused the reaction.
5. This question reflects the following level in Bloom's Taxonomy: (please circle as many as apply)
Knowledge/Recall
Analysis
6. Explain what makes the distractors plausible.
All distractors are science concepts and relate to light.

ANSWER KEY: Part Two – Constructed Response Question Analysis – Mathematics 2006, Grade 5, Ohio Achievement Test

The diagram shows how far it is from Anna's home to her school, from her school to the library, and from the library to her home.



Each school day, Anna rides her bike from her home to her school. After school, she rides to the library and then home. On Saturday, Anna rides her bike from home to the library and back home. She does not ride her bike on Sunday. Anna's mother says that her daughter rides about 30 miles every week between her home, the school, and the library.

In your **Answer Document**, use estimation to determine whether Anna's mother has made a reasonable estimate. Show or explain your work. (4 points)

Benchmarks:

Use and analyze the steps in standard and non-standard algorithms for computing with fractions, decimals and integers.

Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents.

Explanation of Correct Answer: Students should be able to estimate these decimals to the nearest whole numbers:

0.87 rounds to 1

1.8 rounds to 2 miles

0.92 rounds to 1

During the week she rides 0.87 to school, 1.8 miles to the library, and 0.92 from the library to home. This is about 1 mile, 2 miles, and 1 mile, or a total of 4 miles every day. Anna rides 4 miles each day 5 days a week, or $5 \times 4 = 20$ miles. On Saturday, she rides about 1 mile to the library and about 1 mile back to her home. This is an additional 2 miles a week, for a total of 22 miles.

Anna's mother estimated 30 miles, which is a lot more than 22 miles, so Anna's mother is incorrect. A better estimate would be 20 miles a week. For more information visit ODE's Success Web site - <http://portal.success-ode-state-oh-us.info/>

Please complete the following information concerning this test question.

- Thinking like a fifth grade student, what might be confusing about this graphic?
Students must be able to understand the elements of the diagram and that they represent different distances.
- Are there words in the question that might confuse students?
Estimation
Show or explain your work
Reasonable
- What is the question asking students to do?
Use an estimation strategy.
Compare their estimate to Anna's mother's to determine if hers is reasonable.
Show or explain their work.
- What do students have to do to answer the question?
Students must estimate the decimals to the nearest whole numbers, compute and then compare their total estimate to Anna's mother's to decide if hers is reasonable.
- What needs to be included for this to be a complete, correct answer?
The response provides a reasonable estimate for the number of miles biked from Monday through Saturday with an adequate explanation or supporting work. The response also gives an adequate explanation of the reasonableness of the mother's estimate.