

Land and Water Pre/Post-Test Scoring Rubric

Question 1: Correct answer is **A** = 1 point

Question 2: Correct answer is **B** = 1 point

Question 3:

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|----------|---|
| 2 points | Student lists 4-5 ways to improve or restore a local stream. |
| 1 point | Student lists 1-3 ways to improve or restore a local stream. |
| 0 points | Student fails to list any way to improve or restore a local stream. |

Questions 4-8: Attitude survey, no rubric necessary.

Question 9: Scoring Rubric for: Plan & Test

| Performance Description | Attributes |
|--|------------|
| A 2-point response demonstrates the student understands the Content Standard APPE: Possible solutions should be tested to see if they solve the problem. Building a model or prototype is one way to test a possible solution. Item Specification 1: Write a summary of a scientific solution and/or describe a scientific test of the solution given a description of a problem that can be solved using a technological design process. | 3-4 |
| A 1-point response demonstrates the student partially understands the Content Standard. | 2 |
| A 0-point response demonstrates the student has almost no understanding of the Content Standard. | 0-1 |

Attributes of a Scientific Design Process

| Design Process Stage | Description | Attributes |
|-------------------------------------|--|------------|
| Plan Summary | A simple plan summary is given which could solve the problem (e.g., <i>designing a model using a stream table and building a barrier to block the flow of water</i>). | 1 |
| Summary Scientific Reason | A scientific reason is given for the plan or for selecting one of the materials (e.g., <i>things like walls, rocks, dams, etc. can cause water to flow a different direction, therefore building a barrier will cause the stream to flow away from the ball field</i>). Stage Notes: 1. The given problem cannot be credited as a reason. | 1 |
| Test Solution | The test describes at least one measurement or observation that relates to the effectiveness of the solution (e.g., <i>measure the amount of soil that wears away from the edge of the stream</i>). Stage Notes: 1. This attribute may not be credited when the test gives or implies artificial data (e.g., <i>my solution worked</i>). | 1 |
| Scientifically Test Solution | The test includes measuring the before-after or input-output of all pertinent variables (e.g., <i>measure the soil before the solution and after the solution</i>) OR the test includes regularly measuring all pertinent variables in a consistent manner (e.g., <i>measure the soil every time you pour water in the stream table</i>). Stage Note: 1. This attribute may be credited even if a test gives or implies artificial data. | 1 |
| Total Possible Attributes | | 4 |

General Notes:

- Copying the Scenario:** Responses that copy the whole scenario cannot be credited for any attributes. However, responses that appropriately copy a stage from the scenario may be credited.