

Answering APES FRQs

AP Test: 3 questions, 70 minutes total (≈ 23.3 minutes per question)

Types of FRQs

1. **1st Question:** “Design and Investigation” assesses a student’s knowledge of scientific practices and processes within the context of a specific topic designated by the question
2. **2nd question:** asks students to evaluate an authentic environmental scenario and provide a solution to the issue(s). It will also assess their knowledge of scientific practices.
3. **3rd Question:** asks students to analyze a problem and/or solution using math practices.

Tips for FRQs

1. Read the entire prompt before writing on the answer document.
 - a. Highlight key requirements as you read
 - b. Write notes outlining your intended approach in the margin of the prompt
 - c. If data is presented in paragraph form, create a quick data table in the margin and fill it in as you read (will save you time by preventing numerous rereads as you hunt for key numbers).
2. Label each section of the question (1a, 1b, 1ci, 1cii, 1d, etc)
 - a. Do not answer the FRQ as one large paragraph
 - b. No points will be taken off, but it will annoy the grader. Don’t annoy the grader!
3. Always answer with complete sentences.
4. Be specific. Avoid vague or general statements.
5. Give examples to clarify your explanations.
6. The grader does not know you or how much you know. You must prove that you know and understand the material to the grader through your writing.
7. Don’t write more than the question asks for
 - a. If it asks for two examples, only the first two that you write will be graded. Limit your answer to different and unique answers. If you write more, the grader will read them, checking for contradictions and misconceptions, but you will not earn points for anything written after the first two. Contradictions and misconceptions will result in points being taken away.
 - b. Limit the extent of opening/concluding sentences. Don’t restate the question.
 - c. Don’t waste your time with flowery sentences; get straight to the point with good solid science.
 - d. Demonstrate understanding of key vocabulary, don’t just dump subject specific terms without further explanation.

FRQ Task Verbs

1. **Identify, List, Provide:** Simple answer with complete sentence
2. **Describe:** Define the topic(s) and elaborate. Use examples to clarify the meaning or significance. Needs additional information beyond a simple answer (minimum of 2-3 complete sentences)
3. **Explain:** Describe HOW or WHY something happens. Use evidence or reasoning. Explaining a process may require a series of steps in sequential order. (minimum of 2-3 complete sentences)
4. **Discuss:** Identify the pros and cons of a situation and evaluate their relative magnitude
5. **Make a claim:** Make an assertion based on evidence or knowledge

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6. **Justify:** Provide evidence to support, qualify, or defend a claim and/or provide reasoning to explain how that evidence supports the claim.
7. **Design an Experiment:** Demonstrate your understanding of the scientific method.
 - a. a clearly stated testable hypothesis: "If (independent variable) Then (dependent variable)"
 - b. A controlled experiment with identification of what the control group is (only a single variable is being tested, all other conditions are the same)
 - c. A large sample size and or multiple trials
 - d. A clear description of what is being measured and how
 - e. How the data will be analyzed (if required by the question)
8. **Calculate:** A math problem to solve. Show your set-up and answer. BOTH set-up and answer need to include units. Be neat and organized in your approach. If it requires dimensional analysis, show how units cancel out. Scientific Notation can be useful.
9. **If it asks you to plot data:** Label each axis with what they measure and the units used. Title the graph. Scale and number the axis appropriately. The full range of data must fit on the grid provided.