**Understanding the Exam**

# Scoring

In the **multiple-choice section**, you earn one point for each correct answer. In 2011, a quarter-point deduction from the total for each wrong answer was discontinued. Since there is no longer a penalty, it is in your best interest to take an educated guess. Unanswered questions do not count for or against your score. The multiple-choice section equals 60% of your total exam score.

In the **free-response essay section**, four essays are each scored holistically and scores range from one to ten (or zero for a blank paper). These scores are then calculated to equal 40% of the total exam score. The essays may have different point values depending upon their complexity, but all essays carry the same weight value. This means that each will count for a quarter of your score in the free-response section of the test.

The free-response questions are scored by college professors and highly qualified high school AP teachers using standards developed by a committee of the College Board. Students will be notified by mail of their test results. In addition, students, teachers and administrators can now see the scores online at the College Board website. Each year the Free Response Questions, scoring guides, student samples and other information is posted on the College Board website, www.collegeboard.com.

## Scoring Scale

The multiple-choice section score is added to the free-response section score to produce a composite total score. This composite is translated into a five-point scale that is reported to the student, the student’s high school, and any college designated by the student.

The College Board scores the exam on a five-point scale:

* + 5 = extremely well qualified
	+ 4 = well qualified
	+ 3 = qualified
	+ 2 = possibly qualified
	+ 1 = no recommendation

A score of 3 is considered “passing”, but most colleges and universities may require a score of at least 4 or 5 to receive credit or placement. On previous exams, the mean score was approximately 2.6 and approximately fifty percent of the students scored 3 or higher. Colleges and universities establish their own policies regarding what scores qualify. Updated scoring information is available through the College Board.

# Multiple-Choice Questions

The multiple-choice questions cover a broad range of topics while considering a variety of themes and scientific constructs. To be successful on the exam, you will need to have a solid depth and breadth of knowledge about these important areas of study in environmental science. This section will provide you with valuable information detailing the underlying **themes and topics** relevant to the basics of the APES. The information provided will also help you to identify and analyze areas on the exam that are foundational to your success on the exam.

Multiple-choice questions are scored by computer automation soon after the exam in mid-May. There are currently three releases of multiple-choice questions: 1998 (the first year), 2003 and 2008. Since the first release in 1998 to the second release in 2003, the APES increased significantly in level of difficulty. However, the 2008 APES exam showed no further increase in difficulty. The 2008 exam questions appear to have maintained the same level of difficulty as the previous 2003 exam.

We recommend that you budget your time wisely to be sure that you have enough time to finish all sections. Because you have 90-minutes to complete the multiple-choice section, you should spend less than one-minute per question to answer 100 questions. Multiple-choice scores are based on the number of questions answered correctly and no points are deducted for incorrect answers. Eliminate as many incorrect answer choices as possible and make an educated guess from the remaining answer choices.

Breakdown of Released Multiple Choice Questions by Topics:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **I****10 - 15%** | **II****10 - 15%** | **III****10 - 15%** | **IV****10 - 15%** | **V****10 - 15%** | **VI****25 - 30%** | **VII****10 - 15%** | **Total #** **Questions** |
| **1998\*** | 10 | 14 | 14 | 9 | 9 | 29 | 15 | 100 |
| **2003\*** | 12 | 14 | 15 | 9 | 12 | 23 | 12 | 97\*\* |
| **2008** | 13 | 12 | 14 | 10 | 14 | 24 | 12 | 99\*\* |

\* The 1998 and 2003 exam were written using the older topics, the topics were realigned after 2005. The questions were analyzed used the current topics.

\*\* Three questions in 2003 and one question in 2008 were not scored.

Breakdown of Quantitative and/or Diagrams

|  |  |  |
| --- | --- | --- |
| **Year** | **Quantitative\*** | **Diagrams \*** |
| **1998** | 5 | 15 |
| **2003** | 7 | 9 |
| **2008** | 8 | 8 |

\* questions are also in the break down by Topics, some questions will be in both the Quantitative and Graphing categories.

## Multiple-Choice Question Types

Multiple-choice questions are designed to test your knowledge and understanding of environmental science. Questions are taken from a variety of topics listed in the **themes and topics section** above and will require you to recall basic facts and major concepts. They may appear as different question types. This section will help you become familiar with multiple-choice question types to aid in your review. You may see a question type that will ask you to solve several math problems. These basic math type problems are fairly easy and should have been covered in your high school academic course work. Categories of the multiple-choice question types are:

* Matching
* EXCEPT
* Roman Numeral
* Traditional
	+ Tables, graphs, and charts
	+ calculation

**See sample Exams**

# Free-Response Questions

There are four essay questions on the APES Exam. You will be given 90 minutes for this part of the exam to write all four essays. You will have approximately 22 minutes to write each essay. Remember the score on the free-response questions is about 40 percent of your total overall grade.

## Free-Response Question Types

* **Data Analysis Question (Data Set)** Information is provided in the form of a map, table, chart, or graph and you will be asked to analyze and interpret the information into your essay. The data provided requires some calculations to solve and write your essay. Although the use of calculators is not permitted on the exam, complex calculations are not required.
* **Document-Based Question (DBQ)** This type of question requires that you read a real-life document (i.e. magazine or newspaper article) and respond to the questions provided based on that information from the document while using your knowledge of environmental science.
* **Synthesis and Evaluation Questions** There are two synthesis and evaluation questions on the exam. These question types may ask you to draw conclusions in relationships between two or more environmental science concepts.

**Special Question**

* **Experimental Design Question** In 1999, 2001 and 2003 there was an experimental design question on the APES. Although the type of question may not appear again, it is important to be familiar with this question type in the event you see this on your exam.

# Test-Taking Strategies

## Strategies for Multiple-Choice Questions

Many students who take the AP Environmental Science exam do not get their best possible score on the multiple-choice questions because they spend too much time on difficult questions and fail to leave enough time to answer the easy questions. Don’t let this happen to you. Keep in mind that there is no right or wrong way to answer questions, but there are general strategies that can help you get your best possible score. Because every question within this section is worth the same point value, consider the following guidelines when taking the exam:

* **Manage your time wisely.** When you begin the exam, make a note of the starting time in your test booklet (not your answer booklet). Keep in mind that you will have an average of less than a minute for each multiple-choice question. Remember there are 100 questions asked in 90 minutes.
* **Read each question carefully**. Do not make a hasty assumption that you know the correct answer without reading the whole question and all of the possible answers.
* **Bubble the correct answer.** Be very careful that your responses on the answer sheet match the question number. When answering questions quickly, it is common to bubble in the wrong number on your answer sheet.
* **Answer all 100 questions.** To guarantee the highest number of correct answers, you must attempt to answer every question in the multiple-choice section. Try to push yourself all the way through to question 100. Many test-takers don’t get their best possible score because they spend too much time on difficult questions, leaving insufficient time to answer the easy questions. Don’t let this happen to you. Use the plus-minus strategy detailed below to help you answer questions that are solvable first (those that require minimal thought). Try to work all the way through the entire set of 100 questions, even though you will probably be skipping quite a few questions. Some of the questions at the end of the test might be very easy for you to answer. If you try to answer an early question that takes a long time to reason out, you may not have time to read the questions at the end of the exam. Time saved by using the plus-minus strategy will also allow you more time later to tackle the questions that are more difficult.

### The Plus-Minus Strategy

Use a scoring system for the questions you skip. Answer the easy questions immediately, then mark a **plus (+)** next to the questionsyou think are easy to answer, but may be too time-consuming to answer during the first round. Lastly, mark a **minus (–)** next to the questions that seem to be difficult to answer. Continue this process until you have either answered or marked all 100 questions. If you find that a question is impossible to answer, make a pure guess on your answer sheet and move on. You will notice that as you are working through the exam, a subsequent question may trigger your memory to remember how to solve earlier questions with the minus symbols. The minus questions may become clear to you as you work through other problems. If this happens, write a quick note to yourself in the test booklet so you can remember how to answer the question later. Don’t try to hunt for the question when you memory is triggered or you will lose valuable time. You can always go back to the original question later after you have finished the entire multiple-choice section. Note: Some students prefer this strategy using a yes “Y” or no “N” instead of **“+”** and **“– .”**

**The Plus-Minus Three-Step Process**

* + 1. Answer easy questions first
		2. Answer the plus (+) questions
		3. Answer the minus (–) questions

**Make an educated guess on impossible questions.** Prior to 2011, there was a penalty of ¼ (one quarter) point for marking incorrect answers. There is no longer a penalty for guessing. The best strategy still remains to try and eliminate incorrect answers to increase your odds of guessing the right answer. However, if at the end of the exam you still have questions unanswered, the best strategy is to choose one letter **(A, B, C, D or E)** and use it for the remainder of the questions. Statistics published in testing strategy recommend using one letter for guessing when you have no idea instead of using different letters. Below is a breakdown by letters for the three released exams. From the data below, you can see that A was used most often in 1998 and 2003 while answer B is used most often in 2008.

**Breakdown of Released Questions by Letters**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Year** | **A** | **B** | **C** | **D** | **E** | **Total # Questions** |
| **1998** | 22 | 21 | 16 | 23 | 18 | 100 |
| **2003** | 23 | 18 | 19 | 17 | 20 | 97\* |
| **2008** | 14 | 27 | 18 | 18 | 22 | 99\* |
| **Total** | 59 | 66 | 53 | 58 | 60 | 296 |

\* Three questions in 2003 and one question in 2008 were not scored.

## Strategies for Free-Response Questions

During the administration of the exam, you will be given a separate answer booklet to write your essay responses. After the exam, your answer booklet with your written essays will be sent to the Educational Testing Service to be graded. The question booklet, however, will be returned to you within 48 hours after the exam. During the exam, the question booklet is a great place to organize your notes, outline your answers and write down calculations. Only essays written in the answer booklet will be graded so be sure that you transfer any notes you wish graded to your answer booklet. Each essay will probably be no longer than two pages long.

* **Read and mark the questions** - Read all four questions before you attempt to answer them. Before you begin to answer any question carefully reread the question and restate the question to yourself before attempting to answer it. Circle or underline key words or phrases, and be sure that you clearly understand what the question is asking. A common mistake is misreading the question. Be sure to answer the question(s) asked and **only** those questions, and be sure to respond to **all** parts of the question(s).
* **Identify key words and phrases**. Pay close attention to words used in the directions such as: analyze, assess, calculate, compare, contrast, define, describe, discuss, evaluate, explain, graph, identify, provide evidence for, and support. Be sure to follow the directions.
* **Start with the question you find the easiest to answer**. Many times while answering one question, you will recall answers to other questions. If this happens, write down this information as a reminder to help you later. If you are given a choice of parts to answer, choose carefully. It is best if you can answer the question parts in the order presented, but you don’t have to. It is a great idea to label the parts "A," "B," "C," etc. as they are labeled in the question. You can always answer the earlier parts later and you don’t need to save space, just label the section.
* **Prewriting.** The purpose of prewriting is to organize your thoughts and plan your essay. Twenty-two minutes is not a great deal of time to develop and write a coherent essay, but by writing down your thoughts and ideas you should be able to clearly organize your written response. It should only take a few minutes to outline your thoughts and ideas in the test booklet. It is important to write an essay that clearly supports scientific facts, concepts and principles. Thinking and planning ahead helps avoid scratch outs, asterisks, skipping around, and rambling on your written response.
* **Answer each question**. If you can’t answer all the parts of the question, attempt to answer what you can. Try to write a complete response to the question when possible, but you may earn partial credit for an answer if your essay fits the scoring rubric specifications. Receiving partial credit is better than not getting any credit.
* **A word about outlines and diagrams**. Outlines and diagrams, no matter how elaborate and accurate, are not essays. Outlines will not earn you much credit, if any, by themselves. Write the essay! There is one exception, if you are asked to calculate a number as a part of an essay, be sure to show how you arrived at your answer. Show the formulas you use and the values inserted into those formulas. Many times, points are awarded for setting up the problem. If you provide only the answer and do not show how you obtained the answer, you will receive no points. In addition, be sure to show all units. If asked to include a diagram, be sure to label the components carefully and correctly.
* **Reminder about scoring**. Remember that only the answer booklet is turned in for a score. If the question asks for two responses and you provide three responses, then only the first two are scored. If the first response is incorrect, then you will not get any credit for that response. Extra points may be available for elaboration, but only when they are requested.

**Well-written essay checklist. A well-written essay…**

* Presents a clear thesis statement on the topic and stays well-focused on the main idea throughout the essay.
* Develops the essay in an organized, logical sequence.
* Uses smooth transitions that flow from one paragraph to another.
* Supports the main idea with relevant supporting evidence, details and examples.
* Responds to all parts of the essay question.
* Shows clear handwriting that is legible.

**Helpful Hints**

* Define and/or explain any terms you use. Write something about each of the important terms that you use. Rarely would the exam ask for a list of buzzwords.
* Write clearly and neatly. If the grader cannot read the answer because of penmanship, then you will more than likely receive a zero (0) for your response.
* Provide details about the subject and be careful that you stick to the point. Be sure to provide supporting evidence that is relevant to the topic (i.e., "light is necessary for photosynthesis”). Points will be given if you show your basic knowledge of the topic.
* If you cannot remember a term, take a shot at it, and try to get as close as you can. Even if you can’t remember the name of a concept, provide a description to receive partial credit.
* Be concise and precise. This is a science test, not an English test.
* Don't waste time adding any additional information. Credit is only given for information requested.
* Provide specific examples whenever possible.

# Experimental Design Questions

In1999, 2001 and 2003 there were experimental design essay questions. If you are asked to design or describe an experiment, be sure to include the following:

* hypothesis and/or predictions
* identify the independent variable - what treatments will you apply
* identify the dependent variable - what will you measure
* identify several variables to be controlled (very important)
* describe the organism/materials/apparatus to be used
* describe what you will actually do
* describe how you will actually take and record data
* describe how the data will be graphed and analyzed
* state how you will draw a conclusion (compare results to hypothesis and predictions)

Your *experimental design* needs to be at least theoretically possible. It is very important that your conclusions/predictions be consistent with the principles involved and with the way you set up the experiment. When designing the experiment, you should plan it backwards. Work from the expected result to the hypothesis. This is a great place to use the note taking booklet that is returned to ETS. Write it backwards (expected result 🡪 hypothesis), then write it in the typical experimental design method (hypothesis 🡪 results).

1. **Expected results:** what is your conclusion? Compare it to your hypothesis.
2. **Analysis:** how are you going to analyze the results (graph, calculations)?
3. **Procedure:** a brief outline of how you are going to conduct the test. This is a great place to discuss your control (independent variable) group, experimental (dependent variable) group, what data you will collect, and how it will be collected.
4. **Hypothesis:** this is a testable outcome to the problem, a prediction of what you think will happen. You may use the null hypothesis, you expect nothing to happen.

**Things Not to Do**

* Do not waste time on background information or a long introduction unless the question calls for historical development or historical significance. Answer the question.
* Don't ramble. Get to the point. Say what you know and go on to the next question.
* Don't worry about spelling every word perfectly or using exact grammar. These are not a part of the standards the graders use. It is important for you to know, however, that very poor spelling and grammar will hurt your chances.
* If given a choice of two or three topics to write about, understand that only the first one(s) you write about will count. You must make a choice and stick with it. If you decide that your first choice was a bad one, then cross out that part of the answer so the reader knows clearly which part you wish to be considered for credit.
* Don't leave questions blank. There is no penalty for a wrong guess.
* You cannot list items in an outline form. Always use complete sentences.
* For questions involving calculations, calculators are not allowed. You can get credit for setting up a problem correctly and showing all work including correct units. You will not receive credit for only providing the correct answer.
* Don't Quit!