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Conflicting Viewpoints: A How To!

The Conflicting Viewpoints passage in many ways resembles the Reading Test passages. Because of this resemblance, we advise you to divorce the Conflicting Viewpoints passage from the Science Reasoning Test in your mind and to think of it as a misplaced Reading Test passage. The new slant on this passage should affect your approach to the passage and (for most people) should make it seem less intimidating.

1. What makes conflicting viewpoints passages unique? How should you view them?

2. What does that mean??

3. What have you already learned you should do in order to answer questions on a reading test?

**The Sample Passage**

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|  | The theory of plate tectonics, which describes the shifting of the Earth’s plates (most of which contain pieces of continents), is now widely accepted as correct. But scientists are still debating the driving mechanism behind plate tectonics; in other words, they want to know how the shifting of plates happens. Two of the most popular hypotheses for explaining this phenomenon are presented to you below. |
|  | http://img.sparknotes.com/content/testprep/bookimgs/act/0016/convection_currents.gif |

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|  | *Mantle Convection Theory* |

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|  | Proponents of this theory argue that tectonic plates are moved passively by convection currents in the Earth’s mantle, which is the layer below the crust. Mantle rocks near the Earth’s core become extremely hot, making them less dense than the cooler mantle rocks in the upper layers. As a result, the hot rocks rise and the (relatively) cool rocks sink, creating slow vertical convection currents within the mantle (see Figure 1a). These convection currents in turn create convection cells, pockets of circulation within the mantle. Supporters of the mantle convection theory argue that these convection cells directly cause documented seafloor spreading, which they claim is responsible for plate movement. The convection currents push up magma, forming new crust and exerting a lateral force on the plate, pushing it apart and “spreading” the seafloor (see Figure 1b). The scientists claim that this force, which ultimately results from convection currents, is the driving force behind the movement of tectonic plates. |
|  | http://img.sparknotes.com/content/testprep/bookimgs/act/0064/seafloor_spreading.gif |

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|  | Slab Pull Theory |
|  | http://img.sparknotes.com/content/testprep/bookimgs/act/0064/subduction_zone.gif |

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|  | This theory posits that gravity and the plates themselves are responsible for tectonic plate movement through a process known as subduction. Subduction zones exist at the outer edges of plates where the rock is cool and dense (as rock ages, it cools off and becomes increasingly dense) (see Figure 2a). In these zones, the old rock is so dense that it subducts, or sinks, into the mantle below it, pulled down by gravitational forces. As the slab (the subducting part of the plate) is pulled down into the mantle, it drags the rest of the plate along with it, causing tectonic plate movement (see Figure 2b). The density of the slab will affect the velocity of its subduction and thus the force it applies on the plate; a very dense slab will sink faster than a less dense slab because of gravitational pull, and it will exert a greater force on the plate attached to it. This theory explains mantle convection as a product, rather than a cause, of plate movement. The outward movement of the plate allows hot magma to bubble up from the Earth’s mantle at the center ridges of the plate, forming new crust where the older crust used to be. |
|  | http://img.sparknotes.com/content/testprep/bookimgs/act/0064/subducting_plate.gif |

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**Strategy for Reading the Passage**

As we’ve already stated, your strategy here should be similar to the strategy you developed for the Reading Test passages. Because the questions accompanying this passage almost exclusively deal with the written material in the passage, it is particularly important that you have a strong grasp of what the passage says and that you can refer back to the passage efficiently. For that reason, you should underline and circle sentences and phrases that could potentially be important for answering questions. These underlines and circles will guide you through the passage when you refer back to it. Also try to get an overall sense of what each passage is arguing and the most important ways in which the two arguments differ.

The heavy use of scientific terms makes this passage difficult to digest. Mantle rocks, convection currents, subduction—what does it all mean? The figures at the end illustrate these terms, but you may still feel confused. **Don’t let the confusion bother you.** You don’t need to understand convection currents after reading this passage. Take from the passage only what it gives you: a brief explanation of the formation of convection currents and their role in the process described. As long as you understand that convection currents are related to the rise of hot rocks and the fall of cooler, denser rocks, that convection currents form convection cells, and that the two theories disagree about the cause and effect of convection currents, you’re all set.

**Before we even answer the questions:**

4. What have you learned about conflicting viewpoint questions?

5. What steps can you take when reading conflicting viewpoint passages?

6. What should you do if you don’t completely understand the passage?

**The Questions**

The seven questions on the Conflicting Viewpoints passage are different from the other questions in the Science Reasoning Test. They are similar to the questions you would encounter on a Reading Test passage, but they break down into only three categories: **Detail, Inference, and Comparison**. As with the Reading Test questions, there aren’t great strategies that can help you answer these Conflicting Viewpoints questions. There may be questions for which you can immediately eliminate one of the answer choices, but elimination will not be your standard technique for solving problems. Rather, you must develop good reading comprehension skills, since Conflicting Viewpoints is fundamentally a reading comprehension passage. All of the example questions in this section refer to the Conflicting Viewpoints passage above.

7. What makes conflicting viewpoints passages take longer than other science passages?

**Detail**

There will probably be two detail questions on the Conflicting Viewpoints passage—not as many as on the Reading Test passages, but still a significant percentage of the questions. Detail questions ask you for specific information from the passage. They address only one viewpoint at a time and usually deal with a key aspect of that viewpoint. To answer these questions, you need a fundamental grasp of what each side is arguing.

**8. What do you need to know to answer detail questions?**

**9. What strategies can you use to answer this question? Apply these strategies!**

Try this detail question:

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|  | According to the Mantle Convection Theory, the heating of mantle rocks near the Earth’s core directly results in: |
|  | **A.** | the rising of the rocks to the upper mantle because they become buoyant when hot. |
|  | **B.** | the spreading of the seafloor as magma pushes up through the crust. |
|  | **C.** | the creation of convection cells within the mantle. |
|  | **D.** | the subduction of cool plate edges into the less dense mantle. |

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A key word in this question is “\_\_\_\_\_\_\_\_\_\_\_\_” because it indicates that the answer should be a direct and *immediate* result of the heating of mantle rocks. While the heating of the rocks may eventually lead to more than one of the answer choices, only one answer choice directly results from it. If you run down through the choices, you will see that choice D discusses subduction, which is mentioned exclusively in the Slab Pull -Theory; thus you can eliminate D because it is irrelevant to the Mantle Convection Theory. Elimination helps you on this sort of question, but, as in the case of this particular question, it might not bring you all the way to the correct answer. Now refer back to the passage and find the section on the heating of mantle rocks. Without spending much time rereading the section, recall the sequence of events (any marks you made will help you here), and then formulate an answer to the question.

Now try this detail question on the Slab Pull Theory:

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|  | According to the Slab Pull Theory, which of the following is NOT true? |
|  | **A.** | Subduction zones exist far from the active central ridges of plates. |
|  | **B.** | Tectonic plate movement results from a lateral force caused by subduction. |
|  | **C.** | Mantle convection occurs independently of subduction. |
|  | **D.** | Gravitational forces act on dense slab. |

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**10. What makes this question different from the last one?**

**11. Apply the question breakdown techniques we’ve learned.**

Because of the question’s phrasing, you will not be able to come up with your own answer before matching it to the answer choices. Instead, you should make sure you understand the theory and refer back to the passage when necessary, keeping in mind that the time you spend on this step should be limited. Once you feel comfortable with the passage, run down through the answer choices and ask yourself whether you found each one in the passage. If you understood the main point of the Slab Pull Theory, choice \_\_\_\_\_\_\_\_ should jump out at you because it describes something occurring *independently* of subduction, while the Slab Pull Theory depends on subduction.

**Inference**

You will probably see two inference questions on the Conflicting Viewpoints passage. These questions ask you to make inferences (i.e., figure out implied information) based on the arguments of each viewpoint.

Sometimes inference questions will present you with a hypothetical situation and ask you how the proponents of one (and sometimes both) of the viewpoints would react to it. For instance,

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|  | If it were discovered that slabs break off from the rest of the plates once a certain degree of force is applied, the discovery would harm: |
|  | **A.** | the Mantle Convection Theory. |
|  | **B.** | the Slab Pull Theory. |
|  | **C.** | both theories. |
|  | **D.** | neither theory. |

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This question asks you to decide what the consequences of this discovery would be. The terms used in this question will help get you started. The question discusses slabs and gravitational forces, which should immediately point you in the direction of the Slab Pull Theory. Your next step should be to consider how the new evidence affects the Slab Pull Theory. **Ask yourself, “What does the theory say?”**

**12. What does the Slab Pull Theory say?**

**13. What does the Mantle Convection Theory say?**

Well, the Slab Pull Theory maintains that subducting slabs exert a pull on the plates to which they’re attached. If the new evidence is correct and the slabs break off from the plate when too much force is applied, the new evidence is harmful to the Slab Pull Theory, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_is the correct answer.

Inference questions may also ask you to identify a statement or piece of evidence that lends support to one of the viewpoints. For example,

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|  | Scientists decide to observe the outer edges of plates. Which of the following statements about subduction zones would support the Slab Pull Theory? |
|  | **A.** | Not all plates have subduction zones. |
|  | **B.** | Slab subducts at a uniform speed in all subduction zones. |
|  | **C.** | Slab subducts at various speeds depending on the age of the slab. |
|  | **D.** | Where oceanic plates meet continental plates, the oceanic plates will subduct because they are more dense than continental plates. |

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Answering this question will require the same skills you used to answer the previous question, but here you have to figure out the consequences of four different discoveries instead of just one. Because this task is potentially time-consuming, you should first run down the answer choices to see whether you can instantly eliminate any as either absolutely incorrect or simply irrelevant to the Slab Pull Theory.

**13. Which options can you eliminate immediately and why?**

So you are left with two choices: \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_. Interestingly, they both deal with the speed at which plates subduct. Does either the Slab Pull Theory or the Mantle Convection Theory talk about speed? According to the Slab Pull Theory, “the density of the slab will affect the velocity of its subduction . . . a very dense slab will sink faster than a less dense slab.” In other words, the Slab Pull Theory expects the velocity (or speed) of subduction to vary depending on the density of the slab. Choice C says that slabs subduct at different speeds depending on the *age*of the slab, so can it still be the correct answer? Yes, because the summary of the Slab Pull Theory also tells you that the older the rock is, the denser it will be. So choice **\_\_\_\_\_\_\_\_\_\_\_\_** would support the Slab Pull Theory.

You may encounter other types of inference questions on the test. For instance, an inference question might ask you to identify a necessary assumption made by one of the viewpoints, but you shouldn’t panic if you see a question like that. All inference questions, regardless of their phrasing, can be handled similarly. As with detail questions, getting inference questions right on this test depends almost entirely on your ability to comprehend and use the information provided in the passage.

**Comparison**

These questions generally account for three of the seven questions accompanying the Conflicting Viewpoints passage, so you should make sure you feel comfortable with them. They require you to compare the viewpoints in the passage in terms of specific details presented in each argument or inferences you must draw about the viewpoints.

Comparison questions frequently ask you to identify points on which the viewpoints would agree or disagree. For example,

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|  | About which of the following points do the two theories differ? |
|  | **A.** | Movement of tectonic plates across the Earth’s surface |
|  | **B.** | Density of hot mantle rocks |
|  | **C.** | Existence of convection currents in the Earth’s mantle |
|  | **D.** | Role of mantle convection in tectonic plate movement |

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This question requires that you use both your ability to compare viewpoints and your ability to identify specific detail; answering it correctly involves no inference work. To start, you should read through the answer choices, eliminating anything you know is uncontroversial to the viewpoints.

**14. Which answer choices can you eliminate immediately and why?**

Ideally, you should be able to get the right answer to this question without referring back to the passage, as this question deals with the fundamental difference between the two theories. If you can’t answer this question on your own, you should refer back to the passage quickly, but do not waste a lot of time reading through it again. The correct answer to this problem is **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**. The Mantle Convection Theory argues that mantle convection is the driving force behind plate movement, while the Slab Pull Theory maintains that mantle convection merely results from plate movement.

Comparison questions may also ask you to infer how one theory would address the other. For instance,

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|  | How would supporters of the Slab Pull Theory explain the documentation of seafloor spreading cited in the Mantle Convection Theory? |
|  | **A.** | Seafloor spreading directly causes tectonic plate movement and slab subduction. |
|  | **B.** | Seafloor spreading does not exist. |
|  | **C.** | Seafloor spreading and slab subduction simultaneously exert moving forces on tectonic plates. |
|  | **D.** | Seafloor spreading exists, but only as a result of slab subduction. |

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You could call this an inference-comparison question because it asks you to figure out something that is not explicitly stated in the passage: the response of one theory to the other. The question points you to a specific issue under debate: seafloor spreading. Ask yourself whether you understand the position of the Slab Pull Theory on seafloor spreading. The passage explicitly states that Slab Pull theorists consider mantle convection and seafloor spreading to be products, not causes, of slab subduction.

**15. Which of the answer choices does not captures that position?**

**16. What is the correct answer?**

You may encounter additional types of comparison questions on the actual ACT, but they will all follow the basic idea of comparing the presented arguments in terms of specific details or inferences. If you encounter a comparison question that seems unlike the examples given above, the difference is usually a matter of phrasing. A comparison question worded, “Which of the following statements about the factors that affect tectonic plate movement would be consistent with the Mantle Convection and Slab Pull theories?” really just asks you to identify specific details from both theories that agree.

You shouldn’t have any problem with this question if you understand how to answer the first example in this section.

If you get a Conflicting Viewpoints passage that presents three arguments, you may see other variations on the types of questions asked. For instance, a question may ask you to identify how one theory is better than the other two in a specific regard. That question would also be a detail-comparison question because it asks you about a specific aspect addressed by the three arguments. Again, you won’t have a problem if you understand the examples above.

The key to avoid being intimidated by comparison questions is to remember that they are detail and inference questions that simply deal with multiple viewpoints. If you can answer detail and inference questions, you’re well on your way to mastering comparison questions as well.

**17. What new techniques have you learned to help you with conflicting viewpoints questions?**