

How to identify references that demonstrate understanding of an essay

Before you begin

What you need:

Related text: **“Seven Wonders” by Lewis Thomas**

Approximate time this exercise should take you: **30 minutes**

Reminder

In this part of the analysis, you should demonstrate your comprehension of the text through the choice of references and analogies you select to support your interpretation of the reading. Your selection of appropriate references should show your understanding of the reading as a whole. References that demonstrate an understanding of the reading do not have to be direct quotations from the text.

Instructions

In the student essay below, in each paragraph, highlight the student’s use of three references to the text “Seven Wonders” to support each of the key organizing ideas: description, comparison and tone. Because this essay is very well organized, it is easy to note how the student a) makes a point, b) supports the point with a direct reference or quotation from the text, and then c) provides critical and analytical commentary.

Exercise 3

SEVEN WONDERS (student essay)

“Seven Wonders,” a sobering essay by Lewis Thomas, provides a variation on the wonders of the world. Through an academic, yet personal writing style, Thomas explains to the reader how amazement can arise from the most unexpected places. He accomplishes this through the use of description, comparison and tone.

Description is the groundwork upon which Thomas builds his essay. Throughout his work, descriptions are basically used to convey the sense of awe he feels for the wonder in question. The most significant example of this is found in his last wonder. Of all the celestial bodies known to us, “the most wonderful and marvellous and mysterious is turning out to be our own planet Earth.” It is a “living thing” and “the strangest of all places,” he writes. This relates to the theme, since after his description of the universe as “stupefying” (and having an appreciation of its magnitude to begin with), Earth would seem rather insignificant, an odd choice for a wonder. He also describes the olfactory receptor cell as a “certified neuron belonging to the brain, but miles away in the open air.” A cell in the human brain might normally seem mundane, but by describing it in a way that hints at physical impossibilities (being in two places at once) elevates it to the status of “wonder.” Another description would be the termite collective as an organism, “a thoughtful, meditative brain on a million legs” which makes a group of insects seem like a singular, intelligent creature. Overall, Thomas’s descriptions of the various wonders allow the reader to appreciate them on the level he has, that they are truly remarkable beings.

Thomas also uses comparison several times to accentuate his amazement. His second wonder was bacteria that can live and reproduce at extremely high temperatures and pressures. While this alone would be enough to tantalize readers, Venus’s «comparable temperature» to that bacteria’s habitat only increases this interest. Comparing the bacteria’s habitat to Venus’s surface hints at the notion of extraterrestrial life. Moreover, the author continues by comparing (implicitly) Venus to early Earth, implying that the former could one day give rise to a species similar to humans. Another significant comparison occurred between termites and humans: “there is no such creature... as a lone termite, any more than we can imagine a... solitary human.” The author then uses a series of metaphors to describe the termites’ actions. They “organize in platoons,” “[construct] the cathedral” which is “air-conditioned and humidity controlled.” All of these quotes allude to human behaviour and humans’ ability to construct, essentially making the termite seem like an intelligent being, or at least a truly unique one.

Finally, tone is also used to convey amazement. When Thomas wrote about the bacteria that exist in extreme temperatures, he noted that they can be killed “only by chilling them down in boiling water.” Other than personalizing his essay with humour (note the use of the word “chilling”), it also helps the reader understand just how extraordinary this life form is and how radically different it is from other life forms, if boiling water is too cold for it. His colloquial tone is also apparent later on when he points out that he once thought that “beyond the feckless, irresponsible pleasures of childhood,” children had nothing to show for the amount of work that was expended in their raising. This statement (of his former opinion) underlines just how important childhood is by providing a contrasting belief or view on the subject. Towards the end of the essay, however, Thomas’s tone changes from an almost light-hearted one to a more grave and serious one. “Provisionally, but only provisionally, we are a wonder” he says, hinting at the demise of the human species. By adopting such a tone, he emphasizes his amazement towards man and Earth over all else. By ending with “what our species needs most of all, right now, is simply a future,” he leaves the reader with a feeling of seriousness and possibly urgency as well. By stressing that humans need a future, he insinuates we are missing one. This places utmost importance on the survival of the planet, and conveys the sense of wonderment he feels about Earth to the reader.

Thomas’s essay carries several main ideas, only one of which was elaborated on in this essay. One could argue that the small wonders (or not so small wonders) accentuate Thomas’s final message, but ultimately, that final message underlines what this essay is attempting to show: wonders can exist in things neglected or unnoticed, much like Earth.

Answer key

In the student essay below you will find the key idea of each paragraph underlined, and three supporting references highlighted. Compare your answers to those provided here.

SEVEN WONDERS (student essay)

“Seven Wonders,” a sobering essay by Lewis Thomas, provides a variation on the wonders of the world. Through an academic, yet personal writing style, Thomas explains to the reader how amazement can arise from the most unexpected places. He accomplishes this through the use of description, comparison and tone.

Description is the groundwork upon which Thomas builds his essay. Throughout his work, descriptions are basically used to convey the sense of awe he feels for the wonder in question. 1. The most significant example of this is found in his last wonder. Of all the celestial bodies known to us, “the most wonderful and marvellous and mysterious is turning out to be our own planet Earth.” It is a “living thing” and “the strangest of all places,” he writes. This relates to the theme since after his description of the universe as “stupefying” (and having an appreciation of its magnitude to begin with), Earth would seem rather insignificant, an odd choice for a wonder. 2. He also describes the olfactory receptor cell as a “certified neuron belonging to the brain, but miles away in the open air.” A cell in the human brain might normally seem mundane, but by describing it in a way that hints at physical impossibilities (being in two places at once) elevates it to the status of “wonder.” 3. Another description would be the termite collective as an organism, “a thoughtful, meditative brain on a million legs” which makes a group of insects seem like a singular, intelligent creature. Overall, Thomas’s descriptions of the various wonders allow the reader to appreciate them on the level he has, that they are truly remarkable beings.

Thomas also uses comparison several times to accentuate his amazement. His second wonder was bacteria that can live and reproduce at extremely high temperatures and pressures. 1. While this alone would be enough to tantalize readers, Venus’s «comparable temperature» to that bacteria’s habitat only increases this interest. Comparing the bacteria’s habitat to Venus’s surface hints at the notion of extraterrestrial life. Moreover, the author continues by comparing 2. (implicitly) Venus to early Earth, implying that the former could one day give rise to a species similar to humans. Another significant comparison occurred between termites and humans: 3. “there is no such creature... as a lone termite, any more than we can imagine a... solitary human.” The author then uses a series of metaphors to describe the termites’ actions. They “organize in platoons,” “[construct] the cathedral” which is “air-conditioned and humidity controlled.” All of these quotes allude to human behaviour and humans’ ability to construct, essentially making the termite seem like an intelligent being, or at least a truly unique one.

Finally, tone is also used to convey amazement. When Thomas wrote about the bacteria that exist in extreme temperatures, 1. he noted that they can be killed “only by chilling them down in boiling water.” Other than personalizing his essay with humour (note the use of the word “chilling”), it also helps the reader understand just how extraordinary this life form is and how radically different it is from other life forms, if boiling water is too cold for it. His colloquial tone is also apparent later on when he points out that he once thought that 2. “beyond the feckless, irresponsible pleasures of childhood,” children had nothing to show for the amount of work that was expended in their raising. This statement (of his former opinion) underlines just how important childhood is by providing a contrasting belief or view on the subject. Towards the end of the essay, however, Thomas’s tone 3. changes from an almost light-hearted one to a more grave and serious one. “Provisionally, but only provisionally, we are a wonder” he says, hinting at the demise of the human species. By adopting such a tone, he emphasizes his amazement towards man and Earth over all else. By ending with [in this paragraph there is a fourth possible reference, as well] 4. “what our species needs most of all, right now, is simply a future,” he leaves the reader with a feeling of seriousness and possibly urgency as well. By stressing that humans need a future, he insinuates we are missing one. This places utmost importance on the survival of the planet, and conveys the sense of wonderment he feels about Earth to the reader. Thomas’s essay carries several main ideas, only one of which was elaborated on in this essay. One could argue that the small wonders (or not so small wonders) accentuate Thomas’s final message, but ultimately, that final message underlines what this essay is attempting to show: wonders can exist in things neglected or unnoticed, much like Earth.

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Instructions

Read through this list of eight quotations from the text “Seven Wonders.” In the chart below, **match each quotation with one of the statements supporting this main idea:** *There are many wonders that exist around us, the most magnificent being the planet Earth.*

Exercise 4

Quotations:

- A. “At such heat, the existence of life as we know it would be simply inconceivable. Proteins and DNA would fall apart, enzymes would melt away, anything alive would die instantaneously.”
- B. “But keep adding more termites until they reach a critical mass, and then the miracle begins.”
- C. “Looked at this way, the scrapie agent seems the strangest thing in all biology and, until someone in some laboratory figures out what it is, a candidate for Modern Wonder.”
- D. “Wonder is a word to wonder about. It contains a mixture of messages: something marvellous and miraculous, surprising, raising unanswerable questions about itself...”
- E. “We have spread across the face of the earth in just a few thousand years, no time at all as evolution clocks time, covering all liveable parts of the planet, endangering other forms of life, and now threatening ourselves. As a species, we have everything in the world to learn about living, but we may be running out of time.”
- F. “How it manages to make sense of what it senses, discriminating between jasmine and anything else non-jasmine with infallibility, is one of the deep secrets of neurobiology.”
- G. “... the property that enables our survival as the most compulsively, biologically, obsessively social of all creatures on earth, more interdependent and interconnected even than the famous social insects.”
- H. “The mimosa-beetle relationship is an elegant example of symbiotic partnership, a phenomenon now recognized as pervasive in nature.”

1.	In order to explore the modern seven wonders, Thomas points out how necessary it is to clearly understand the definition of the word “wonder” first.	
2.	Thomas describes a bacterial species that can live at extremely hot temperatures, comparable to the unliveable interior of the earth. In doing so, he alludes to the possibility of life on Venus, something scientists have ruled out because of the planet’s intensely hot temperatures.	
3.	In his discussion of the mimosa beetle, Lewis Thomas points out that we really know so little about nature. In reviewing the three-step process the beetle carries out in order to safely lay her eggs, Thomas marvels at partnerships in nature.	
4.	While explaining the unique composition of the fourth wonder’s all-protein composition, Thomas wonders about the virus’s ability to replicate itself even though there is no scientific evidence of DNA or RNA. Scientists are baffled by this virus.	
5.	Thomas explores the magical ability of certain brain cells to “multi-task” in terms of memory. He comments on the fact that even scientists are baffled by its existence and capabilities.	
6.	Termites make the list of seven wonders because of how they operate as a huge social unit through a “complex system of chemical signs.” Their capability to build mesmerizes Thomas.	
7.	Lewis Thomas also notes that the acquisition of language allows humans to be independent and interconnected. He argues that language is a wonder itself, a human being’s most important asset for ensuring survival.	
8.	In the concluding paragraphs of his essay, Thomas argues that man has great potential for both construction and destruction and that as a species we are still evolving. He sees man as both a wonder and a detriment to the planet Earth.	

Answer key

Compare your responses to those shown below.

1. In order to explore the modern seven wonders, Thomas points out how necessary it is to clearly understand the definition of the word “wonder” first.	D
2. Thomas describes a bacterial species that can live at extremely hot temperatures, comparable to the unliveable interior of the earth. In doing so, he alludes to the possibility of life on Venus, something scientists have ruled out because of the planet’s intensely hot temperatures.	A
3. In his discussion of the mimosa beetle, Lewis Thomas points out that we really know so little about nature. In reviewing the three-step process the beetle carries out in order to safely lay her eggs, Thomas marvels at partnerships in nature.	H
4. While explaining the unique composition of the fourth wonder’s all-protein composition, Thomas wonders about the virus’s ability to replicate itself even though there is no scientific evidence of DNA or RNA. Scientists are baffled by this virus.	C
5. Thomas explores the magical ability of certain brain cells to “multi-task” in terms of memory. He comments on the fact that even scientists are baffled by its existence and capabilities.	F
6. Termites make the list of seven wonders because of how they operate as a huge social unit through a “complex system of chemical signs.” Their capability to build mesmerizes Thomas.	B
7. Lewis Thomas also notes that the acquisition of language allows humans to be independent and interconnected. He argues that language is a wonder itself, a human being’s most important asset for ensuring survival.	G
8. In the concluding paragraphs of his essay, Thomas argues that man has great potential for both construction and destruction and that as a species we are still evolving. He sees man as both a wonder and a detriment to the planet Earth.	E