AP* English Language and Composition

Rhetorical Analysis
John M. Barry’s The Great Influenza

Teacher Overview
# Rhetorical Analysis

**John M. Barry’s *The Great Influenza***  
(References the 2008 AP* Language Exam Question 2)

## Teacher Overview

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Materials and Resources: John M. Barry’s book *The Great Influenza*; copies of the Student Activity for each student; and copies of the 2008 AP* English Language Exam’s Question 2.

Past free response questions can be downloaded from College Board’s AP* Central website at [http://apcentral.collegeboard.com/apc/Controller.jsp](http://apcentral.collegeboard.com/apc/Controller.jsp). Below is a table that references some recent rhetorical analysis prompts. Pre-twentieth century texts are noted.

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The passage below is from John Barry’s *The Great Influenza*. On the exam students were required to analyze how Barry uses rhetorical strategies to define the nature of scientific inquiry.

*Have the students read the passage aloud.*

Certainty creates strength. Certainty gives one something upon which to lean. Uncertainty creates weakness. Uncertainty makes one tentative if not fearful, and tentative steps, even when in the right direction, may not overcome significant obstacles.

To be a scientist requires not only intelligence and curiosity, but passion, patience, creativity, self-sufficiency, and courage. It is not the courage to venture into the unknown. It is the courage to accept—indeed, embrace—uncertainty. For as Claude Bernard, the great French physiologist of the nineteenth century, said, “Science teaches us to doubt.”

A scientist must accept the fact that all his or her work, even beliefs, may break apart upon the sharp edge of a single laboratory finding. And just as Einstein refused to accept his own theory until his predictions were tested, one must seek out such findings. Ultimately a scientist has nothing to believe in but the process of inquiry. To move forcefully and aggressively even while uncertain requires a confidence and strength deeper than physical courage.

All real scientists exist on the frontier. Even the least ambitious among them deal with the unknown, if only one step beyond the known. The best among them move deep into a wilderness region where they know almost nothing, where the very tools and techniques needed to clear the wilderness, to bring order to it, do not exist. There they probe in a disciplined way. There a single step can take them through the looking glass into a world that seems entirely different, and if they are at least partly correct their probing acts like a crystal to precipitate an order out of chaos, to create form, structure, and direction.

35 A single step can also take one off a cliff.

In the wilderness the scientist must create . . . everything. It is grunt work, tedious work that begins with figuring out what tools one needs and then making them. A shovel can dig up dirt but cannot penetrate rock. Would a pick be best, or would dynamite be better—or would dynamite be too indiscriminately destructive? If the rock is impenetrable, if dynamite would destroy what one is looking for, is there another way of getting information about what the rock holds? There is a stream passing over the rock. Would analyzing the water after it passes over the rock reveal anything useful? How would one analyze it?

Ultimately, if the researcher succeeds, a flood of colleagues will pave roads over the path laid, and those roads will be orderly and straight, taking an investigator in minutes to a place the pioneer spent months or years looking for. And the perfect tool will be available for purchase, just as laboratory mice can now be ordered from supply houses.

Not all scientific investigators can deal comfortably with uncertainty, and those who can may not be creative enough to understand and design the experiments that will illuminate a subject—to know both where and how to look. Others may lack the confidence to persist. Experiments do not simply work. Regardless of design and preparation, experiments—especially at the beginning, when one proceeds by intelligent guesswork—rarely yield the results desired. An investigator must make them work. The less known, the more one has to manipulate and even force experiments to yield an answer.

The AP* English Language and Composition exam includes one free-response question that requires students to analyze how an author constructs a text. To succeed in your analysis, you will be required to demonstrate how technique reveals meaning.

Rhetorical strategies are the tools by which the author creates meaning. You must be able to identify such strategies as well as explain their significance. As you analyze...
rhetorical strategies, remember what you are looking for: structure, appeals, and devices; but you must also relate these devices to meaning.

In the exercises below, you will answer questions designed to help “unlock the passage” in such a way that you can explain how Barry’s techniques define the nature of scientific inquiry.

Certainty creates strength. Certainty gives one something upon which to lean. Uncertainty creates weakness. Uncertainty makes one tentative if not fearful, and tentative steps, even when in the right direction, may not overcome significant obstacles.

1. Why does Barry begin with a universal truth and delay referring to scientists until Paragraph 2?

*By defining polar opposites, the universal truth intensifies the revelation of the paradox in the second paragraph—that scientists thrive on uncertainty.*

2. What two antithetical concepts occur in this paragraph?

*Certainty vs. Uncertainty*

3. Examine the syntax of this paragraph and notice the patterns of repetition. What is the effect of the anaphora in the first four sentences?

*The anaphora further solidifies the conventional wisdom that certainty is positive and uncertainty is negative. (Connotations of strength vs. weakness, supported vs. unfounded.)*

To be a scientist requires not only intelligence and curiosity, but passion, patience, creativity, self-sufficiency, and courage. It is not the courage to venture into the unknown. It is the courage to accept—indeed, embrace—uncertainty. For as Claude Bernard, the great French physiologist of the nineteenth century, said, “Science teaches us to doubt.”

1. Which rhetorical mode is employed in this paragraph?

*Classification/Division: the paragraph lists the traits that are required to be a scientist.*
2. Identify the catalog in this paragraph. What purpose is served through this listing?

“... (I)ntelligence... courage (lines 6-8).” Purpose is to add the less obvious traits to the two obvious ones (intelligence and curiosity).

3. What purpose do the anaphora and antithesis serve in the second and third sentences?

The effect is to refine the connotations associated with “courage” through negation of common concepts. (Not just this but that, too.)

4. To what does the pronoun “it” refer in both sentences?

“It” refers to the type of courage required to be a scientist.

5. What is the effect of the dashes in Line 10?

The dashes interrupt the sentence to clarify and intensify the meaning of “accept.” (Not just accepting, embracing/cling to/whole-heartedly accepting/ et cetera.)

6. Which of the appeals does the writer use at the end of this paragraph?

Ethos: the author refers to a historical figure as an authority on the make-up of a scientist.

| A scientist must accept the fact that all his or her work, even beliefs, may break apart upon the sharp edge of a single laboratory finding. And just as Einstein refused to accept his own theory until his predictions were tested, one must seek out such findings. Ultimately a scientist has nothing to believe in but the process of inquiry. To move forcefully and aggressively even while uncertain requires a confidence and strength deeper than physical courage. |
|---|---|
| 15 | 20 |

1. What is Barry suggesting through his use of the term “A scientist” in the third paragraph as opposed to the phrase “To be a scientist” in the second paragraph?

*Answers may vary. Moves from abstraction to example.* “To be a scientist” is hypothetical—what is required to become one—but “a scientist” is practical—what is required to exist as a scientist.
2. Barry uses which figure of speech in the first sentence, and what is its purpose?

*Metaphor suggesting the danger of working with the unknown or with something that may not have been put together well.*

3. Why does Barry refer to Einstein in the second sentence?

*Appeal to authority and logic: if the renowned scientist didn’t do it, then why should we?*

4. What is the implied antecedent of “one” in Line 18?

*The hypothetical scientist from line 14.*

5. According to Barry, all scientists risk losing their “works” and “even beliefs.” What, then, is the only thing upon which they must rely?

*The scientist is left to “believe in the process of inquiry,” or their methodical collection of fact and example.*

6. What purpose does the infinitive phrase at the beginning of the last sentence of this paragraph serve?

*It signals the summation of the paragraph, that “to move...” is the most important trait.*

7. Why does Barry qualify “courage” with the adjective “physical” in the last sentence of this paragraph?

*It further negates the common association of courage with virility and manliness.*

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All real scientists exist on the frontier. Even the least ambitious among them deal with the unknown, if only one step beyond the known. The best among them move deep into a wilderness region where they know almost nothing, where the very tools and techniques needed to clear the wilderness, to bring order to it, do not exist. There they probe in a disciplined way. There a single step can take them through the looking glass into a world that seems entirely different, and if they are at least partly correct their probing acts like a crystal to precipitate an order out of chaos, to create form, structure, and direction. A single step can also take one off a cliff.

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*Teacher Overview—The Great Influenza*
1. Identify and explain the significance of the extended metaphor in this paragraph.

*Frontier, one step beyond the known, wilderness, and cliff all have connotations of the heroic journey. The idea is that the scientist is like the trailblazer (an idea later supported in paragraphs 5 and 6) moving into uncharted territory.*

2. List examples of repetition and antithesis; and beside each example, comment on its significance.

*Answers may vary.*

3. Identify the following:
   a. the literary allusion in Line 31

*“through the looking glass” from Alice in Wonderland*

   b. the simile in Line 33

*“like a crystal” refers to the way the introduction of a crystal in a solution begins the process of crystallization*

   c. the metaphor in Line 35

*“off a cliff” suggests pitfalls or other perils of exploration*

4. Now, what point does the author make about scientific inquiry through juxtaposing these three literary devices?

*Answers may vary. The Alice allusion suggests going into a world that isn’t real or doesn’t appear to be real which leads one into trouble. The crystal metaphor suggests setting off a chain of events beyond the control of the scientist. Going off a cliff suggests that some steps are terminal. There is a building of intensity in these three figures of speech suggesting that scientific exploration can be bad if not disastrous, and this is what a scientist must be prepared to face.*
stream passing over the rock. Would analyzing the water after it passes over the rock reveal anything useful? How would one analyze it?

1. Why is the word “everything” set apart from the rest of the sentence?

_It uses an ellipsis (which is commonly used to suggest omitted material) to “omit” the ruminating over everything the scientist must create._

2. What aspect of scientific research does Barry suggest through the term “grunt work”?

_“Grunt work” refers to the preparation necessary to do the work of scientists._

3. Identify the three “tools” in this paragraph and comment on the significance of the progression from “shovel” to “dynamite.”

_Shoovel, pick, and dynamite. Each is progressively more destructive and at the same time useful for excavation._

4. This paragraph contains a series of questions about determining the composition of rock. Why are these constructions not rhetorical?

_An rhetorical question is a device that asks for an answer that is both common knowledge and extremely obvious. The answer to a rhetorical question is so obvious that the question need not be asked. The answers to these questions, however, are unknown and represent the thought process of the scientist._

5. What literary device is employed in the sentences which describe the probing of rock?

_The author chooses to represent the scientist’s thoughts through stream of consciousness._

6. What does the use of this device imply about the nature of scientific inquiry?

_Answers may vary. Some students may point out that the answer to one question (or an observation related to it) produces two more._

| 50 | Ultimately, if the researcher succeeds, a flood of colleagues will pave roads over the path laid, and those roads will be orderly and straight, taking an investigator in minutes to a place the pioneer spent months or years looking for. And the perfect tool will be available for purchase, just as laboratory mice can now be ordered from supply houses. |
1. Through what image does the writer link the fifth and sixth paragraphs?

*Pioneer/explorer imagery.*

2. Explain the meaning of the metaphor “a flood of colleagues.”

*Answers may vary. The “flood” after the research has been completed juxtaposes with the lone scientist going at his research with no guide.*

3. Barry repeats the concepts “order,” “pioneer,” and “tool” in this paragraph. This repetition suggests what as a possible result of diligent scientific inquiry?

*Answers may vary. The concepts suggest the progression from new idea to established truth.*

4. Why might Barry specifically refer to “laboratory mice”?

*Answers may vary. The mice are a commonly recognized tool of scientific discovery that must have been, at some point, revolutionary.*

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<th>Not all scientific investigators can deal comfortably with uncertainty, and those who can may not be creative enough to understand and design the experiments that will illuminate a subject—to know both where and how to look. Others may lack the confidence to persist. Experiments do not simply work. Regardless of design and preparation, experiments—especially at the beginning, when one proceeds by intelligent guesswork—rarely yield the results desired. An investigator must make them work. The less known, the more one has to manipulate and even force experiments to yield an answer.</th>
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1. Which words signal a shift in tone in the last paragraph?

*“Not all...” is a negation of previous paragraphs: that which is common to scientists is not present in all scientists.*

2. What are some of the connotative associations of the word “illuminate” in Line 59?

*Light of knowledge, discovery, et cetera.*
3. Underline the three sentences which are significantly shorter than the others in this paragraph. What is the effect of this syntactical variation?

See above for underlined sentences. They are aphoristic assertions that act as incontrovertible truths based on the premises that Barry has offered. Their brevity underscores the idea that they are simply true.

4. Barry repeats the words “experiments” and “yield.” In this two-part repetition, what change in meaning occurs?

The first meaning is to produce as in “yielding a bumper crop.” The second suggests capitulation or giving up as in “yielding to a superior force.”

5. What audience is Barry addressing in his essay?

Answers will vary. Textual evidence suggests that Barry’s audience is literate enough to recognize Einstein and Alice in Wonderland, but is not necessarily composed of scientists. It is likely a general audience of moderately educated readers.

6. Briefly describe the tone of this essay. Cite concrete evidence to support your assertion.

Answers will vary.

Appeals

These close-reading questions focus on linking specific devices to meaning. Thorough analysis requires that you also address the appeals in order to explain fully the writer’s purpose. Review the passage and discover areas wherein Barry incorporates the three appeals to solidify his ideas about the nature of scientific inquiry.

Now write a thesis sentence for an essay in which you analyze how Barry uses rhetorical strategies to depict the nature of scientific research.

Answers will vary.
Multiple Choice Questions—Refer to the passage to answer the following:

Give the students about 10 minutes to complete the multiple choice section since they have already read and annotated the passage. The correct answers have been bolded and the rationales have been boxed.

1. The first paragraph includes which of the following?

   I. Anaphora
   II. Antithesis
   III. Allegory

   (A) I only
   (B) II only
   (C) III only
   (D) I and II only
   (E) I, II, and III

   D. Anaphora occurs in the first and second sentences with the repetition of “Certainty” and in the third and fourth sentences with the repetition of “Uncertainty.” “Certainty” and “Uncertainty” are also antithetical. There is no symbolic representation of real-life events in a fictional tale; therefore, there is no allegory in the first paragraph.

2. Paragraph 1 suggests that “Uncertainty” creates in a person all of the following EXCEPT

   (A) feebleness
   (B) hesitancy
   (C) loss of will
   (D) reliance on others
   (E) trepidation

   A. “Feebleness” is suggested in the phrase “creates weakness” (lines 2-3).
   B. “Hesitancy” is suggested by the word “tentative” (lines 3-4).
   C. “Loss of will” is suggested by the phrase “tentative steps” (line 4).
   D. Nothing in the paragraph suggests that “Uncertainty” creates reliance on others.
   E. Trepidation is suggested by the phrase “makes one tentative if not fearful” (lines 3-4).
3. In the context of lines 3-4, “tentative” most nearly means
(A) afraid
(B) hesitant
(C) immobile
(D) temporary
(E) weak

B. Hesitant is suggested as the meaning for “tentative” in the phrase “tentative steps, even when in the right direction, may not overcome significant obstacles” (lines 4-5).

4. Barry suggests that a scientist must “embrace—uncertainty” (line 10) while at the same time striving for truth. Herein, he employs which literary device?
(A) antithesis
(B) oxymoron
(C) paradox
(D) personification
(E) pun

A. Antithesis involves the use of opposite ideas; there are no opposite ideas in this construction.
B. Oxymoron is the juxtaposition of contradictory words; “embrace” and “uncertainty” are not contradictory.
C. A paradox is a seemingly contradictory suggestion which upon investigation proves true. Scientific inquiry involves searching for truth or reason; therefore, the suggestion that a scientist also should “embrace—uncertainty” is paradoxical. It is contradictory to be accepting of the negative result (uncertainty) when the positive result (truth) is what is actually desired.
D. Personification is the attribution of human-like or animate qualities to non-human or inanimate entities. There is no personification in this phrase.
E. A pun is play on words. No pun occurs in this phrase.
5. The passage as a whole suggests that a scientist must be all of the following EXCEPT
(A) daring
(B) independent
(C) inquisitive
(D) intractable
(E) intrepid

A. Since “All real scientists . . . move deep into a wilderness region where they know almost nothing” (lines 23-27), a scientist must be daring.
B. Since “[t]o be a scientist requires . . . self-sufficiency” (lines 6-8), a scientist must be independent.
C. Since “[t]o be a scientist requires . . . curiosity” (lines 6-7), a scientist must be inquisitive.
D. In the expression “the scientist must create . . . everything” (lines 36-37), Barry suggests that a scientist must be willing to adapt to circumstances, and “intractable” suggests an unwillingness to change or adapt.
E. Since inquiry includes “the courage to . . . embrace—uncertainty” (lines 9-10), a scientist must be intrepid.

6. In Paragraph 2 the repetition of “courage” (lines 8-9) serves to
(A) clarify a concept
(B) continue a process
(C) digress to a related issue
(D) introduce a new idea
(E) provide an analogy

A. Barry clarifies his concept of “courage” by explaining both what it is not and what it is.
B. There is no process or sequence of events being described.
C. Stays on topic and does not leave it.
D. Again, stays on topic and does not move to a new topic.
E. “Courage” is not being explained through comparison to an analogous idea; rather, the repetition clarifies the context in which Barry uses “courage.”
7. The literary device in lines 15-16 (“break apart . . . laboratory finding”) is
(A) antithesis
(B) apostrophe
(C) **metaphor**
(D) personification
(E) symbol

**A. The phrase does not contain opposites.**
**B. No person or thing is addressed in this construction.**
**C. Saying that a scientist’s “work, even beliefs, may break apart upon the sharp edge of a single laboratory finding” is not literal.**
**D. Nothing is personified in this construction.**
**E. Nothing in this construction carries the weight of a symbol or stands for something beyond itself.**

8. Lines 30-32 (“There . . . different”) contain which literary device?
(A) **allusion**
(B) hyperbole
(C) litotes
(D) metonymy
(E) synecdoche

**A. The phrase “through the looking glass” is also the title of Lewis Carroll’s novel about Alice in Wonderland; hence, the allusion.**
**B. Hyperbole involves exaggeration, and there is no exaggeration in these lines.**
**C. Litotes involves understatement, and there is no understatement in these lines.**
**D. Metonymy, a type of metaphor in which an associated concept represents something else, does not occur in these lines.**
**E. Synecdoche, a type of metaphor in which the part represents the whole, does not occur in these lines.**
9. In the expression “[i]t is grunt work” (line 37), Barry suggests that scientific inquiry is often
(A) boring
(B) dangerous
(C) dirty
(D) laborious
(E) repetitive

A. While scientific inquiry may be boring, it is also possible for highly skilled labor to be boring; therefore, “boring” alone is not accurate enough to be the answer.
B. There is nothing in the passage to suggest peril to the scientist
C. Like “boring,” “dirty” is not accurate enough on its own.
D. Since grunt is a slang term for a common or unskilled laborer, the phrase “grunt work” implies that scientific inquiry is boring AND dirty AND repetitive.
E. “Repetitive” on its own does not encompass all of the connotations of the labor as illustrated in the rest of the paragraph.

10. The metaphor of “a flood of colleagues [paving] roads over the path laid” (lines 49-50) suggests that subsequent researchers will
(A) forge new paths for future endeavors
(B) invent new tools for research
(C) isolate new areas for exploration
(D) reap the benefits of others’ labor
(E) venerate the pioneer for his achievements

A. The quotation suggests that others will follow an already-beaten path, not new paths.
B. While “tools” are mentioned in the previous paragraph with regard to the pioneer, the “tools” are not new for those who follow.
C. The quotation suggests that others will follow an already-beaten path; therefore, the areas for exploration are not new.
D. The clauses “pave[d] roads . . . will be orderly and straight” (lines 50-51) and “the perfect tool will be available for purchase” (lines 53-54), suggest that subsequent researchers will reap the benefits of others’ labor.
E. The metaphor suggests nothing about veneration of the pioneer.
11. Since the controlling metaphor of Barry’s passage compares the scientist to the frontiersman, the overall tone of this passage is best described as
(A) elegiac
(B) indifferent
(C) maudlin
(D) nostalgic
(E) optimistic

A. Elegiac suggests mourning for something that is lost; Barry does not lament the loss of the frontier.
B. Barry is not indifferent to the situation of the scientist.
C. There is nothing sentimental in this passage.
D. Barry is not looking back fondly to the days of the frontier.
E. The frontiersman in American myth suggests an optimistic willingness to confront the unknown.

12. The intended audience for this essay is most probably
(A) college students
(B) general readers
(C) professional historians
(D) research scientists
(E) science teachers

B. The absence of overly complex syntax, specialized terminology, and esoteric ideas indicates that the passage is intended for a general readership rather than a specialized group.