AP® PSYCHOLOGY
2015 SCORING GUIDELINES

Question 1

General Considerations

1. Answers must be presented in sentences, and sentences must be cogent enough for the student's meaning to come through. Spelling and grammatical mistakes do not reduce a student's score, but spelling must be close enough so that the reader is convinced of the word.
2. Within a point, a student will not be penalized for misinformation unless it directly contradicts correct information that would otherwise have scored the point.
3. A student can score points only if the student clearly conveys which part of the question is being answered. However, it is also possible to infer what part of the question is being answered if the response is consistent with the order of the question.
4. Rubric examples provided for each point are not exhaustive.

Part A: How might the following explain why people may easily accept the conclusion of the study?

Point 1: Confirmation bias

A student's response must indicate that people may easily accept the conclusion of the study (sugar causes hyperactivity) if the conclusion supports their previously held beliefs (e.g., if they expect that sugar would cause hyperactivity, then they will be more likely to accept the conclusion).

Examples:

Score "People will pay more attention to the results of this study because it supports what they already believe."

Do not score references to the researchers' bias.

Point 2: Availability heuristic

A student's response must illustrate that an example about sugar causing hyperactivity that readily comes to mind would lead to acceptance of the conclusion of the study (e.g., examples that "pop into mind" or are easily recalled because they are recent, vivid, or distinctive).

Note: Reference to the availability of information alone is not sufficient; a connection must be made to the immediacy of recalling it.

Example:

Do not score "They are more likely to believe it because it was on T.V."

Point 3: Misunderstanding of correlational studies

A student's response must indicate a failure to understand that correlation does not imply causation.

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Question 1 (continued)

Part B: As a follow-up study, the researchers are designing an experiment to test whether sugar causes hyperactivity. For this experiment, students were asked to accomplish the following three tasks.

Point 4: State a possible hypothesis

The student's hypothesis must include a statement of causal relationship between sugar (cause) and hyperactivity (effect). The student must indicate that something that is done with sugar (increased, decreased, given, eaten, etc.) has an effect on hyperactivity. **Exception**: When stating a null hypothesis, the student does not have to indicate that anything is done with sugar. The hypothesis can be in the form of a research question.

Examples:

Score "Sugar has no effect on hyperactivity." As mentioned above, the student does not have to indicate that anything is done with sugar when stating a null hypothesis.

Do not score references to hyperactivity causing sugar consumption.

Point 5: Operationally define the dependent variable

The student must describe how a specific indicator for hyperactivity will be measured (e.g., number of times out of a chair, times switching task, self-report scale, or any quantifiable indicator).

Example:

Do not score general descriptions of hyperactivity, such as "activity," "behavior," or "movement" as a specific measureable indicator of hyperactivity.

Point 6: Describe how random assignment can be achieved

The student's response must indicate that subjects have equal chance of being placed into groups or conditions.

Examples:

Score "equal chance" if stated or described by a specific procedure (e.g., drawing names from a hat, using a number generator/table, rolling dice) that places participants into groups by chance.

Do not score descriptions of random selection.

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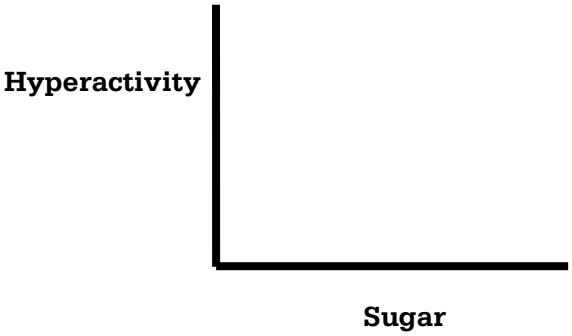
Question 1 (continued)

Part C: Graph a possible result. (2 points)

Point 7: Label the axes

To receive credit for this point, the graph must be correctly labeled with sugar on the X (horizontal) axis and hyperactivity (or a potential measurement of hyperactivity) on the Y (vertical) axis. **Note:** Students may label the X axis by using a legend.

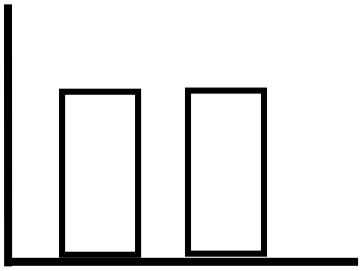
Example:



Point 8: Result on graph

To receive credit for this point, the bars on the graph must be relatively the same length.

Example:



1A 1 OF 2

After any scientific study, there is the potential for confirmation bias. Confirmation bias states that after research is conducted, people believe they knew the answer all along. This would cause people to easily accept the conclusion of the researchers. The availability heuristic states that when thinking of possible solutions or answers to a question, ideas most ~~recently thought~~ immediately thought of are used. For example, if someone had recently given their child a sugary donut and that child became antsy, and that thought first popped into the parent's head after hearing the study, he or she would be more likely to believe it. A misunderstanding of correlational studies could also contribute to widespread acceptance of the researchers' conclusion. Many believe that correlation means ~~cause~~ causation, but this is not true. Some may believe that ~~because of~~ the correlation between sugary foods and hyperactivity shows that sugar causes hyperactivity, but there could be several confounding variables associated with the correlation.

The researchers should do a follow-up experiment to test their conclusion. A possible hypothesis could be: If children ~~are expose~~ consume sugary snacks, then they will be hyperactive. The dependent variable would be the level of activity of the students, measured by the number of times they left their seats. To properly measure

Question 1 is reprinted for your convenience.

1. Researchers conducted a naturalistic study of children between the ages of 5 and 7 years. The researchers visited classrooms during class party celebrations. As a measure of hyperactivity, they recorded the number of times children left their seats. The researchers found a strong positive correlation between sugary snacks offered at the parties and hyperactivity. Based on these findings, the researchers concluded that sugar causes hyperactivity.

   A. How might the following explain why people may easily accept the conclusion of the study described above?

   - Confirmation bias
   - Availability heuristic
   - Misunderstanding of correlational studies

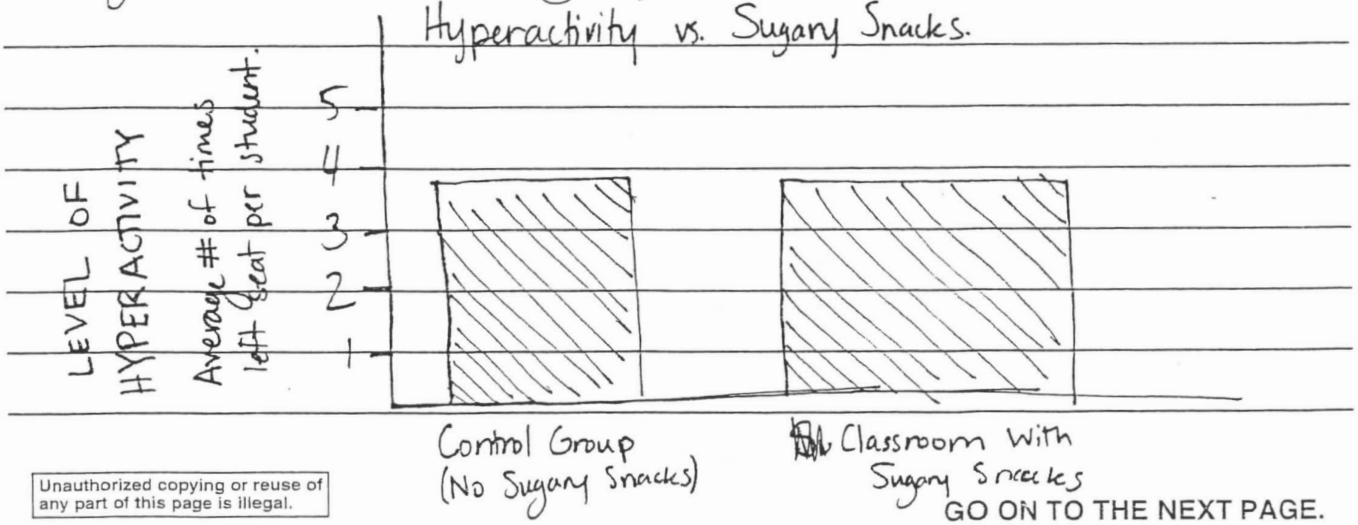
   B. As a follow-up study, the researchers are designing an experiment to test whether sugar causes hyperactivity. For the experiment, please do the following.

   - State a possible hypothesis.
   - Operationally define the dependent variable.
   - Describe how random assignment can be achieved.

   C. Based on the results of the follow-up experiment described in Part B, researchers conclude that sugar does not cause any change in hyperactivity.

   - Draw a correctly labeled bar graph depicting this result.

the hypothesis, the independent variable would have to be whether or not the class had sugary snacks. In this case, random assignment could be achieved by ordering ~~the~~ the 1st grade students at an elementary school by their last names then using a random number generator to choose half of the students to be a part of the control (with no sugary snacks). The other half of the students would be part of the group that receives sugary snacks.



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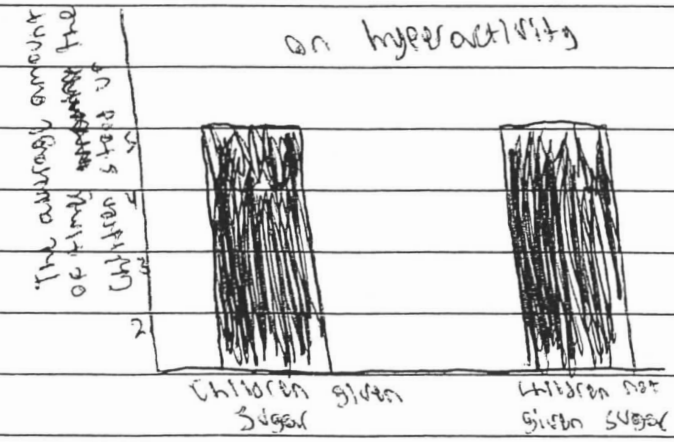
There are several things that may effect why people with except the research or not. Confirmation bias can lead people to think that just because there is data to back something up it must mean it's true. Availability heuristic can ~~keep~~ influence whether people accept the results too. Many people already know that sugar can cause kids to be more hyper so their availability heuristic can mislead them. Many people might think that because there is a correlation between sugar and hyperactivity that sugar must cause it. But correlation does not always mean causation which can lead to a misunderstanding of correlational studies.

A hypothesis for this experiment would be "If children are given sugar then they will be more hyperactive. The dependent variable of this experiment would be the hyperactivity of the children, to have the most fair representation of the population students will be picked at random from ages of five and seven.

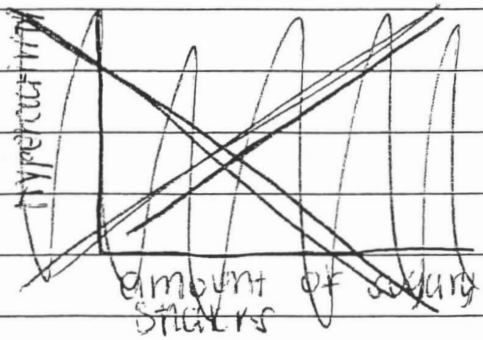


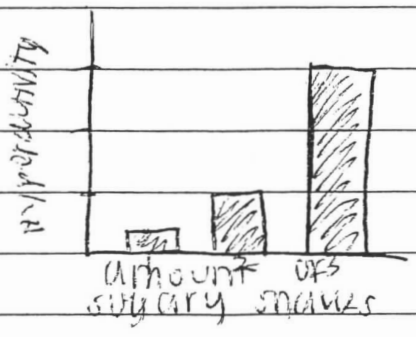
ANSWER PAGE FOR QUESTION 1

A) Confirmation bias is when one prefers the other due to certain variables. The people might have easily accepted this because its from a researcher. Availability heuristic is to make an assumption based on whats there. They only used sugar in the experiment. so they believe sugar is the cause. correlation studies are how weak or strong data is. They dont see that other factors might have played a role in this.

B) hypothesis is a theory about how something works before its tested. The more sugar one has, the more hyperactive they are. Dependent Variable is the part in the experiment that doesnt change. in this case, its hyperactivity. Random assignment is an experimental method, where the participants are unknown. puting the names of the students in a hat and drawing to see who participates is an example of this.

C)





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AP® PSYCHOLOGY
2015 SCORING COMMENTARY

Question 1

Overview

The question requires students to respond to three aspects of a study that concludes that sugar causes hyperactivity.

The question has three parts: Part A, which requires the student to show understanding of confirmation bias, availability heuristic, and misunderstanding of correlational studies, by explaining why these concepts might lead people to easily accept the conclusion of the study; Part B, which requires the student to discuss a follow-up study by stating a hypothesis, operationally defining the dependent variable, and describing the process of random assignment; and Part C, which requires the student to draw and correctly label a bar graph that depicts the conclusion of the follow up study that finds that sugar does not cause any change in hyperactivity. For all points, students must demonstrate an understanding of the concept and an ability to apply it to the appropriate context.

Sample: 1A
Score: 7

The response did not score point 1 because it does not indicate a previously held belief but instead describes a hindsight bias of believing that they knew it all along after the research is conducted. The response scored point 2 because it describes an example that is immediately thought of, and pops into mind, which makes a person more likely to accept the conclusion of the study. The response scored point 3 because it states that many people believe that correlation means causation, but that this is not true. The response scored point 4 because it states that if children consume sugary snacks, then they will be hyperactive, which indicates a causal relationship. The response scored point 5 because it defines the level of activity of the students as the number of times that they left their seats. The response scored point 6 because it discusses the use of a random number generator to assign students to groups. The response scored point 7 because the Y axis is correctly labeled with a measure of hyperactivity, and the X axis is correctly labeled with sugary snacks. The response scored point 8 because the bars on the graph are relatively the same length.

Sample: 1B
Score: 4

The response did not score point 1 because there is no indication of a previously held belief about sugar and hyperactivity. The response did not score point 2 because it does not indicate that an example that is easily recalled leads to acceptance of the conclusion. The response scored point 3 because it describes a common misunderstanding that correlation does not mean causation. The response scored point 4 because it indicates that if sugar is given, then children will be more hyperactive. The response did not score point 5 because it merely names hyperactivity as the dependent variable but does not indicate how the dependent variable will be measured. The response did not score point 6 because it describes random selection instead of random assignment, as no groups are identified. The response scored point 7 because the Y axis is correctly labeled with a measurement of hyperactivity, and the X axis is correctly labeled with sugar. The response scored point 8 because the bars on the graph are relatively the same length.

Sample: 1C
Score: 2

The response did not score point 1 because it does not describe any previously held belief that sugar causes hyperactivity. The response did not score point 2 because it does not discuss an example that readily comes to mind about sugar and hyperactivity that leads people to accept the conclusion of the study. The response

Question 1 (continued)

did not score point 3 because it only discusses correlation and does not indicate that correlation does not imply causation. The response scored point 4 because it indicates that more sugar results in an increase in hyperactivity. Increase is described in this essay by using the word "more." The response did not score point 5 because there is no indication of how hyperactivity will be measured. The response did not score point 6 because it does not explain that participants will be assigned to groups by chance. The response scored point 7 because the graph is correctly labeled with hyperactivity on the Y axis, and amount of sugary snacks on the X axis. The response did not score point 8 because the bars on the graph are not relatively the same length.