



Lesson Plan

Who'll Stop the...Snow?

SUMMARY

Rudy Giuliani, maybe? After all, he did it in New York. At least that's what he boasted during a Republican presidential primary debate in November 2007. Giuliani, who has since dropped out of the race, was clearly joking, but his spoof illustrated a serious point that good critical reasoners should keep in mind: the fact that two things happen at the same time isn't by itself reason for thinking that they are related. Giuliani's joke illustrates what logicians call a post hoc fallacy. This lesson will help students recognize – and avoid – post hoc arguments.

OBJECTIVES

In this lesson, students will:

- Learn to recognize post hoc fallacies.
- Examine an example of a post hoc fallacy delivered by a tongue-in-cheek Rudy Giuliani.
- Pick out real-world instances of post hoc fallacies.

KEY TERMS

- **Argument:** A conclusion together with the premises that support it.
- **Premise:** A reason offered as support for another claim.
- **Conclusion:** A claim that is supported by a premise.
- **Fallacy:** An argument that relies upon faulty reasoning.

BACKGROUND

As part of the campaign for the 2008 Republican presidential nomination, 8 candidates squared off in a November 28, 2007 primary debate, hosted by CNN and co-sponsored by YouTube. As part of the debate format, each candidate prepared his own YouTube-style campaign advertisement. Former New York city mayor Rudy Giuliani presented a gag video

<http://www.teachertube.com/view_video.php?viewkey=b1da387a19cc3fc572cd>

which sandwiched real accomplishments between joking references to King Kong.

Among Giuliani's joking claims: that he reduced annual snowfall in New York. Later in the debate, he noted that the Yankees had won 4 World Series during his 8 years as mayor, but had yet to win a series in the years since.

MATERIALS

1. Rudy Giuliani, "Rudy's YouTube Debate Video"
http://www.teachertube.com/view_video.php?viewkey=b1da387a19cc3fc572cd
2. Student Handout #1, "Post Hoc Fallacy Examples"

<http://factchecked.org/Downloads/LessonPlans/WhollStoptheSnow/student.handout.1.post.hoc.examples.pdf>

3. Teacher's Guide to Student Handout #1, "Post Hoc Fallacy Examples"

<http://factchecked.org/Downloads/LessonPlans/WhollStoptheSnow/teacher.handout.1.guide.post.hoc.examples.pdf>

INSTRUCTIONS

Make a copy of the teacher's guide to student handout #1 for yourself only. Make copies of student handout # 1 and pass them out at the beginning of Exercise #1.

EXERCISES

Exercise #1 – The post hoc fallacy

To the teacher: If you have completed the FactCheckED.org lesson plan Monty Python and the Quest for the Perfect Fallacy <

<http://factchecked.org/LessonPlanDetails.aspx?myId=7>>, you can point out that the post hoc fallacy is a particular type of false cause fallacy. You may find the list of common fallacies <

[http://factchecked.org/Downloads/LessonPlans/Fallacies/student.handout.common.fallacies\(2\).pdf](http://factchecked.org/Downloads/LessonPlans/Fallacies/student.handout.common.fallacies(2).pdf)> to be useful background reading.

There are lots of reasons why arguments can fail to work. Some fail because they contain a false premise (that is, because one or more of the reasons being offered in support of the claim is untrue). But some arguments fail because the conclusion does not actually follow from the premises. Consider an example:

I wore my green sweater today and found \$20 on the sidewalk. I guess my green sweater really is lucky!

If we think about this claim for just a moment, we'll realize just how silly it is. Putting on a particular sweater has, quite literally, nothing to do with what sorts of things you might happen to find on the sidewalk. The two events are not at all causally related. One event (putting on my sweater) happened before the other event (finding the \$20), but there is no reason at all for thinking that the first caused the second to happen. This is an instance of what logicians call a *post hoc, ergo proper hoc* fallacy. Literally, the phrase means, "after this, therefore because of this." In its most general form, the post hoc fallacy says:

A happened, and then B happened afterward, so A must have caused B.

Now of course not all reasoning of this form is fallacious. An obvious example:

I stepped in front of a bus, and then woke up in the hospital with broken legs. I guess the bus must have broken my legs.

Notice that this has the same form: A preceded B, so A must have caused B. But in this case, we have good reasons for thinking that A and B really are causally related. The

post hoc fallacy, then, occurs when we conclude that A caused B without having sufficient evidence for thinking that A and B are causally related.

Sometimes post hoc fallacies are easy enough to pick out: Witness this gag-video <http://www.teachertube.com/view_video.php?viewkey=b1da387a19cc3fc572cd> from Republican presidential candidate Rudy Giuliani. There Giuliani claims (tongue-in-cheek) to have reduced annual snowfall in New York city during his time as mayor. And, as it turns out, average snowfall did decline <<http://www.erh.noaa.gov/er/okx/climate/records/monthseasonsnowfall.html>> during Giuliani's terms – from 28.2 inches per year to 26.7. But, of course, it should be fairly obvious that the mayor of New York had absolutely nothing to do with that fact.

While the snowfall claim was a joke, it actually illustrates a much deeper problem. Politicians often employ post hoc fallacies in ways that are more pernicious. Consider, for example, that in that same ad, Giuliani claims to have inherited “out of control” crime and then boasts that he cut crime in half during his tenure. And crime did indeed decrease by half during Giuliani's terms. It is less clear, however, that Giuliani is responsible for that decrease. Because what he isn't telling you is that crime in New York city actually peaked <<http://bjsdata.ojp.usdoj.gov/dataonline/Search/Crime/Local/JurisbyJurisLarge.cfm?NoVariables=Y&CFID=673965&CFTOKEN=97201191>> in 1990 – four years before he became mayor, and that it already decreasing before Giuliani took office. Nor does he mention that crime declined nationwide during that same period.

Of course, crime did decline faster in New York city than it did nationwide, and it decreased more rapidly during Giuliani's term than it did prior to his term. So perhaps he deserves some credit. But how much is a matter of debate, and can really be settled only by digging more deeply into the facts. At least part of the decline may be due to simple luck. And that's something that politicians of both parties are happy to claim credit for. One can say the same thing, for instance, about the economic prosperity that coincided with Bill Clinton's two terms as president. Clinton had something to do with the boom, but most economists will tell you that it wasn't very much. He happened to be in the right place at the right time.

Divide the class into small groups of 3 - 4 students. If you have not done so already, distribute copies of student handout #1. Ask the students to determine whether each item is an instance of a post hoc fallacy or a good argument. Students should write down the reasons for the answers that they give and should try to reach some consensus within their groups. Once all the groups have finished the handout, have each group report its findings back to the class. Then go over the suggested answers in the teacher's guide. Ask students how they might best go about resolving any disputes.

Exercise #2 – Researching fallacies

To the teacher: Too often, students are under the impression that the search for fallacies is a purely academic exercise – something that one does in a classroom with Serious Arguments. But good reasoners know that fallacies – like arguments – are

everywhere, and are on the lookout for them in every facet of life. This exercise will help cement that notion in your students minds by asking them to go and find their own example of a post hoc fallacy.

Ask each student to find at least one example of a post hoc fallacy. Political ads and speeches are good places to start, but examples abound. Sports commentary is full of post hoc fallacies. So are advertisements for many commercial products (weight-loss supplements, for example). Indeed, many print advertisements are little more than giant post hoc arguments: this person drank cola A and then got invited to a really great party, so if you drink cola A, you too will go to lots of great parties. Push students to look for post hoc arguments in creative places. This part of the assignment may be done during class time (particularly if your students have Internet access) or as homework.

When students have returned with their examples, divide the class into small groups of 3-4 students. Ask each group to look at all the examples that they have found. Students should come to a consensus about whether their examples really are instances of post hoc fallacies. Have the groups report their findings back to the entire class. (As incentive, teachers might ask the students to vote for the best example of a post hoc fallacy. To prevent a complete deadlock, teachers could prohibit students from voting for their own group's entrant.)

CORRELATION TO NATIONAL STANDARDS

For a complete version of the lesson plan standards go to

<http://factchecked.org/Downloads/LessonPlans/WhollStoptheSnow/wholl.stop.snow.national.standards.pdf>

National Social Studies Standards

X. Civic Ideals and Practices

Social studies programs should include experiences that provide for the study of the ideals, principles, and practices of citizenship in a democratic republic.

Essential Skills for Social Studies

Acquiring Information

A. Reading Skills

1. Comprehension
2. Vocabulary

B. Study Skills

1. Find Information
2. Arrange Information in Usable Forms

C. Reference & Information-Search Skills

2. Special References

D. Technical Skills Unique to Electronic Devices

1. Computer

Organizing and Using Information

A. Thinking Skills

1. Classify Information

2. Interpret Information
3. Analyze Information
4. Summarize Information
5. Synthesize Information
6. Evaluate Information

B. Decision-Making Skills

C. Metacognitive Skills

Interpersonal Relationships & Social Participation

A. Personal Skills

C. Social and Political Participation Skills

Democratic Beliefs and Values

B. Freedoms of the Individual

C. Responsibilities of the Individual

National Mathematics Standards

Process Standards

Reasoning and Proof Standard

National Educational Technology Standards

Profiles for Technology Literate Students

Performance Indicators

- 2. Make informed choices among technology systems, resources, and services.
- 7. Routinely and efficiently use online information resources to meet needs for collaboration, research, publication, communication, and productivity.
- 8. Select and apply technology tools for research, information analysis, problem solving, and decision making in content learning.

Information Literacy Standards

Information Literacy

Standard 1 assesses information efficiently and effectively.

Standard 2 evaluates information critically and competently.

Standard 3 uses information accurately and creatively.

Social Responsibility

Standard 7 recognizes the importance of information to a democratic society.

Standard 8 practices ethical behavior in regard to information and information technology.

Standard 9 participates effectively in groups to pursue and generate information.

English Language Arts Standards

Standard 1 Students read a wide range of print and non-print texts to build an understanding of texts, of themselves, and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace; and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary work.

Standard 3 Students apply a wide range of strategies to comprehend, interpret, evaluate, and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies, and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).

Standard 5 Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

Standard 6 Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language, and genre to create, critique, and discuss print and non-print texts.

Standard 7 Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.

Standard 8 Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.

Standard 12 Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).

ABOUT THE AUTHOR

Joe Miller received his Ph.D. in philosophy from the University of Virginia. He is a staff writer at FactCheck.org, a project of the University of Pennsylvania's Annenberg Public Policy Center. Prior to joining FactCheck, he served as an assistant professor of philosophy at West Point and at the University of North Carolina at Pembroke, where he taught logic, critical thinking, ethics and political theory. The winner of an Outstanding Teacher award at UNC-Pembroke and an Outstanding Graduate Teaching Assistant award at the University of Virginia, Joe has more than 10 years of experience developing curriculum. He is a member of American Philosophical Association and the Association for Political Theory.