

NASA Opinion Piece Assignment

This is an opinion piece. You are to state and argue an opinion using as much evidence as possible. This paper should be about 1 to 2 pages (single-spaced) in length with 11 or 12 pt font. You can go to up to two pages, but not more. (I make an except for figures and tables. If you really think you have a great figure or table or references, you may include it on a third page.)

The final paper will be due by 8 PM on 18 Nov. You will need to turn it into a PDF and upload it to Moodle. Make sure you know how to do this well before the deadline! For your final paper, please name your file lastnameFirstnameNASA.pdf; this will help me keep the papers sorted!

A good essay should start by posing the question (and maybe explaining why it's interesting) and giving your answer. The rest of the essay should give reasons for your view, making sure to wrap up with a sentence or two at the end. Your goal is to a) convince your reader that your view is right or, failing that, b) convince the reader that your view is *reasonable*. Fiery rhetoric and insulting language might stir emotions in your existing supporters, but they also alienate people you seek to convince and who might at least agree that your view is reasonable, even if they disagree. As such, the best arguments use quantitative reasoning (use actual numbers and avoid weasel words like "many"), start from agreed-upon facts as much as possible, and also acknowledge their own weaknesses.

I am particularly interested in how you arrived at your answer. Spelling and grammar will count as part of clarity, but minor errors will not cost you points. The goal of this op-ed is for you to learn how to make a good argument based on observations, data, and well-tested theories. This skill is valuable not only in the sciences, but also in many areas of life and is (if I may editorialize a bit) generally lacking in many aspects of our public discourses. Hopefully, you can help change that!

What makes a good essay?

- Start with facts, not opinion — An argument based entirely on opinion (while valid in many contexts) leaves little room for people to be persuaded. Either they agree with you or they do not. So build a case starting with verified information that everyone can agree and then show your logic going from there to your conclusion. Even if people don't agree with your result, they can appreciate your reasons.
- Be specific and quantitative — Wherever possible, look up numbers to back up your claims and use specific examples/details. You don't have to find all of the relevant numbers (some might not even exist), but if you can even find a proxy value that often helps. Just be sure to note when you're estimating or using a "close, but not quite" value. Also: avoid "weasel-words" like "many", "most", "lots", and "a few". These words have their place, but if you can easily find numbers to replace them, it strengthens your case. (Conversely, overuse of weasel-words can make you look ill-informed and/or deceitful.)
- State your thesis (in this case, the action you're arguing for) as early as you can — as a reader, I always find it very helpful to know what the writer is trying to say early on. This lets me evaluate the entire piece in context. Be kind and help the reader out.
- Consider your audience — In this case, pretend you're writing for a magazine, trying to convince your fellow citizens (not necessarily scientists, classmates, or especially not me) of your view. Bear in mind what they're likely to know and not know.
- Consider your audience II — In addition to consider what your audience knows, consider what they believe or what other opinion writers may argue. It is often useful to set up such pieces as, "You may believe X, but I believe Y; here's why," or "My colleague is arguing X, but I want to consider Y." If you don't feel that such a clear argument to push back against exists, however, this technique is not useful.

The Question

NASA is planning it's next set of missions and they have asked you — yes, YOU — to help them select a target. They are looking at perhaps multiple missions, but they want to know what single place you would send a robotic probe.

Things to consider, although you needn't address them all:

- Scientific value: what science return will we get?
- Novelty: you get more "bang for your buck" if you send a probe somewhere unexplored or poorly explored.
- Cost: some targets are easier to get to and therefore cost less. Also, missions with few instruments (and thus very focused on one aspect of the body, like the atmospheric loss processes) are much cheaper.
- Time: nearer targets are also easier to get to, thus saving money and avoiding having the researchers all die before the mission really gets going.
- Public Interest: NASA is a public agency and, as such, likes to excite the public imagination. While it's possible to create interest anywhere, it's easier if there's an easy hook to interest the public.

Rubric

Aspect	Points	Poor	Good	Excellent
Thesis and Clarity of Argument	20	No thesis is readily apparent or thesis is vague. Argument is unclear and hard to follow	Thesis is apparent, but definition may need refinement. Argument is evident, but needs tightening	Clear thesis and argument and both are well-defined and easy to follow
Supporting evidence or examples	10	Little specific, relevant evidence is given	Some specific evidence is given which may not be entirely relevant	Ample evidence is given and it is relevant
Writing Style and Flow of Paper	20	Structure is haphazard and style is awkward	A clear flow exists, but transitions between arguments could be made clearer or smoother. Style is good, but room for improvement exists.	Flow is smooth and transitions feel natural and are clearly made. Style is engaging and solid.

Grammar

+1 0 -1 -2 -3 -4 -5
Distracts from the paper →

Factual Accuracy

+1 0 -1 -2 -3 -4 -5
Misinforms →