

Airplane Presentation

AP Physics 2/Fluids/grades 11-12

Materials: Students will need access to the class Moodle, to their Google Drive, and to the internet.

The teacher will need a computer with internet access hooked up to a projector and enough paper copies of the [grading rubric](#) for each student.

Instructions for the teacher: This assignment has each student select a specific type of airplane, research the plane, and present their findings to the class. Flight is covered in the unit on fluids. This presentation should be assigned either while aerodynamics is being covered in class or just afterwards.

- To introduce this project, I have students name some airplanes, such as the Concorde, the Airbus 380, the F-14 Tomcat. I then ask if these planes all look the same. The answer is, of course, no. They have different purposes and were therefore designed differently.
- I then display the [presentation instructions](#) on the board using a projector. Students can access the instructions through the class Moodle but a link could be provided on the teacher/class website instead. The instructions can also be found on page 3 of this document.
- I go over the instructions, and answer any questions. Each student is expected to research a different airplane. Students will sign up for a specific plane using a Google spreadsheet created for this purpose. The students can access the [Airplane Sign-Up Spreadsheet](#) through a link on the Moodle (or teacher website).
- Students then have two weeks to research their plane and create their Google Presentation. Students are expected to complete this assignment outside of class.
- Students must submit their Google Presentation through the Moodle before class on presentation day.
- Presentation order is determined first by volunteers, then by the drawing of names. All students are expected to be ready to present on the first day of presentations.
- The presentations are then graded according to the [grading rubric](#) which students can also view through a link on the Moodle. The rubric is also given on page 4 of this document. For presentations, I like paper rubrics so that I can write comments as the student is speaking, but an online rubric could be created either on the Moodle or using Google Forms.

Resources: Students will be doing the research themselves, but here are a few good general sites for them to consider.

- [How Stuff Works](#) : This site has articles on many different (though not all) types of aircraft. Additional links are given at the end of an article which can be of use.
- [Boeing](#): Boeing provides a comprehensive site about commercial airplanes.
- [The Aviation History Online Museum](#): Pretty much as it sounds, this site contains articles, videos, and pages for most aircraft. It is a great resource for students who have no idea what plane they want to research.



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Standards: This assignment addresses the following standards for AP Physics 2 as written by the College Board. The standards can be found in the [AP Physics 2 course description](#).

- Big idea 3: The interactions of an object with other objects can be described by forces.
- Big idea 4: Interactions between systems can result in changes in those systems.
- Big idea 5: Changes that occur as a result of interactions are constrained by conservation laws.
- Science practice 6: The student can work with scientific explanations and theories.
- Science practice 7: The student is able to connect and relate knowledge across various scales, concepts, and representations in and across domains.



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AP Physics 2

Airplane Presentation

We've spent some time studying the physics behind flight. Now is your chance to look at the practical applications in the form of man-made machines commonly referred to as airplanes.

You will choose and research a specific airplane. Since we don't want to hear 20 presentations on the same plane, each person must choose a different plane. Selections are on a first-come/first-serve basis. Visit the [Airplane Presentation Sign-Up form](#) to make your selection. If you have any questions or need some ideas, please see me.

You will then present your findings to the class. Presentations should include the following:

- Inventor/when invented
- Purpose—why was this particular plane invented? Is it for warfare or crop dusting or transportation of cargo?
- Physics behind the design—how does the design of the plane allow it to achieve its purpose? (Why is one plane a stealth plane while another is used for supersonic travel?)
- Cost to manufacture
- Other info--include anything you find interesting or relevant about this plane.
- A visual aide in the form of a Google Presentation. Remember that the Google Presentation is supplemental and should not be overcrowded with information. We should be able to clearly read each slide from the back of the room. You should not read directly from the slide show (or from your notes for that matter). The quality of the Google Presentation is far more important than the length but for those of you that need a number, you need a minimum of 5 slides, including a title slide and a references slide. Be sure to give credit for all photos used in the presentation.
- Keep track of your references (remember to use quality sources and not just any old website you find). Compile your references in APA format on the last slide of your Google Presentation.

You can view the [grading rubric](#) on the Moodle. It is a good idea to look over the [grading rubric](#) before presentation day to make sure you haven't missed any items.

- Everyone should be ready to present on presentation day. Order of presentations will be volunteers first, followed by drawing names at random.
- Before class on presentation day, you must submit your Google Presentation on the Moodle.
- As for the length of the presentation itself (ie. how long you have to stand in front of the class), again, quality is more important than quantity. Let's shoot for around 5 minutes, but no more than 10 minutes.
- Be prepared to answer questions from your classmates and instructor.



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AP Physics 2

Airplane Presentation Grading Rubric

Content:

- Inventor/when invented
- Purpose—why was this particular plane invented? Is it for warfare or crop dusting or transportation of cargo?
- Physics behind the design—how does the design of the plane allow it to achieve its purpose? (Why is one plane a stealth plane while another is used for supersonic travel?)
- Cost to manufacture
- Other info--include anything you find interesting or relevant about this plane.

_____ out of 25 pts

Google Presentation:

- Submitted on Moodle BEFORE class (5 pts)
- Quality of Presentation (5 pts)
 - Slides are legible even from back of room
 - Neatly organized
 - Logical flow
 - Visually interesting
- References (10 pts)
 - APA format
 - relevant sources
- Photos with credits (5 pts)

_____ out of 25 pts

Presentation:

- Time (not too brief nor overly long) (5 pts)
- Logical sequence and flow (5 pts)
- Clarity of speaking (volume, enunciation, etc.) (5 pts)
- Eye Contact (presenter does not read directly from notes/Google Presentation) (5 pts)
- Ability to answer questions (5 pts)

_____ out of 25 pts

Comments:



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Final score: _____ out of 75 pts



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