

Application of Additive Manufacturing

This is a WRITTEN assignment that counts toward the C1 (Physical) competency and the C2 (Software) competency. I recognize that there are students in all different grades and levels of English class - I expect grade-level appropriate writing for YOU.

Your task is to identify and discuss at least one type of additive manufacturing that goes beyond the usual idea of 3D printing something plastic. First, you might find out "What is additive manufacturing? How is it different from traditional / subtractive manufacturing, as might be done with a CNC machine?" Back in the dark ages when Ms Armour first started teaching at PMHS, our engineering program had a CNC machine, but no one had ever heard of "3D Printing." In just a few short years, 3D Printing has revolutionized the way we create things!!!

Consider the possible topics! Concrete houses! Metal parts for cars, rockets, nuclear reactors! Prosthetics! LIVING Tissue! FOOD that we can eat (not just pretty chocolates)! Wooden parts! Ceramics/pottery! Buildings on the Moon / Mars! There are many resources in Google Classroom - consider scanning some of those articles for a starting point.

Identify at least TWO good sources that discuss your chosen application. A good source is one that YOU can read and understand. One might be a sales site, but at least one should be a more objective source.

Conference with Ms Armour: Meet with Ms Armour for a short conference AFTER you have found and read at least two sources, but BEFORE you get into writing. Be prepared to TALK about your thoughts on each of the paragraphs outlined below. (You might **also** check in with Ms Armour when you first start to make sure your general topic/application is OK. The more experienced and skilled writer you are, the more you might adjust the outline, ask additional questions, etc...) If your conference demonstrates a lack of understanding of the content, you may need to do an additional conference. A huge part of your grade is based on this conference, not the physical written paper.

OUTLINE / Write

Intro paragraph: Your thesis/claim statement should be something like "[*Insert application here*] is a [*insert adjective - interesting/novel/cool/unique...*] application of additive manufacturing.

First paragraph: What is additive manufacturing?

Second paragraph: Describe your chosen application. What is being printed? What kind of printer? What is the "filament"? Where is it printed and by whom? Who uses what is printed, and how?

Third paragraph: What are the pros/cons of manufacturing this product in this way? What makes it [*interesting/novel/cool/unique...whatever adjective you used*] ?

Conclusion: Summarize and connect to the future - what might this application look like in another five years?

VISUALS: When is the last time you saw a written work that didn't have any photos? (Be sure to cite and caption these! Add them to your paper where it makes sense, not all at the end! WRAP the text around them.)

Works Cited: Be sure to cite your sources appropriately, but I expect clickable links. If you actually use a paper / non-Internet source, I may ask to see it, as it's probably pretty interesting! Remember that you cite sources that give you unique information, not just sources that you quote.

Final Product: Remember that this course also earns ICT credit. Set your font to size 10 comic sans, not the default. Set your margins to 1.0 inches on the left & bottom, but 0.5 inches on the right and top. Add a footer that includes your name and class period. Ensure that text wraps around your appropriately sized and placed visuals. Create a folder in My Drive called "3D printing [your name]." Move the file to the folder, and name the file "[Your Name] - [Your Application]." Share the folder to Ms Armour, with edit access and a notification message sent. Export your document as a pdf. Email it as an attachment to Ms Armour.

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C1 Physical (Applications)	I have done exceptional research, or researched multiple applications	I can explain the difference between additive and subtractive manufacturing I can explain at least one application of 3D printing that goes beyond printing in plastic, including describing the printer, filament, where & how the product is used, pros and cons of making it this way.	I have the general idea of my chosen application, but I am not yet showing understanding of all the pieces.	I can identify some different kinds of 3D printing
C2 Drawing/Software	I'm exceeding the tech specifications	I'm meeting the "tech specs:" I have located appropriate sources I changed the font & margins I added a footer with the appropriate information I have added visuals and appropriately wrapped text in the doc around them I have put the document into the right google drive location, and named and shared it correctly. I have downloaded the doc as a pdf, and emailed it as an attachment	I need multiple corrections to meet all the tech requirements.	I can "type up" my work in Google Docs.