7 Things about 3D Printing

1 - What is it?

3D Printing is a new, innovative way to create prototypes and design 3d files to be printed with plastic filament, and to help visualize different concepts by printing an object. By using plastic material called filament allows for objects to be printed, things ranging from personally designed files to customized tools for special projects and machines.

2 - How does it work?

The printer requires a filament of some sort as the printing material, and PLA (Polylactic Acid) plastic is a common choice for printers. So the plastic filament is distributed to the heated nozzle attached to the machine, and then extruded in a certain design that is chosen by a computer program that takes a 3d file, and 'slices' the design, to allow for it to be printed. Once it extrudes from the nozzle, the filament begins to cool to allow for a solid base to be built for each filament layer to be laid on top of the previous level.

3 - Who's doing it?

3D Printers can primarily be found in makerspaces, and in different companies that specialize in creating prototypes for clients or corporations. 3D Printing is also turning into a specialized hobby, which allows for 3d printers to be found in a home setting, which could be utilized for printing tools, or anything of the sort. Some construction companies are starting to experiment with new ways of constructing with 3D Printers, and if it's possible to use a concrete-like substance to create and build housing or shelters in areas that may have experienced problems with natural disasters or anything along that line.

4 - Why is it significant?

This technology would allow for a new unconventional take to allow for a bigger demographic to utilize different Computer Aided Designs (CAD) and see the real, physical product. It is a huge step forward for new ways to address certain needs that are presented by engineers, construction workers, or people who are looking for simple solutions in their everyday lives. People are able to buy their own personal 3D Printers, and that has opened the pathway for different opportunities to create and share designs with others, and create this new technology into a specialized hobby.

5 - What are the downsides?

Some of the downsides focus on the expensive aspects of the printer. Since printers require a constant feed of filament to print, that is an operational cost. Since this is also a fairly new practice, maintenance on the printers can be quite time-consuming, and can cause a slowdown on the efficiency of the printing. The speed and efficiency of the printers aren't at a high enough speed to allow this to be a widespread hobby at home, or for this to be used on a widescale. Many different files and prototypes can range from 1 hour to 10 hours, and it just depends on the file and how complex the file might be.

6 - Where is it going?

3D Printers are now being built to use various forms of filament to create new designs. Some examples of new forms of printing filament would be stretchy plastic, dishwasher safe plastic, concrete mixture for construction 3d printers, and even unconventional material like chocolate! This would allow for niche markets to open up for different fields of work like medical needs, construction, or to better advance the technology for engineering, or anything of the like.

7 - What are the implications for higher education?

Some of the implications for higher education would address the need for prototypes of files designed by the students that are connected to projects that are primarily in STEM. Visual devices can be presented in classrooms to allow for visual and kinesthetic learners to better understand the concepts that are introduced in the classroom. 3D Printing can also lend itself to explaining the creative process that's needed to fully create a product. For example, a classroom or an individual student would be presented a problem that needs a real-life solution, and then would be tasked with brainstorming, and using the printing process as guideline to use it to provide a 3D representation of the devices that they create.