

Three-Dimensional Printing

I chose the art form of three-dimensional (3D) printing. 3D printing occurs when a three dimensional object is created using a computer program or digital file. Once the file is sent to the printer, the building process is started. In order to create the object, a machine lays thin layers of material, usually plastic, on top of each other to create a self-standing object. The reason why I decided to choose 3D printing as an art form to use is because I have always been interested in this art form and have pushed for my district to purchase some 3D printers at the elementary level so that I may start teaching my classes the process and computer programs that accompany this form.

Currently, I teach my third to fifth graders about the Sphero SPRK+ robot and how to program it to move autonomously. The culminating project of the SPRK+ robot is to have groups program it to move through a maze successfully. When asked to incorporate an art form into this challenge, I had thought about each group of students creating an area map of somewhere that is meaningful to them through drawing. After looking at the various art forms, I thought that I could make this activity more effective by incorporating drawing and 3D printing into the maze challenge. Instead of just having the student groups draw the area map, the students could 3D print some of the buildings and/or structures that can be found on the map. This would allow me to introduce the form of 3D printing, the process, and how it is used in many different areas of the world for good and productive tasks. Now, not only will students be learning how to code the SPRK+ robot to move autonomously through the maze the students designed, but they are also learning about Tinkercad and the 3D printing process in order to create 3D objects to place on their map.

I feel that 3D printing can be used across the curriculum. Once students understand the “how” of 3D printing and can run the Tinkercad program successfully, the ideas for using the printer are endless! When I was a reading teacher, my students would read *Percy Jackson and the Lightning Thief*. Students discussed how important Zeus’s lightning bolt was and how it

needed to be found. As a culminating event to this novel study, students could utilize the 3D printer to each design and print Zeus's lightning bolt. If students are studying angles in math class, they can 3D print a mini protractor that can help them measure angles. The same goes for the other core subjects found at the elementary level. Classes who study the solar system could 3D print the planets so students are able to see the relative size of the Earth compared to all of the other planets and while in social studies, students could 3D print a statue or other historical object that they are studying or researching. Each one of these activities would involve what I teach in my STEM lab because students would need to learn how to use the program associated with the 3D printer which would be something I instruct in my classes.

References

What is 3D printing? How does a 3D printer work? Learn 3D printing. (2020, March 27).

Retrieved May 31, 2020, from <https://3dprinting.com/what-is-3d-printing/>

