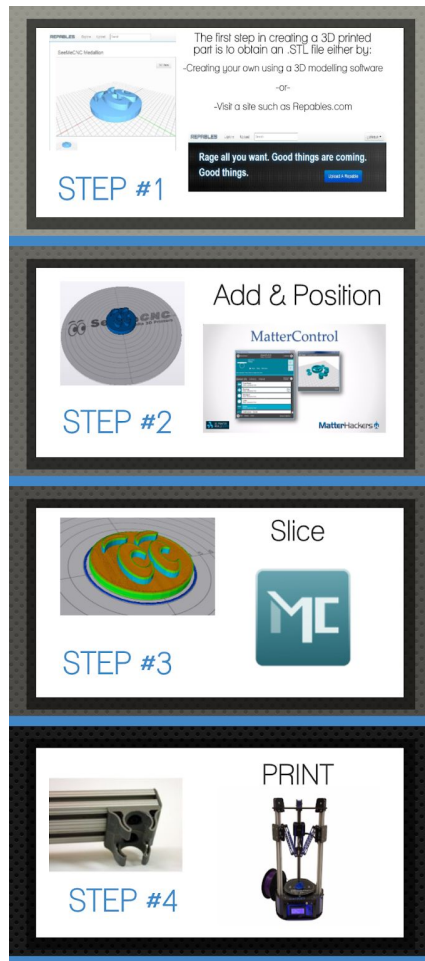


The Curriculum You Desire To Get Started 3D Printing In Your Classroom



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Created By: JJ Johnson

Forward

My name is JJ Johnson, and I was formerly an engineering technology teacher at Goshen High School, in the hometown of SeeMeCNC. Lets just say that I have been interested in 3D printing for a while, ever since it was first introduced to me as a student at Ball State University during my undergrad in 2004. It was just fascinating to me that you could take a file, put it in a machine, and the machine would spit out your part. I spent my first six years begging my administrators to find the funding to bring this awe inspiring technology to my classroom, but budget constraints always seemed to get in the way. It didn't help that the availability consisted of \$15-30 thousand dollar machines.

One day though I saw a poster hung at a local 7-11 gas station, advertising 3D printers for sale for less than \$1,000. From there its all history, administration signed the check the next day and I spent my summer building the H-1 model 3D Printer from SeeMeCNC. A year and a half later, I now own two of my own printers from SeeMeCNC and the school is now up to four.

Why would anyone or any school need so many 3D printers you may ask? It's simple, they motivate, captivate, and unleash the creative possibilities that our students are yearning for. When a student has a 3D model on the computer its neat. When they print their design and hold it in their hands, manipulate it, find its strengths and weaknesses, well thats just incredible. 3D printing has become a powerful tool in all of my classes from construction to design, engineering principles to a project we compete in called the Shell Eco-Marathon. It can be a powerful tool for you too.

I have put this educational curriculum together thinking of you, the beginner. No, we're not going to start out printing fully assembled working models with threaded features and the whole gamut (by the way, it can be done). Rather the curriculum covers the information you and your students need to get started with the Orion or Rostock Max 3D printer. You will find ready to use Google Presentations, activities, projects and all of the required files to get you started. The curriculum is extremely flexible, capable of being implements in traditional and block schedules, and adaptable for classes of all varying sizes. Review the information provided and decide what fits your classrooms needs best.

I highly recommend trying out the course on Canvas, a free learning management solution that I use with my students. Its free, easy to setup and use, and best of all can be accessed by you and your students anywhere, anytime. It is important to note as well, that I wish to continue developing curricular resources for teachers like you interested in bring the potential of 3D printing front and center for your students. However, if your are not interested in Canvas, **all of the curricular tools are below, just click on the hyperlinks.**



Resources

Forums

[3D Printing Forum for Teachers and Users of SeeMeCNC Products](#)

Video Tutorials - [SeeMeEducate YouTube Channel](#)

[Unboxing and Setup of the Orion Delta 3D Printer](#)

[Calibrating the Orion Delta's Z Height](#)

[Preparing the Glass Print Plate](#)

Documentation

[3D Printing Glossary of Terms](#)

[3D Printing Lab Report](#)

[Printable Orion / Rostock Max Process Overview Poster](#)

[Printable Pre-Print Checklist Poster](#)

3D Printing Supplies

[SeeMeCNC](#)

MatterControl

[Getting Started](#)

[Installing the RAMBO Driver](#)

[Viewing and Modifying Parts](#)

[Layer-By-Layer Previewing](#)

[Slice Settings Explained](#)

[MatterHackers 3D Printing FAQ](#)

[How to Customize Printing Presets](#)

[How to Use Text Creator](#)

3D Printables

[Repables](#)

[Smithsonian X 3D](#)

Software

MatterControl ([Windows Download](#))

MatterControl ([MacOSX Download](#))

[Repetier-Host](#)

[Netfabb Basic](#)

[Autodesk Meshmixer](#)

[Tinkercad](#)



Additional Resources

[Slic3r Manual](#)

Module 1

Module Overview & Objectives

Reading: [What is 3D Printing?](#)

Lesson 1: [Introduction to 3D Printing](#)

Discussing Positives and Negatives: All technology can be viewed as having both good and bad impacts. Have a class discussion around positive and negative impact of 3D printing technologies.

Lesson 2: [The 3D Printing Process](#)

Lesson 3: [Anatomy of the Orion Delta Printer](#)

[3D Printing Safety](#)

[Safety Quiz \(Kahoot\)](#)

Module 2

Lesson 1

Overview & Objectives: [User Interface](#)

Fundamentals of MatterControl

-MatterControl V1.1 [The User Interface](#)

Fundamentals of Repetier-Host:

- Repetier-Host V.90C [The User Interface](#) (Presentation)

- Repetier-Host **V1.0.3 (Newest)** [The User Interface](#) (Presentation)

Activity 1: [SeeMe Dog Tag](#)

Lesson 2: [Object Placement](#)

Fundamentals of Repetier-Host: [Object Placement](#)

Activity 2: [Practicing Object Placement](#)

Lesson 3: [Slicer for Beginners](#)

Fundamentals of Repetier-Host: [Slicer for Beginners](#)

Activity 3: [Creating Your Own Custom Slicer Configuration File](#)

Activity 4: [Printing Infill Samples](#)

Activity 5: [Printing Parts Requiring Support](#)

Activity 6: [The Difference in Layer Height](#)

Projects

[Iris Container](#)

[Sample Infill Disc Display](#)

Cooperative Education

[3D Printed Bridges](#) ***Added 3/12/14***



Integration of 3D Printing in Understanding Objects and Prints

[Module Overview](#)

[Understanding Drawing Information](#)

Printing Reading Exercise 1

[Print Reading 1: Print](#)

[Print Reading 1: Worksheet](#)

[Print Reading 1: .STL File](#)

Printing Reading Exercise 2

[Print Reading 2: Print](#)

[Print Reading 2: Worksheet](#)

[Print Reading 2: .STL File](#)

Printing Reading Exercise 3

[Print Reading 3: Print](#)

[Print Reading 3: Worksheet](#)

[Print Reading 3: .STL File](#)

[Print Reading 3: .STL File Right](#)

[Print Reading 3: .STL File Left](#)

Printing Reading Exercise 4

[Print Reading 4: Print](#)

[Print Reading 4: Worksheet](#)

[Print Reading 4: .STL File](#)

Printing Reading Exercise 5

[Print Reading 5: Print](#)

[Print Reading 5: Worksheet](#)

[Print Reading 5: .STL File](#)

Printing Reading Exercise 6



[Print Reading 6: Print](#)

[Print Reading 6: Worksheet](#)

[Print Reading 6: .STL File](#)

