

3D Educational Services

Teaching essential 3D skills in K-12 classroom

Proposal for building 3D Printer Workshop

The teaching of 3D skills in our schools has shown to generate interest in STEM subjects and supplement the math and science skills that are crucial for building the future STEM workforce. This course attempts to provide the basic foundation for the 3D skills while engaging the students in hands-on maker activities.

Objective of the Workshop

Our vision is to prepare our youth for future success in a high-tech economy. This workshop is intended to train teachers and other educators in 3D technology including 3D modeling and 3D printing. In the first part of the workshop each participant will build and test their own 3D printer for use in their classroom. In the second part the participants will learn to design and print their own 3D objects.

To this end, we plan to organize on-going educator opportunities to promote continued development of 3D knowledge and skills.

Benefits of the Workshops

Participants will each build a fully functional 3D Printer to retain-and-use. They will leave with beginner skills in 3D Design tools as well as practical knowledge in using and maintaining the 3D printers. In addition to the ability to create their own original objects, they will also be provided with example projects for classrooms from K to 12 and helpful resources to find large libraries comprising more than a million objects.

Participants will also have access to our expanding community of educators to share lesson plans, techniques and tools.

Note: These workshops do not provide a full 3D curriculum lesson plan. Since 3D technology may apply to and can be used in almost any subject at any grade level for any standard, such a body of work does not exist and cannot be supplied.

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Workshop Agenda

3D Printing Professional Development Program options for Educators

Option 1: Workshop for 3DES Delta 3D Printer build (3 days)

Build your printer from a kit of parts, test, take to classroom

Option 2: Hands-on Workshop for 3D Technology (2 days)

Learn how 3D geometry is represented as computer files (.stl), how these files are processed for printing (slicing and G-code), 3D Workflow, Design tools, Print preparation tools, WWW resource guide, 3D model libraries on-line, Hands-on practice of workflow and printer operation, 'Cool' classroom lessons.*

Day 1 – Objectives and preview of the build process; Start printer assembly

Day 2 – Complete mechanical assembly and continue electronic assembly

Day 3 – Power up and initial testing. Calibrate the printer. Print first object

Day 4 – Computer representation of 3D Models, workflow: design – slice – print.

Introduction to slicer and printer control software. Introduction to Tinkercad/OpenSCAD and design original object. Prepare object for printing.

Day 5 – Begin printing of original objects, discussion of libraries, more advanced tools, complete printing of original objects and feedback by classmates.

