Ultimaker

STEAM Lessons Overview

As teachers, we want learning environments and activities that engage and challenge our students. We want to tap into their curiosity, inspire them to see connections between ideas and information and have them use their understanding to creatively problem solve with independence. Our objective is to instill a love of learning, so that they can think critically, communicate effectively, persevere, be intrinsically motivated, be responsible for their own learning outcomes, and find joy in the process.

Whether you teach K12, Higher Ed, or work in an informal learning environment, integrating 3D Printing into your teaching practice will help you meet the following objectives:

- Encourage students to be more responsible for their own learning outcomes, or put another way, support personal student exploration in the pursuit of a learning objective.
- Provide powerful learning aids, like Design Thinking techniques.
- Build cooperative learning opportunities.
- Build resiliency by taking advantage of rapid prototyping and testing techniques.
- Develop communication skills through continuous documentation and sharing.

Lesson Contents

Class defined as one ~45 min session.

Recommended age range 10+

Category: Beginner lessons

Tags: 3D CAD, 3D printing, 3D printed, beginners, design, education

Key Lesson Objectives	1	2	3	4	5	6	7	8
Produce a digital model	✓	✓	✓	✓	✓	✓	✓	✓
Design and measure with precision	✓		✓		✓		✓	✓
Demonstrate how to align objects	✓	✓	✓	✓			✓	✓
Understand and execute boolean operations	✓	✓	✓	✓	✓		✓	✓
Prepare a model for 3D printing	✓	✓	✓	✓	✓	✓	✓	✓
Modify print job with Cura plugins	✓							
Employ tolerances and offsets		✓						✓
Experiment, generate solutions, and solve problems			✓	✓		✓		✓
Produce a 3D model from a 2D design			✓			✓		
Understand geometry and geometry transformations					✓			✓
Understand and incorporate components							✓	✓

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