BRINGING 3D MODELING INTO SECONDARY EDUCATION

Autodesk has developed a collection of five simple 3D modeling applications aimed for prominence in the consumer computer-aided design software market. They are interoperable and can post content to a shared 123D online community.

123D SCULPT
Morph, deform, and stylize a digital ball of clay.

123D CATCH
Make a 3D model of a real-life object by taking a series of photographs.

123D MAKE
Convert virtual solid models to 3D prototypes using cardboard slices or origami paper.

123D CREATURE
Create a freestyle character using tools similar to those in 123D Sculpt and Design.

123D DESIGN
Design a simple virtual model using scaling primitive shapes and predrawn bodies.

Our Mission
Design a solution that enhances the experience of secondary school students using the 123D software.

Our Solution: TechBits
TechBits are a series of individually-packaged design activities for secondary students. TechBits are small projects designed to empower students to move from ideas to real, physical solutions in their lives by designing with CAD and prototyping physical models. TechBits can be used in core STEM classes, elsewhere at school, or in extracurricular contexts. Having designed TechBits with teachers in mind, we recognize that a champion teacher who is passionate about STEM and design education is the key to successful delivery of the TechBit content.

Objectives of TechBits
- Empower Students
- Accordion Learning Styles
- Be Simple & Adaptable
- Leverage Social Community
- Allow Educators to Learn New Skills
- Test of TechBits

Example TechBits
PERSONALIZED 3-D STAMPS
The TechBit tasks students to make a series of 3D designs. The designs can be used to create or print out designs.

EXPLORING VOLUME BY DISPLACEMENT
Students learn to use computer-aided designed models to explore the idea of volume. This uses a 3D model and the ability to design and explore the models.

MAKING A 3-D SCRAPBOOK
With the help of an iPhone or iPad, students create a 3D model of a scrapbook using 123D Catch. The tech is simple and can be used to capture or create a 3D scrapbook or similar experience.

Collaborative Digital Sculpting
In this TechBit, teachers and students will use the 3D tools to make collaborative work and explore the use of 3D modeling in a collaborative setting.

What Makes a Good TechBit?
- Scalability
  - Interesting to students
  - Materials are provided
  - Interactive & engaging
- Content
  - Title, duration, and result
  - Goals, learning objectives
  - Materials and tools
  - Instructions and examples
- Accessibility
  - Future proof
  - Learning objectives stated
  - Gaters to different durations and complexities

We believe that Autodesk has the potential to successfully address the need for STEAM education in secondary schools. We aim to increase the adoption of Autodesk products among secondary school students, including excitement and encouraging students to explore and engage in engineering design. This goal, however, will be approached from diverse avenues – literature, sports, arts – with the intent of capturing students who may not otherwise be exposed to engineering. Exposure is an important task, as it is the first step to adoption. We aim to localize this behavioral change by keeping student participation and engaging learning capacity of students.