123D Sculpt Ipad App Review

Reviewed By: Scott VanKurin

Center Moriches School District

Grade: 9-12

Subject: Technology Education

Standards: ITEA Standards

- Standard 1: Students will develop an understanding of the characteristics and scope of technology.
- Standard 2: Students will develop an understanding of the core concepts of technology.
- Standard 3: Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.
- Standard 6: Students will develop an understanding of the role of society in the development and use of technology.
- Standard 8: Students will develop an understanding of the attributes of design.
- Standard 9: Students will develop an understanding of engineering design.
- Standard 10: Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.
- Standard 11: Students will develop abilities to apply the design process.
- Standard 12: Students will develop abilities to use and maintain technological products and systems.
- Standard 19: Students will develop an understanding of and be able to select and use manufacturing technologies.

MST Standard 5

- 5.1 Engineering design is an iterative process involving modeling and optimization used to develop technological solutions to problems within given constraints.
- 5.3 Computers, as tools for design, modeling, information processing, communication, and system control, have greatly increased human productivity and knowledge.

Common Core

CCSS.ELA-Literacy.RST.9-10.3
Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.

CCSS.ELA-Literacy.RST.9-10.4
Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 9-10 texts and topics*.

CCSS.ELA-Literacy.RST.9-10.5
Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., *force, friction, reaction force, energy*).

CCSS.ELA-Literacy.RST.9-10.10
By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.

CCSS.ELA-Literacy.RST.11-12.3
Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

CCSS.ELA-Literacy.RST.11-12.4
Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 11-12 texts and topics*.

CCSS.ELA-Literacy.RST.11-12.10
By the end of grade 12, read and comprehend science/technical texts in the grades 11-CCR text complexity band independently and proficiently.

Location: 123D Sculpt is available through iTunes - This app is free

Description: Our students will be graduating into a world that is becoming more and more dependent on electronics. Our society is finding ways to use computers programs to improve the cost, efficiency, and quality of our products and services. It is of the upmost importance that our students become technologically literate, so they can compete in a world of virtual models, computer aided designing and CNC technologies such as 3D printing.

123D Sculpt is part of a collection of 123D Apps made by Autodesk including 123D Creature, 123D Design, 123D Make, and 123D Catch.

123D Sculpt is an artistic designing tool that allows users to take advantage of the touch screen to manipulate virtual clay. Unlike other engineering based software on the market, the theories and methods for creating a virtual 3D model is very organic, where

measurements of distances and angles are not necessary. Instead the software provides different kinds of brushes that allow the user mold the clay into a desired shape.

The students start by choosing what shape they want their clay to start with. They can choose from typical geometric shapes, or pre made creatures or objects. They can then modify the start shape into whatever they want. The software has a great built in tutorial, with a noninvasive description of each tool that pops up every time you change tools. Each tool can be further defined with sliders that let you choose the "Size" and "Strength" of the brush. For new users I recommend making the brush as small and as strong as you can to help you visualize and understand how the tools works. The tools available include pull out, layer up, push in, smooth, sharpen, flatten, inflate, deform, paint, and image transfer. Image transfer is a cool feature that allows the user to choose from a library of pictures and textures that can be transferred onto you creation such as feathers, skin, eyes, metals, patterns, plants, etc. The last feature allows the user to mirror their actions, whatever tool you use on the left side, will happen exactly the same on the right side.

Like all the other 123D apps, creations made in 123D Sculpt can be exported to an stl file, emailed, and then printed on a 3D printer.

Incorporation:

Like most types of design software, 123D Sculpt requires the user to think logically to decide what order they should use to tools to reach their desired shape. It also opens up many doors for creativity, without the boundaries of exact dimensions. Similar software is used in creating objects in modern animated movies and special effects in high budget movies. Although this software is optimized for the use on the iPad, students can still explore and understand how this type of modeling software works.

I only had one iPad available for use with some of my students. Many of them downloaded 123D Sculpt on their personal iPad because its simplicity almost makes it seem like a game.

If I had a class set of iPads, I would definitely build this into my curriculum. What is so great about this software is that it allows the artistic minded students to excel, and the engineering students will struggle, while learning a different perspective on how 3D modeling can be done. It really opens their minds and gets them to think critically. It was fascinating to see how the students ether loved or hated this software depending on how it related to their past software experiences.

In the end I found that this app is a great tool to add to the students diversity in understanding different 3D modeling techniques.

Below are photos a student's starting shape, and then the student's final creation: