

# 123D Catch Ipad App Review

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

This app uses a camera to create a 3D scanner. The user simply takes 30-40 pictures capturing an object from many different angles . These pictures are then uploaded to a server where the photos are compiled by Autodesk, and then a 3D rendering of your photos are sent back. The final result does not give you the measurement and scale you

would expect from a commercial 3D scanner; however the 3D model is still to scale and resembles the item that was photographed. It is typical that the rendering has some distortions and errors, so the PC version is used to clean up the 3D model before it is 3D printed or brought into another application. Students can also upload their renderings to the 123D Catch community and share their creations

**Incorporation:**

So far my students have been extremely motivated by this app. They think it is a really cool app and many of them have downloaded it to their personal iPads and iPhones. I find that this app is a great foundation for conversations about 3D scanners and shows how difficult and complex this type of tool is. It also allows them to experiment, evaluate, and edit the photos responsible for causing errors in the rendering. The attention to detail, time dedication and analysis needed to optimize the results gives the students an understanding of the interworking of this type of virtual tool. Scanned parts can then be imported to other 123D apps to be further edited or incorporated into a more complex assembly.

I have several design challenges that require the students to create objects virtually first, and then build or 3D print their design. I am looking for ways to require an object rendered from 123D catch and then 3D printed into their designs. I am going to experiment with the students to see what kinds of objects can be reliably made with this type of free software.