**Different uses of 3D printing**

**Teacher notes**

**Resources:**

* Teacher powerpoint
* 3D printed items from lesson 1
* Fusion 360
* Student worksheets

**Pre-preparation**

* Print out the student worksheets
* Ensure you are registered to use Fusion 360
* Ensure you have the Mini Drone and the Robo Hand as one of the lesson resources. This was part of lesson 1.

<https://www.thingiverse.com/thing:596966>

<https://www.thingiverse.com/thing:2015332>

**Learning Objectives**

* To understand the 3D printing process
* To review different uses of 3D printing

**Starter task 10 minutes**

* Ask students to recall their learning from last lesson and write down how a 3D printer works.
* Get verbal feedback from students. If you have the 3D printer in the room, place it at the front of the class and ask a student to talk through how it works.

**Objective 1 – To understand the 3D printing process**

**Task 1 – 20 minutes**

* Explain to students how the 3D printing process works e.g 3D CAD model – Slice the model – 3D print the model
* Open up Fusion 360 and model a basic file e.g. extrude a square and then shell it out. Tell students next lesson they will use Fusion 360.
* Explain to students that for this model to be able to be 3D printed it needs to be exported as an STL file and then sliced.
* Export the file as an STL.
* Import the file into your slicing software that your 3D printer uses e.g. CURA, UPstudio, Makerbot makerware etc and show the students the basic slicing software.

**Task 2 – 15 minutes**

* Ask students to complete the task two on the worksheet. After your demo they need to be able to correctly identify the three main stages of the 3D printing process.
* They are then to explain these stages in detail with a written explanation of how you get from stage 1 to stage 3.
* Ask for student feedback on their answers to share with the class.

**Objective 2 (10 minutes) – To review different uses of 3D printing**

* Show the students the slides with different uses of 3D printing on them. Talk through the narrative on the slides and ask for student’s opinions on the technology.
* Pose the question – where would the different technologies be now without 3D printing after each slide. Get students verbal responses.

**5 minute Plenary**

* Recap the initial objectives with the class.
* Students are to complete the lesson reflection sheet on the worksheet describing two new uses of 3D printing they have learnt.
* If time allows ask students to feedback their learning.