**Modelling challenge**

**Teacher notes**

**Resources:**

* Teacher powerpoint

**Pre-preparation**

* Print out the student worksheets
* Print out the example STL file multiple times, enough for one between two.

**Learning Objectives**

* To understand how to read an engineering drawing.
* To model a small device for keeping food fresh.

**Starter – (10 minutes)**

* Introduce the challenge to the class. Explain how people use other means to keep food fresh e.g. clothes pegs, elastic bands, tape, hair bobbles. Whilst these products might help, they are not actually designed for this task.
* Also, current food clips on the market usually have a moving part that can break after multiple uses.

**Objective 1 – To understand how to read an engineering drawing (10 minutes)**

* Print out the technical drawing on slide 5 and talk the class through the different view points and the measurements on each view as well. Explain the different views of the drawing.
* Ask students to compare the drawings to the 3D printed example. They can measure the sizes to check the accuracy.

**Objective 2 - To model a small device for keeping food fresh (25 minutes)**

* With the students using the technical drawings as a guide, they are to model their own food clip using Fusion 360.
* Students are to export their designs as STL files and then import them into the slicing software and then experiment with settings to reduce the print time down to as little as possible. Refer to slide 6 and 7.
* If their design is not accurate and to scale then they will need to go back and re-design from scratch in fusion 360, rather then just altering the slicing settings.
* Whilst students are completing the task they are to ensure that the student worksheet is completed.

**Plenary – 5 Minutes**

* Reflecting back on the series of lessons, explain three of the most important things that you have learned during the series of lessons.