

### The Brief:

You will have been given the key to your new school locker by now. The key is small and difficult to identify from other locker keys and if lost, it would be almost impossible to describe it without some other distinguishing feature.

### The Design Criteria:

A list of targets that you set for yourself to achieve with your product.

### The Making Stages:

- Marking out
- Cutting
- File
- Emery paper
- Buff
- Drill

### The Engineering Design Process:

- Response to brief
- Research
- Design criteria
- Ideas
- Compare to design criteria
- Develop
- Test
- Make
- Test
- Modify
- Test
- Evaluate

### Quality Control:

**1** Use a file to remove the large bumps and scratches that you can see with your eyes.

**2** Use a file to remove the large scratches that you can feel with your fingernails and hear the scratches.

**3** Use the draw filing technique to change the direction of the scratches, they should now run up and down the length of the acrylic.

**4** Use the emery paper to remove the small scratches. Now you should hardly be able to see them.

Now use the buffer to create a shine!

### CAD CAM:

2D design - CAD	Computer software for drawing flat parts
Tinkercad - CAD	Computer software for drawing 3D
Laser cutter - CAM	A machine which cuts and engraves with a laser
3D printer - CAM	A machine which 3D prints using a biopolymer

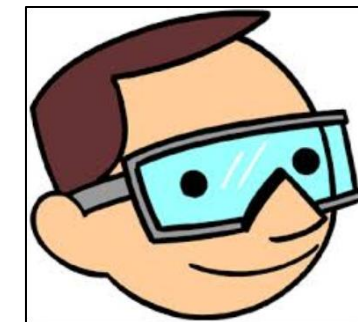
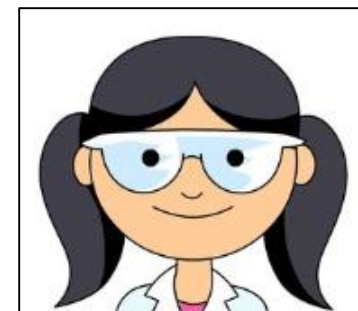
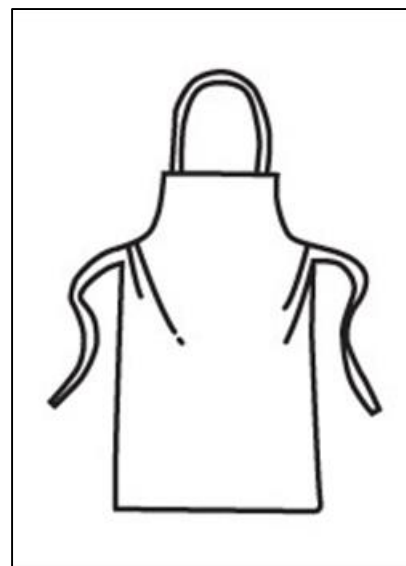


### Materials:

**Acrylic** (Thermo polymer) - Hard, brittle, brightly coloured, shiny

**PLA** (Biopolymer) – biodegradable, brightly coloured, matt, tough

### Health and Safety:



### Key words:

- Brittle
- Ergonomic
- Safety
- Tolerance
- Acrylic
- Unique
- Teeth
- Aesthetics
- Function

### Assessment:

60% Product and folder  
40% Exam

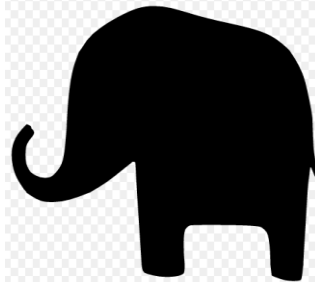




Coping Saw



Vice



stencil



Marker pens



Brasso



Hand vice



Butter



Tensol cement



Needle files



Pillar Drill



Drill bits



Emery paper



File



2D design



Laser cutter

