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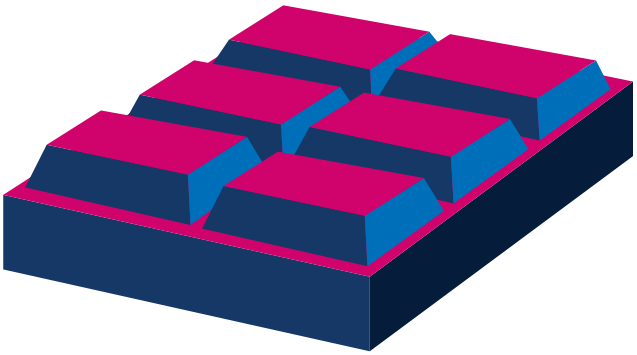

# Chocolate Bar Mold

Completion time: 2 Lessons

## Materials and Resources:

- Pencil, ballpoint pen, and a ruler, sheet foam material, between 1cm – 4cm thickness
- Hot wire cutter, or long sharp blade, aluminum tape, or aluminum kitchen foil, pin and double-sided tape
- Chocolate, and means by which to melt it
- Formech vacuum forming machine
- PVC sheet plastic material, 1mm thickness (or other suitable food safe plastic)
- https://formechusa.com/case-studies/making-custom-chocolate-moulds-formechs-compac-mini

## Skills at a glance:

**Mathematics**

Measurement

Scale

**Language**

Discussion

Reading

Listening

**Thinking Skills**

Design

Research and development

Material selection

Independent thought

**Science**

Heating plastics and effects

Plastic/polymer material knowledge

## Project Outline:

Students are to make a traditional rectangular chocolate bar mold, using foam as the principal mold material. This simple but effective chocolate mold will draw upon some very simple tooling methods, and see students create their finished product in a short space of time, making this project the perfect introduction to vacuum forming. With no need for a lengthy design process, students can dive straight in and get creative. Perfect for Design and Technology and Home Economics classes alike.

## Method:

Students must first draw a rectangle on sheet foam material, using a ruler and pencil ensuring that it is perfectly equilateral. This rectangle should be the size of the desired chocolate bar. Sheet foam material can be anything from 1cm – 4cm thick.

This rectangle can now be cut out, either by hot wire cutter, or with a long sharp blade whilst using a ruler to maintain straight sides.

Taking the newly cut foam rectangle, draft angles will now need to be applied to all four sides of the mold. These can be can be cut, again using a hot wire cutter or long sharp blade. Refer to the Formech Vacuum Forming Guide for more details on draft angles.

The foam mold will now resemble a very simple chocolate bar shape. To prepare it for the vacuum forming process all surfaces that will come into contact with heated plastic, will need to be covered with either aluminum tape or aluminum kitchen foil. This is to protect the foam material and to encourage ease of mold release.

The aluminum covered mold can now have some personalized detail added to it. Using a ball point pen, students can draw a design or write a word on the top of the mold. Rather than using the pen's ink to realise the design, students will use the pen to create indentations in the soft foam material. This should be deep enough that it is easily visible, but not so deep that it penetrates the aluminum covering.

Venting holes will need to be applied within the design indentations to encourage high definition. This can be done easily using a pin to pierce the aluminum material at 0.5cm intervals, along the indentations made.

Double sided tape can be applied to the bottom of the foam mold to prevent movement during forming process, and it can be taken to the Formech vacuum forming machine to be formed using 1mm PVC material, or similar.

## Homework Tasks:

Homework can provide students with an opportunity to conduct some market research, to inform and guide their design choices when applying detail. Observing traditional designs, or elements of their own favorite chocolate bars, they might choose to incorporate these into their own work.

## Optional Extras:

Once the chocolate bar has been produced, students may continue their learning exploring elements of both food packaging and food nutritional information. Students might design and make a chocolate bar wrapper using aluminum foil, paper, or a combination of both. They might also explore different mold materials such as MDF, wood, or clay, and demonstrate their skills with the associated tools required to shape these.

## Method: (Continued)

With the newly formed sheet having been washed, it can be lay upside down on a flat work surface, and have melted chocolate poured inside, to a depth of the desired chocolate bar. Once completely cooled, the finished chocolate bar can be turned out of the mold, and is ready to be enjoyed.

## Student Accomplishments:

- The creation of their own chocolate bar
- Understanding of confectionary design
- Informed and successful material selection
- Utilising a variety of tools and techniques to shape chosen materials
- Practical hands on experience using a vacuum forming machine, and understanding its wider application
- Opportunity to conduct research and development
- Learning around food safe plastics

## Teachers notes:

Share pictures and videos of your Formech project across social media, using **#formechmade**

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