



Seashell Chocolates

Completion time: 2 Lessons

Materials and Resources:

- Seashells, flat in shape
- Modelling clay or putty
- Pin or nail, and sheet cardboard
- Aluminium kitchen foil
- PVC plastic material, 1mm thickness, or other food safe material
- Formech vacuum forming machine
- <http://formech.com/case-studies/vacuum-forming-artisan-chocolatier/>

Skills at a glance:

Mathematics

Measurement

Language

Discussion

Listening skills

Thinking Skills

Applied knowledge

Independent thought

Questioning and reasoning

Science

Heating plastics and effects

Plastic/polymer material knowledge

The reaction of certain materials when exposed to heat

Project Outline:

Students will enjoy using existing objects as their vacuum forming moulds, removing the mould making process and resulting in a fast and engaging lesson. A range of objects might be used, although for this lesson we will explore using simple seashells, which are relatively flat in shape. With some very simple preparation, these make ideal moulds whilst creating impactful results, and provide students with a good introduction to vacuum forming.

Method:

A piece of cardboard can be cut to size, so that it fits within the forming area of the Formech vacuum forming machine.

The seashells can now be prepared for the vacuum forming process, by filling their hollow undersides with modelling clay or putty, and placing them evenly spaced on the prepared piece of cardboard, at least 2cm apart.

The seashells, now placed on the cardboard, can have any visible undercuts around their edges filled with a little more clay or putty. This will ensure ease of mould release once vacuum formed.

Lastly, using a pin or a nail, students will need to pierce venting holes through the cardboard, around each individual seashell. Pushing the pin or nail through the cardboard material will encourage airflow during the forming process, and create a higher definition formed product. These holes can be made at 1cm intervals.

The cardboard with the seashells placed on top can now be carefully transported to the Formech vacuum forming machine, and vacuum formed using 1mm PVC plastic material, or a similar food safe plastic.

The newly formed plastic chocolate mould can now be washed and dried completely before being used.

Melted chocolate can now be poured into each individual recess, and allowed to cool completely. The finished individual seashell chocolates can now be turned out on to a clean surface.

Small squares of aluminium kitchen foil can be cut out, and used to wrap each individual seashell chocolate, giving them a professional look, and protecting them.

Homework Tasks:

Taking all the information and experience that students have learnt from this project, students can be given the homework task of drawing up a short project plan for a similar item, perhaps a Christmas decoration, or an ice cube tray mould. In this they must identify two key considerations; choice of mould material and why, and the way in which they will shape or tool this material

Optional Extras:

Following the theme of this lesson, demonstrating that objects from the world around us make for fantastic mould materials, this idea might be extended to objects from around the classroom or workshop. Again, this provides opportunity to talk about varying aspects of the vacuum forming process; undercuts, draft angles, venting, mould release, and suitable/unsuitable mould materials, which are all outlined in the Formech Vacuum Forming Guide which students can be provided with and refer to. Suitable objects from around the classroom or workshop can be selected and vacuum formed demonstrating these points.

Student Accomplishments:

- The production of a food mould for multiple use
- Knowledge of food safe plastics
- Following verbal instructions and making observations
- Learning how existing objects can be utilised within research and design, as well as manufacture
- Practical hands on experience using a vacuum forming machine, and understanding its wider application
- Applied knowledge

Teachers notes:

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