



Halloween Pumpkin Decoration

Completion time: 1 Lesson

Materials and Resources:

- Pumpkin
- Machine or hand saw
- MDF sheet, 1cm thickness
- Pillar drill
- 1.5mm drill bit
- Marker pen and acrylic paints
- Formech vacuum forming machine
- Suitable plastic material (1.5mm HIPS is recommended)
- <http://formech.com/case-studies/fabworks-forming-ideas-508fs-university-melbourne/>

Skills at a glance:

Mathematics

Fractions

Language

Listening skills, following instructions

Thinking Skills

Problem solving, independent thought, tool selection

Science

Heating plastics and effects

Project Outline:

Halloween is a great time of year for schools and homes to put up decorations, either for a fancy-dress party or to welcome trick or treaters. This project keeps that in mind and produces numerous vacuum formed pumpkin decorations, using just a single real pumpkin. Very quick, very simple, and very inexpensive, students will experience vacuum forming using a physical object as their mould. No need for lengthy design processes or complex tooling, students will enjoy the instant nature of this project and the quality of the item produced.

Method:

Taking a pumpkin which fits inside the forming area of the Formech vacuum forming machine, students may cut this in half from top to bottom, creating two identical halves.

Once cut, each half will need any loose material and seeds, scooping out and discarding. It will also require several 1.5mm venting holes drilled around its surface which penetrate the entire pumpkin, front to back.

Placing half of the pumpkin on an MDF baseboard which fits easily inside the vacuum forming machine, a series of venting holes can be drilled through the baseboard, where the pumpkin meets the MDF.

The baseboard and pumpkin can now be placed inside the Formech machine, and vacuum formed using 1.5mm HIPS material.

When forming over the pumpkin, students must consider how they apply the vacuum. The pumpkin is a sturdy, but hollow object. With this in mind, raising the table and applying the vacuum at full power may well squash the pumpkin mould. The best method is to raise the table, and pulse the vacuum in 1 second intervals, encouraging the plastic over the mould in quick brief bursts.

The pumpkin can be vacuum formed numerous times using this method, producing a number of Halloween decorations.

The formed plastic pumpkins can now have excess plastic material trimmed off.

Students can now decorate this pumpkin however they choose. They might use a black marker to draw a scary face as if it were a real carved pumpkin, or they might use a range of acrylic paints to decorate it and add realistic detail.



Homework Tasks:

This project will get students thinking about what other physical objects they can use as a vacuum forming mould. With this in mind, students might be asked to look at other objects, and put together a plan for how they might be used to create other vacuum formed products. For example, a potato being cut appropriately, and vacuum formed to produce an egg holder to fit neatly inside a refrigerator door. Perhaps they could conduct research and find other products which are produced without the need for extensive mould production.

Optional Extras:

Students will enjoy forming over a mould which is a simple piece of fruit with almost no tooling at all. Alternatively, to add a little more detail to the pumpkin, they might choose to use appropriate tools to carve out a traditional scary face, which will then be visible when vacuum formed. With the pumpkin lay flat on a workbench, using small hand tools such as small carpentry chisels, further detail can be added, taking care to only carve away a little material and not penetrating all the way through the fruit to the hollow underneath. Once the desired face has been achieved, small venting holes can be applied for maximum definition when vacuum formed.

Student Accomplishments:

- The production of a halloween decoration
- Experience using MDF as a mould material
- Choosing appropriate tooling methods
- Applying independent design choices to a prescribed brief
- Experience using a range of sawing, cutting and sanding methods
- Practical hands on experience using a vacuum forming machine, and understanding its wider application

Teachers notes:

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