



Photo Dome

Completion time: 1-2 Lessons

Materials and Resources:

- MDF sheet, 1cm thick
- Heatproof bowl
- Putty or clay
- Craft glue
- Old magazines
- Scissors, drill, and 1.5mm drill bit
- Formech vacuum forming machine
- Any suitable clear plastic material, 1mm PVC recommended
- <https://formech.com/case-studies/formech-visited-techshop-san-francisco-ca>

Skills at a glance:

Mathematics

Measurement

Language

Listening skills, following instructions

Thinking skills

Design, problem solving, mold selection, independent thought, applying personal elements to a project

Science

Heating plastics and effects, plastic/polymer material knowledge

Project Outline:

This project will get students making a small clear plastic dome, which will be filled with small photographs of their favourite pop stars, celebrities, musicians or sports personalities. The photographs will be stuck outward facing as a collage to the inside of the dome. When viewed from around the dome, images of the famous faces will be visible from a full 365 degrees around. This is a fun project for students as it will be so personal to them, and something which they will most definitely use at home. It can also be completed in as a little as just one lesson, due to the use of a simple heatproof mixing bowl as the vacuum forming mould.

Method:

Students will first need to prepare an MDF baseboard, upon which to mount their heatproof bowl over which they will vacuum form. This baseboard should be the same dimensions of the forming area of the Formech vacuum forming machine available, and have a venting hole drilled which corresponds to the vacuum hole of the machine's table.

They will then need to select a heat resistant mixing bowl which they will use as their mould. This will need to fit inside the forming area of the vacuum forming machine, leaving at least 2cm space around its edge.

The bowl will need several venting holes drilled around its circumference and on its base.

Placing the bowl upside down on the baseboard, students can now prepare this for the vacuum forming process. When laid upside down, most bowls will produce a very small undercut where the bowl meets the baseboard. Using just a small amount of clay or putty, students must carefully fill this in, smoothing it flush as they go.

The bowl now mounted on top of the MDF baseboard can now be taken to the vacuum forming machine, and formed using any clear plastic material, although 1mm PVC is recommended.

The newly formed clear plastic dome can now have any excess plastic material trimmed off.

Homework Tasks:

Students may need some time to collect images of their favourite celebrities in preparation for this project, and so assigning this as informal homework some time before would be beneficial. With this project being geared towards younger students, this will likely be their first experience of the vacuum forming process, and so it is important for them to know just how wide the application of the technology is. They might be tasked with researching vacuum formed products, and coming up with a list of the most unusual that they can find to share in class.

Optional Extras:

This project gets students thinking about their own hobbies and interests when decorating the moulded dome, but there is real scope here to make an amazing wall display which celebrates the school, or an upcoming holiday, or an event. Imagine walking into a Science classroom and seeing a display of wall mounted photo domes, filled with amazing images and information about plant life and photosynthesis, or a History class and domes full of interesting facts and pictures relating to Winston Churchill. These could be produced to create attention grabbing and creative learning aids to be displayed in every classroom around the school.

Method: (Continued)

Students will now be left with a perfectly trimmed and uniform dome with which to fill with pictures of their favourite celebrities, cut from old magazines.

Applying just a thin layer of craft glue to the inside of the dome, pictures can be stuck inside, face down, so that the image is displayed to the outside of the dome. Once the dome has been filled with photos, it can be finished with another thin layer of craft glue on the back of the pictures to secure them in place, and allowed to dry completely.

Students will now have a colourful and vibrant photo dome to decorate their bedrooms, which is absolutely individual to them.

Student Accomplishments:

- The production of a stylistic photo dome
- Experience using physical objects as moulds
- Following a prescriptive brief
- Adding personal elements to a brief
- Applying a brief to wider applications
- Applied knowledge for the production of professional signage and lighting
- Practical hands on experience using a vacuum forming machine, and understanding its wider application

Teachers notes:

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