



Simple Seedling Planter

Completion time: 1 Lesson

Materials and Resources:

- 4 small terracotta plant pots (approximately 8cm in height and 5cm in width), soil and desired seeds
- Glue, aluminium tape or household kitchen aluminium foil
- Drill and small drill bit, approximately 2mm
- Formech vacuum forming machine
- Appropriate plastic material for vacuum forming (1.5mm HIPS)
- <https://formech.com/case-studies/vacuum-forming-artisan-chocolatier>

Skills at a glance:

Mathematics

Measurement

Language

Discussion, listening

Thinking skills

Material selection, independent thought

Science

Heating plastics and effects, plastic/polymer material, plant life knowledge

Project Outline:

Students will produce a very simple seedling planter for use in the home to plant and germinate seeds. It will be very simple in design, and act as a good introduction for students who are new to the vacuum forming process. Each planter will comprise of four individual pots for soil and seeds to be placed, and will be formed using small existing plant pots, rather than hand-made custom moulds. This means that as well as being a great demonstration exercise showcasing the vacuum forming process, it is also a very quick and time efficient project for teachers in the classroom, requiring few resources. This project ties in easily with other subjects, such as Agriculture and Science, and even Food Technology should the seeds or plants chosen produce herbs or fruit.

Method:

Due to the very simple nature of this project, there is scope for a real in-depth introduction to the vacuum forming process for students.

Students can begin by wrapping four small terracotta plant pots smoothly with either aluminium tape, or simple household aluminium foil, using a little glue if necessary. This is to ensure the ease of release when removing the pots from the completed vacuum formed seedling planter. These pots should be approximately 8cm in height, and 5cm in width.

Students can place the four aluminium covered plant pots upside down in the forming area of the machine. A minimum of 4cm between pieces should be allowed to ensure a perfect form. These can be formed using any suitable plastic material, although 1.5mm HIPS is recommended.

Having formed over the four pots, they can now be pushed out of the moulded plastic with ease due to the foil coating applied earlier. Students will now have a perfectly formed seedling tray.

The completed seedling planter will not need excess material trimming off, as the product can be used as one tray rather than four individual pots. Each pot within the tray will require 5 small holes drilled in the base to allow for drainage, approximately 2mm in diameter.

Soil and seeds can be placed within the newly formed tray, and students can enjoy watching them grow at home, or even as part of a Science lesson which explores photosynthesis and the like.

Homework Tasks:

Having demonstrated the principals of vacuum forming when using plants pots as a mould, students might be tasked with looking around their own homes for objects which could also be used as a forming mould. This will include them applying the parameters of mould selection to objects, taking into account heat resistance, undercuts, draft angles and more. With students identifying physical objects which may be suitable for the vacuum forming process, this affords teachers deeper understanding as to how students have understood the example and discussions when forming the plant pots previously.

Optional Extras:

This project transposes well to learning within Agriculture or Science subjects, with opportunity to examine plant growth and suitable conditions necessary. With the students having formed a number of seedling trays and having planted a number of seeds, students might conduct an experiment, exposing each tray to different conditions to ascertain what environmental variables make for the optimum conditions for plant growth. They might vary heat, direct light, water, or oxygen, and make observations as to the success or failure of each tray over a period of time.

Student Accomplishments:

- The production of a seedling planter
- An introduction to the vacuum forming process
- Conversations around vacuum forming and its uses
- Practical hands on experience using a vacuum forming machine, and understanding its wider application
- Experience using objects as mould materials, rather than bespoke fabricated moulds
- Experience using a drill
- Develop knowledge of growing plants from seed

Teachers notes:

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