



# Design a container

*Your group must design and manufacture a container that can be used in practice in class.*

The task is divided into different phases, with sub-tasks that help you through the process.

Some of the tasks must be completed at home, and you will have to collaborate both synchronously and asynchronously via Microsoft Teams.

## The idea phase

### Task 1. Brainstorm

Create a padlet. Put the link in the chat on teams so that you can all see and work in the Padlet at the same time.

When everyone in the group has entered your Padlet, you can start the brainstorm. All ideas are welcome and must be entered.

Remember that you can all post.

When you completely run out of ideas, you move on to the next task.

### Task 2. Choice

You must choose which container you want to continue working with.

You can possibly start by selecting the 5 best, and then based on them make your final decision.

Below I have listed some considerations you can make use of in the selection.

- You must be able to draw the container.
- You must be able to produce the container.
- You must be able to use the container afterwards.
- You will spend a long time on it, so be careful not to choose the easy, boring solution; choose a solution that is suitably challenging and creative.

Once you have chosen a container, you proceed to the next phase.

## Design phase

### Task 1. Sketch

You must make a sketch on paper, with measurements, explanations and a description of your container and its use.

A sketch drawing does not have to be fixed, so you write the measurements on and draw arrows or show in some other way where the measurements belong.

You draw the sketch so that you include as much as possible, i.e. that you often draw in perspective, and show lines that may not be visible from that angle. It may well be necessary to draw several sketches from different angles to get it all together.

A sketch drawing often contains explanations and descriptive text.

Scan or take a picture and put the drawing into your folder in teams.

### Task 2. Working drawings

Here you may be able to delegate the task with advantage.

Working drawings must be dimensionally correct and drawn in a scale ratio that appears from the drawing. This means that all measurements and angles must match, and you can measure yourself to the actual size of the container.

Working drawings are two-dimensional. This means that you do not try to draw the figure spatially, create perspective etc. similar. Instead, you draw several drawings where you see the figure from different sides, and then you only draw what you can see from that angle.

You typically draw 6 working drawings, with 6 different angles:

1. View from the front
2. Seen from behind
3. View from the left
4. Seen from the right
5. View from above
6. Seen from below

You must choose a suitable scale ratio to draw it in. If the container is relatively small, you can perhaps draw it in 1:1, i.e. that 1 cm on your drawing corresponds to 1 cm in reality.

### Task 3. Digital production

You can choose to draw in TinkerCAD or in GeoGebra. TinkerCAD is easier to use, so if you are not very good at GeoGebra already, I would recommend you to use it.



If you still want to try your hand at TinkerCad, you will find a number of exercises in there, e.g. Flowerbutton, which you can start with to get to know the program.

If you would like to try 3D printing your container, you must draw in TinkerCAD, which can export your drawing directly to a 3D printer.

When you have chosen which drawing/design program you want to use, you start drawing. Remember that it is difficult to have many people around a single screen and mouse, so make it a priority to swap places so that everyone can try the program.

## The production phase

### Task 1. Choice of media

First, you must choose how you want to produce your container. Do you want to 3D print, use cardboard, build in wood or something completely different.

### Task 2. Materialer og udstyr

I must have an overview of which equipment and which materials you will need well in advance of the production day - otherwise it is not certain that we have it, or can get it in time.

### Task 3. Production

Then your container must be produced.

## Varnishing

Your container must be exhibited in class, or at school, together with your drawings and other relevant material

