

Creating a Modelling kit

A Modelling kit is a diverse collection of plentiful, cheap, easy to use materials, and a range of basic tools. It is used to enable learners to rapidly explore the possibilities of design ideas in 3D without fear of wasting expensive materials.

The items in such a kit can be used for most tasks, but may also need to include specific items required for a particular brief.

Using 'soft' models

3D development models - sometimes called 'soft' models - are often made in different materials and production methods to the ones that would be used in the final product. Sometimes the scale of the model will be different too, or it may just be a specific part of the design that is made.

In some situations a soft model may be reconstructed in some way to explore various alternatives. In this case it is important to photograph it before it is changed. In different circumstances a series of models might be more appropriate.

Skeletal modelling

Skeletal models are useful for exploring products that are likely to be use a framework construction.

Materials

- wire, string, rods, straws
- tissue paper
- felt, rip stock, calico

Tools

- scissors
- needles, thread
- pliers

Processes

- covering
- colouring
- moving, transforming

Components

- axles, gears, pulleys
- springs, bands
- bulbs, batteries



Modelling ideas

The modelling kit needs to be available throughout the process of design development: initially it can inspire design ideas, and as a solution progresses it can inform the development of more detailed aspects or refinements.

Box modelling

Box models are useful for exploring products that are likely to be constructed from sheet materials.

Materials

- paper, card sheets, tubes
- clear plastic, cling film, foil
- sellotape, masking tape

Tools

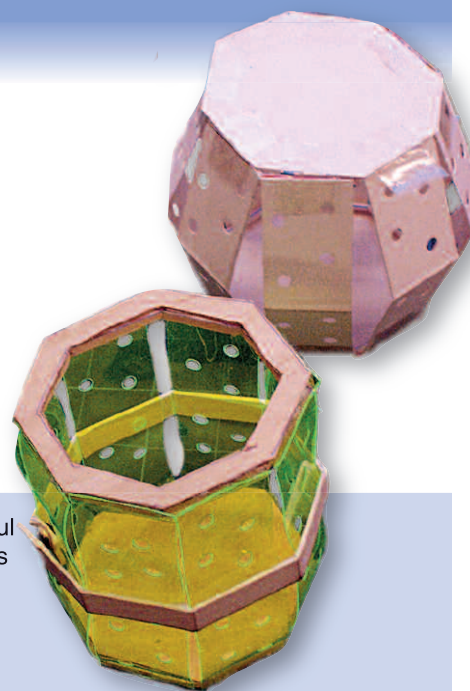
- craft knife, cutting mat
- hole punch, hand drill
- glue guns, glue sticks.

Processes

- cutting
- joining
- bending

Components

- pins, clips, pegs, tags
- plastic cups, trays
- rivets, fasteners



Making soft models

It is important that learners can make a clear distinction between materials that are precious and only to be used for the final realisation of a design, and those that are cheap and plentiful enough to be used for quick experiments that can be easily changed, modified or adapted in some way.

Organic modelling

Organic models are useful for exploring products that are likely to be curvilinear.

Tools

- ruler, spatula, scribe,
- surform, file, abrasive paper
- junior hacksaw

Processes

- forming
- moulding
- incising

Materials

- plasticene, play-dough, blu-tack
- styrene foam
- balsa blocks

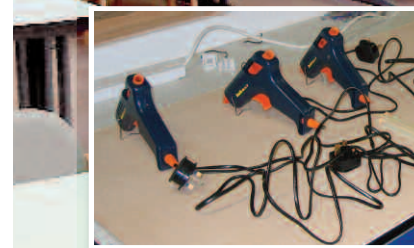
Components

- balls, beads
- tapes, threads
- balloons, bags



Preparing for e-scape

This booklet provides guidance for selecting and setting up the workspace and e-scape system equipment, and for preparing the handling and modelling kits.



Well in advance

1 Sort the learners into groups of three

Ideally the group should be:

- happy to work together
- a mix of design capabilities.

Where necessary, learners should work in pairs.

2 Identify the most appropriate room

The room should be lively, creative, bright space, e.g. typically used for graphics / textiles / product-design. It needs to have:

- clean-top work-table spaces for all learners to sit in groups of three
- a clear space to set out the Inspiration collection
- a table-top or wall-mounted surface of at least 125cm x250cm (8' by 4') for the Modelling kit
- access to a range of basic tools for modelling. These might be around the sides of the space, or in a separate area.

An open-plan, clean space can work well, provided:

- the tables can be used for modelling (i.e. cutting, joining, etc).

On the day

3 Set up the workspace

On the day, arrange the tables for each group of learners. On each table set out:

- three blank booklets
- a handling collection (in a box)
- a cutting mat and basic marking/measuring tools.

4 Set up the Modelling kit and Inspiration collection

Separate out the different types of :

- materials (e.g. sheet / rod / foam)
- fixing & joining stuff (e.g. staples / glue / tape)
- tools and equipment (e.g. knives, scissors).

Place the Inspiration collection items out in the allocated space.

5 Set up the camera and printer

- Ensure that you have taken and printed some test photos of models and that there is somewhere with good light to take the photos.
- Remember to check that the camera and printer are fully charged and that you have sufficient photo paper to print three photos per learner.

Creating a handling collection

A handling collection is a group of objects that learners can pick up and examine in order to stimulate their design thinking. It can:

- familiarise learners with ideas, concepts, and issues within the context of a task
- help learners to understand how particular features of an existing product work
- inspire learners to explore the unexpected, novel and provocative; to think the unthinkable and step outside the box
- help learners unstitch a concept from an existing product that they can apply in an entirely new and innovative way to their own design
- provide a source for creative inspiration throughout the task.



a To create an appropriate handling collection the first step is to identify the critical features of the design challenge to be addressed. For example, these might be that the product has to contain and carry something that can be easily dispensed and re-filled, and also be easy to use and desirable.

The key words here are:

- containing and carrying
- re-filling and dispensing
- easy to use and desirable.

Consider how well each item in the collection might stimulate the following sorts of questions.

Containing and carrying



Re-filling and dispensing



Easy to use and desirable



Using a handling collection in e-scape

In the e-scape test each group of three learners need their own handling collection, consisting of between about six and ten objects. Each handling collection needs to be identical.

As well as the handling collections, you could also provide an 'Inspiration' collection. This contains single items placed on a table or surface somewhere in the work area.

b The next step is to review the potential objects to make sure they won't actually inhibit creative design ideas. For example:

- Does it suggest an obvious conventional solution that will stop learners thinking outside the box?
- Is it too close to being an existing solution to the task?
- Does it look so desirable that learners will find it difficult to resist using it?
- Are there any issues over safety or delicacy?
- Is the object so complicated that learners may find it difficult to identify the appropriate aspects?

c Establish which items could be provided in the group handling collections, bearing in mind likely cost and availability.

Which will be single objects that form part of the Inspiration collection? These are likely to be the more expensive or larger items.



An Inspiration collection

Preparing the handling collection needs to be started well in advance of the e-scape session. After the test it can be re-used for other design tasks, and extended to become a valuable departmental resource.



d Source the items well in advance. Seek help from other members of staff!

