# Design and Technology Teaching Notes

**for ages 11-14 yrs**

These notes accompany the PaperWorks Pack 5 and are free to use within the classroom.

# TEACHING NOTES

## Video content

The videos were filmed at TRM Packaging Ltd in Lancashire and Qualvis Print and Packaging in Leicester.

## Video one (three and a half minutes approx.)

Andy Barnetson, Director of Packaging Affairs at the Confederation of Paper Industries introduces Cardboard Packaging and gives a little background on the sector.

He then talks about some aesthetic, environmental and economic considerations, including shelf-ready packaging, the high degree of recycling involved in Cardboard manufacture and why there are good financial reasons for using Cardboard.

He finishes by discussing the future of the Packaging sector, explains that customers have driven a wide range of innovation over recent years and that he expects that to continue, leading to more exciting new developments in the next decade.

## Video two (four mins approx.)

In video 2, students meet Tom Allen, Technical Sales Representative and Kerry Till, Internal Sales Co-ordinator, who manage the sales process and support the customer in meeting their packaging needs.

Tom talks about the importance of protecting and promoting the customer's brand through on-packaging printing and the importance of clearly understanding how and where the product to be packaged will be stored.

Kerry confirms that it's vital to see a sample of the product and that choices about the type of on-pack printing affect the manufacturing route through the factory, which in turn affects the cost of manufacture.

Andy Saunders, the packaging designer, stresses the importance of keeping the design simple. Using Computer Aided Design (CAD) software, he demonstrates how a computer is used to create 3D images of the box and how it will be constructed.

The video moves on to show the construction of a prototype which is cut out using a cutting table so that it can be tested with products and sent to the customer for trialling, before any final changes are made and the main production run.

Between interviews, students see shots of the factory showing fast-paced production runs, palletising, as well as samples of packaging designs and examples of shelf-ready packaging.

## Video three (six mins approx.)

Lilly Thomas takes Students on a virtual tour around the different departments of a leading carton manufacturer.

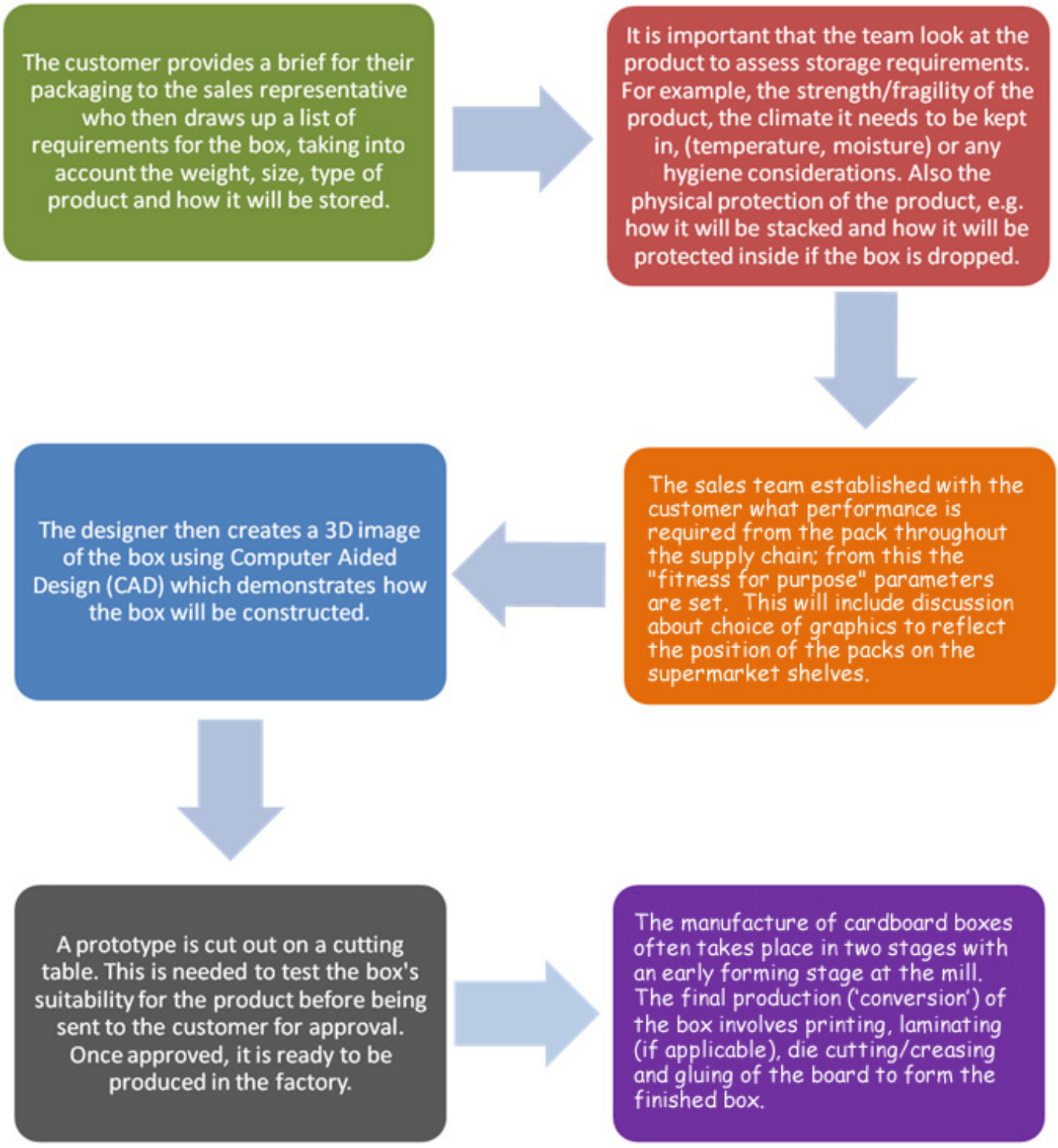
Starting in the Customer Services Department, Lilly explains that this is where the detailed requirements of each order, such as colours, dimensions, materials, are determined. Richard Pacey from the Design Studio talks about how he uses a CAD system in the design process.

Lilly continues to the Repro Department where the team takes the client supplied artwork and adjusts it to make it compatible with their machines. The images are then put into a Computer-to-Plate System, and checked to make sure it matches what the customer wants. The tour continues in the Plate-Making Department where Andy Dent explains how he uses a software that duplicates each carton and positions them accordingly making the most out of each sheet. From here the tour continues to the Print Department where Andy Brighty explains the printing process and how cartons are produced on a range of print presses.

The tour continues to the Cut & Crease Department before Lilly moves on to the final department in the manufacturing process - the Gluing Department. As the carton progresses through the gluing machine, the creases are broken, and just the right amount of glue is applied onto the carton's seams.

Once quality checks have taken place, the cartons will be loaded onto a lorry and delivered to the customer.

## Corrugated boxes: the sales process



# TEACHING NOTES

## Lesson plan outline

Please use the resource in the way that best meets your class objectives. However the following suggestions may be useful in planning how to integrate the resource.

**Overall, this resource will:**

- Teach students how to respond to a design brief requiring the creation of a logo and the development of a prototype packaging solution for a product.
- Develop students' understanding of how logos are used in the branding of products and the importance of colour, text and imagery.
- Challenge students to design a logo by considering and arranging text, images and information to suit the target market.
- Teach students about cardboard packaging, its environmental, economic and aesthetic qualities and how it is used, considering real life examples of cardboard packaging and logo designs.
- Develop students' drawing skills by sketching different boxes, then evaluating and choosing the best option.
- Develop students' CAD system skills by accurately designing a prototype box.
- Help students model their prototype using CAM or scissors and evaluate how effective it is in relation to the customer's brief and to suggest improvements that should be made.

## CartonVille

- CartonVille (www.cartonville.co.uk) can be used at any point in the following Lesson Plans, either in class or set as homework, to give students a virtual tour of the life-cycle stages of packaging production.

## Lesson 1

- Introduce cardboard by watching video 1.
- Discuss the use of cardboard and its benefits.
- Look at different logos and cardboard packaging designs, especially shelf-ready.
- Watch video 2. Discuss the sales process and considerations the team make when designing a suitable box for the product.
- Hand out briefs.

## Lesson 2

Using the brief, sketch some different boxes and logos, considering the specification with regard to:

- Packaging design and product size.
- Storage requirements: refer to video 2 where the sales team outline the storage requirements they need to consider, such as the physical protection of the box, the climate it needs to be kept in, any health and safety considerations, for example around hygiene.
- Target audience for the brand.

## Lesson 3

- Assess which sketch would work best, considering comments from other classmates. Make your choice and draw a final design, ready to make a prototype.

## Lesson 4

- Create a net for the packaging using a CAD system or accurate 1.1 scale drawing. Cut out a prototype with a CAM or scissors, fold and test the box.