

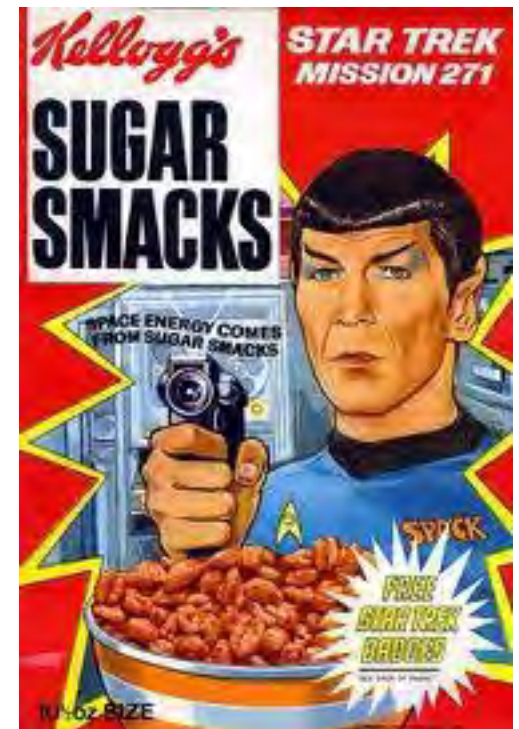
## Packaging problems

Packaging is a massive multi-million pound industry. It is a very important aspect of the products we buy. Apart from storing and protecting the product it can actually persuade us to buy it. One of the most common materials used for packaging is plastic.

This causes real eco-problems because it is usually made from oil and this is not a sustainable material. It can be recycled but is not bio-degradable.

Recently it has been discovered that even a sustainable material like card has problems. Food manufacturers have packaged food in recycled card to be 'green'. However the mineral oils from recycled paper have been found to contaminate food. Using virgin card would solve this problem but would decimate the forests.

<http://www.independent.co.uk/life-style/health-and-families/health-news/health-fears-over-recycled-food-packaging-2236202.html>



Packaging is used to protect and promote the product.

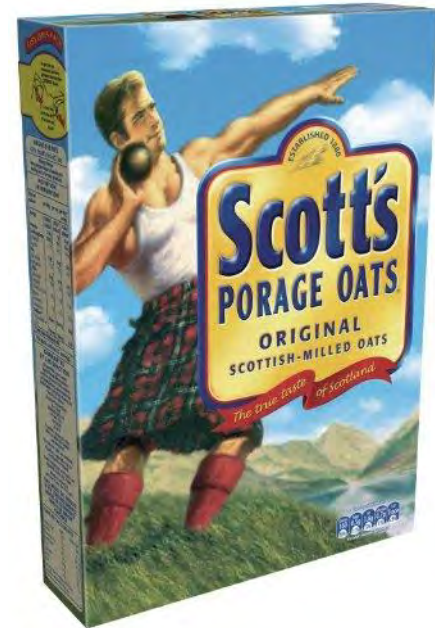
**Primary packaging** is used to protect the product and provide information about storage and the contents.

**Secondary packaging** actually contains the product.

Packaging is very important but 70% ends up in land fill sites and pollutes the environment by creating methane gases. As designers we must try to minimise the impact on the environment with clever package design.

We need to ask:

- What material should I make the package from?
- What will happen to the package when it is finished with ?
- Can it be easily re-cycled or re-used?
- Is the product over packaged?



## Eco Friendly Solutions

Paper and card are a better option for packaging than plastic but sometimes products need different qualities in their packaging.

Two new materials have been developed to help the environment and both are made from potato starch. One is foam board and is biodegradable, the other is Potatopak which is like polystyrene but degrades easily.



<http://www.potatopak.org/home.html>



**The Waste Hierarchy Pyramid** can help us to become more aware of clever environmental packaging design by following this basic guide:

- Do not package the item at all
- Minimise the amount of packaging used
- Re-use existing packaging
- Use re-cycled material to package the item
- Use the waste from packaging to power a power station
- Just dump the packaging in a landfill site(?)



### Main reasons for packaging:

1. Stacking and storage
2. Preserve
3. Promote
4. Information
5. Protect

**Stacking and storage** is an essential element of packaging and helps with transporting products and displaying them in shops

**Over packaging** is where too much packaging is used (think of a Big Mac meal)

**Deceptive packaging** is when you get a great big package, you open it up and the product inside is a lot smaller.



## Barcodes

consist of a set of black lines of varying widths. A scanner at a retail point scans the barcode and converts it to numerical values. The barcode gives information about things like the cost of the item and stock control. The barcode gives information about

1. The country of origin
2. The manufacturers reference number
3. The specific product number

## RFID tags

These are microchips combined with an antenna To send radio signals about the product when consumers purchase it.

### Information

It is a legal requirement to tell the consumer exactly what the product is and what it contains. This is especially important with food products.

The package must also:

- **Protect**
- **Preserve**
- **Promote**



## Packaging Materials

Main materials used for packaging. As designers we have a lot of choices when we consider what materials to use for packaging, there are advantages and disadvantages in each and you have to consider which is the best choice.


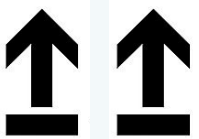





Material	Advantages	Disadvantages	Common use
Paper and card	Cheap, light easy to print on	Not as strong as the other materials. Not waterproof	Games, cereals, chocolate boxes
Thermoplastics	Waterproof, light Transparent, complex shapes easily made	Least eco-friendly of all the materials	Drinks, bags, insulation, protection
Metals such as steel and aluminium	Strong, waterproof, secure, can form in to complex shapes	Expensive	Tin cans, fizzy drinks, biscuit tins
Glass	Strong, waterproof	Breaks, expensive	Drinks and perfume bottles
Softwoods, e.g.: pine	Cheap, strong. Can be re-used		Pallets
Man made boards such as plywood	Very strong	One-off use	Packing cases for transport of machinery



## Symbols Used in Packaging

You may have noticed that there are lots of different symbols used in packaging to remind people handling it how to take care of it.

Symbol	Meaning	Notes
	Keep out of the rain. Do not store in damp conditions	Normally found on card packages that would be damaged by moisture
	Store package the right way up	Arrow points towards the top of the package
	Centre of gravity	Only normally used when the centre of gravity is not central
	Keep away from heat	Keep package under the coolest conditions and away from heat, including sunlight
	Clamp as indicated	Also implies that the package should not be clamped anywhere else

<http://www.technologystudent.com/despro2/drink7.htm>



What symbols would you expect to find on a box of chocolates?

Look at all these other symbols. What do they mean? If it is not clear then they simply do not work!



## Industrial Processes Used To Make Packaging

There are a number of different processes that can be used to make packaging and you have to decide which one is best.

Shape	Material	Industrial process
Simple box	Board	Die-cutting Chapter 20
Bottle	Thermoplastic, glass	Blow moulding Chapter 3
Bottle lid	Thermoplastic	Injection moulding Chapter 3
Blister package	Thermoplastic	Vacuum forming Chapter 3