



Nuffield Design & Technology teaches students to design what they can make and then make what they have designed.

This booklet is part of the **Starting Nuffield Design & Technology Pack.**

It can be used in conjunction with the main course materials or as a teaching resource in its own right. You can find out about these in the Resources section of the website.

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Deciding what to design and make

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Physical needs

our need for warmth, food and drink,
comfort and exercise

Intellectual needs

our need for new thoughts and ideas

Emotional needs

our need for feeling safe and cared for

Social needs

our need to have relationships with
other people

interview

a question and answer session

Key words

design brief

a summary of the aims of your design and the kind of product that is needed

specification

a statement describing what a product has to do, what it has to look like and other requirements

brainstorming

a way for a group of people to think of lots of ideas quickly

attribute analysis

a way of describing a product so that you can develop new designs for that product

products

the things we use

Needs and Wants

The first step when you are deciding what to design and make is to think about what people need and what they want — people's needs and wants are not always the same! You can do this in a number of ways.

Class discussion



Talk about the needs and wants people have.

When you are thirsty you NEED a drink.

But you might say, 'I WANT a coke'.

Needs and wants aren't the same.

Group discussion



Try talking about needs and wants in a small group. Make sure everybody has their own say.

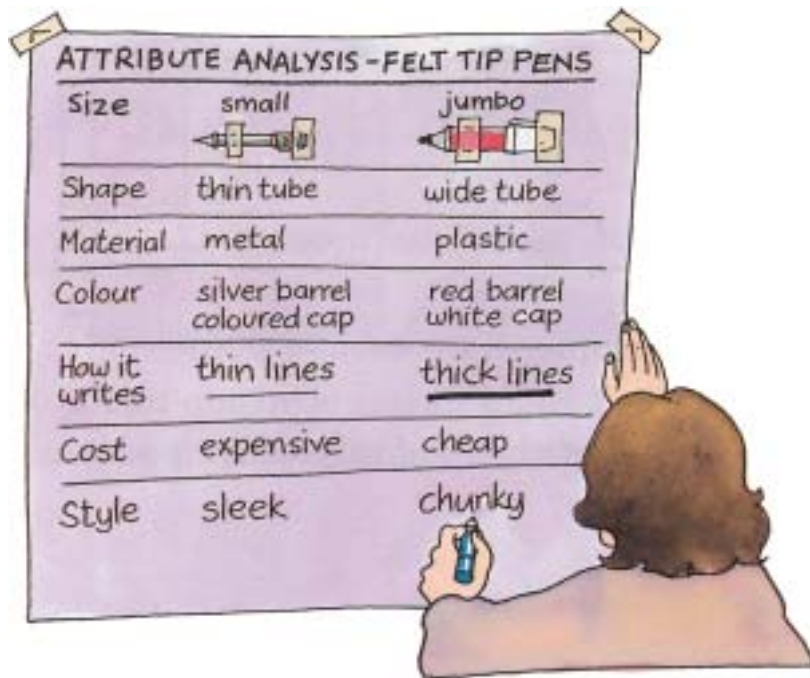
Ask yourself ...

- ◆ What do I need?
- ◆ What might somebody else need?
- ◆ What do I want?
- ◆ What might somebody else want?

- Ask yourselves these questions about each pen.
 - ◆ What other shapes could it have?
 - ◆ What other materials could be used?
 - ◆ What colours could it be?
 - ◆ what else could it cost?
 - ◆ What other style could it have?
- Use your answers to design new types of felt tip pen.

Attribute analysis

Looking at existing products can help you to come up with new ideas. Think about different types of felt tip pen.

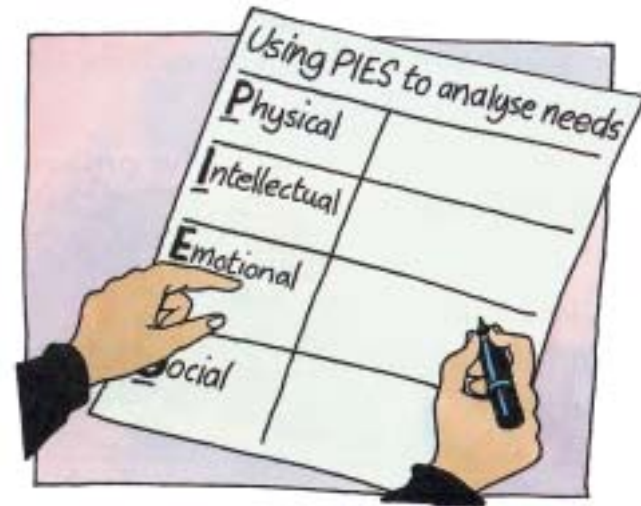


The illustration shows a person from behind, writing on a board. The board is titled 'ATTRIBUTE ANALYSIS - FELT TIP PENS' and contains a table comparing two types of pens: 'small' and 'jumbo'. The table lists various attributes such as size, shape, material, colour, how it writes, cost, and style, with corresponding descriptions and small drawings of the pens.

ATTRIBUTE ANALYSIS - FELT TIP PENS		
Size	small	jumbo
Shape	thin tube	wide tube
Material	metal	plastic
Colour	silver barrel coloured cap	red barrel white cap
How it writes	<u>thin lines</u>	<u>thick lines</u>
Cost	expensive	cheap
Style	sleek	chunky

Using PIES

To look more closely at needs and wants use the PIES method.



Imagine you're ill in bed. What are ...

- ◆ your **P**hysical needs?
- ◆ your **I**ntellectual needs?
- ◆ your **E**motional needs?
- ◆ your **S**ocial needs?

Finding out about needs and wants

It is important to find out about the needs and wants of people who might use what you make. You can do this in a number of ways.

Using interviews

Talk to people who might use the product.



- Use simple questions.
- Work them out before the interview.
- Ask to use a tape recorder.
- Give the person time to answer.

The first idea is a pea pod — an idea from nature.

A pea pod is how a pea plant holds peas.

Could this idea be used to hold other things?

- ◆ What about pills in a pill pod?
- ◆ Or hot meals in a meal pod?
- ◆ Or people in an escape pod?
- ◆ Can you think of any other pod carriers?

Making connections



You can get interesting ideas by putting different ideas together.

What questions would you ask the girl about the building bricks?

- ◆ What do you like about the bricks?
- ◆ What don't you like?
- ◆ How often would you use them?

Recording what people do

Watch what people do in everyday life.



The girl is using a camera to record what people are doing in the market.

- ◆ What's good about this?
- ◆ What's bad about this?
- ◆ What else could she use?

Design brief

Once you have decided what you are going to make, you need to write a design brief. Your design brief should say what your product is going to do, and why.

Class discussion



At first, the whole class will help work out the design brief.

■ Think about these questions.

- ◆ What sort of thing is it?
- ◆ Who is it for?
- ◆ Where will it be sold?

Drawing from nature



Drawing from nature can give you ideas. Ask yourself these questions.

- ◆ How has the boy got his ideas for shapes?
 - ◆ Can you see other ideas?
- Try drawing some flowers.
- ◆ What shapes can you find in them?

Getting design ideas

There are lots of ways to get ideas for your product.

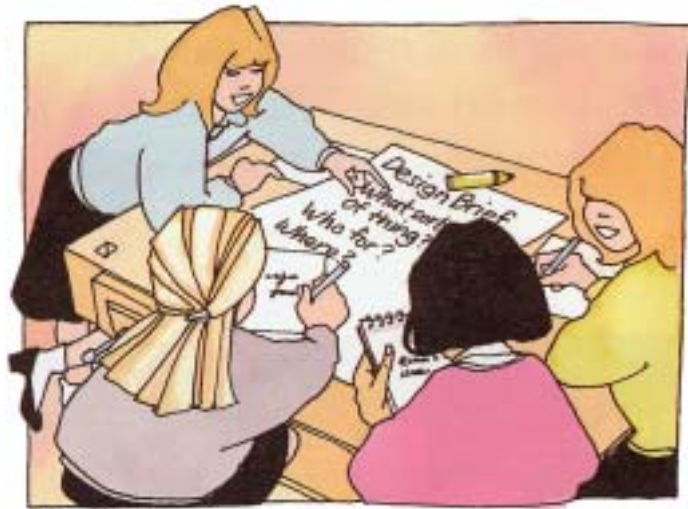
Brainstorming



Brainstorming is a good way to get a lot of ideas.

- Work in a group.
- Get someone to use a flip chart.
- Make sure everyone gets a say.

Small group discussion



- Talk about the details of a design brief before you write it down.
- Use sentences that begin like this.
 - ◆ it is a ...
 - ◆ It will be used by ...
 - ◆ It will be sold at shops like ...

Specification

When you have finished your design brief, the next step is to write a specification for your product.

Class discussion



Think about these things ...

- ◆ what it has to do
- ◆ what it has to look like
- ◆ other requirements.

Working on your own



- You **MUST** write a specification.
- Answer these questions to help write your specification.
 - ◆ What will it do?
 - ◆ What will it look like?
 - ◆ What else is important?