working with the benefit of foresight

activities designing for the future

young foresight
The Young Foresight Promise to Teachers

Through the Young Foresight Programme your pupils will improve their design skills, become more creative, understand new technologies and develop their communication skills. They will learn to work well with one another and from one another. They will exceed your expectations of their achievement. And they will enjoy technology and design like no other subject in the curriculum.
young foresight

activities for designing for the future

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Acknowledgements

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Open University Evaluation

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Foreword

Our world is changing. In less than 20 years it will have changed in ways we can barely imagine. This new world will open the door to new opportunities and new ways to express our creativity and resourcefulness. Change is to be embraced, but to make sure we rise to the challenges of the future, we must prepare ourselves now.

The relationship between the economic well-being of our nation and the school curriculum is complex and subtle. The talent of our young people is the country’s most precious resource. It needs to be nurtured within the school curriculum so that the workforce of the future is in a strong position to respond in an energetic and resolute way to the demands of global markets. Whatever their future employment, it is likely that every individual will need to update their skills and knowledge quite radically several times during their career. Nowhere is this more apparent than in the worlds of industry and commerce. So it is important to provide our young people with creative and flexible learning skills to cope with their changing world.

The Young Foresight initiative develops creativity, enterprise and innovation among young people. The revised and new materials will add to its impact and effectiveness. These provide vital learning experiences by giving its participants an insight into the worlds of industry and commerce and so promote the skills and attitudes necessary to take a positive and active part in this future world.

Young Foresight also aims to give pupils direct experience in the skills needed to create a successful product or service – from concept to design to adaptability in the market. It encourages pupils to think about and anticipate future trends and consumer needs and then design products and services that will perform well in a world that has not yet arrived.

The pupils will be supported by ambassadors drawn from the local business community who will help them to think about the practical aspects of product design and changing market trends. This collaboration will take design & technology into the future and bring it to life in the classroom. The initiative works particularly well in Year 9 when all pupils are required to study design & technology as part of the National Curriculum.

Young Foresight is about taking action now to prepare our young people for the future. It is also about having fun. We hope that you will choose to participate and take full advantage of this important initiative.

Lord Sainsbury of Turville
Parliamentary Under Secretary for Science and Innovation

Baroness Ashton
Parliamentary Under Secretary for Early Years and Schools Standards
Introduction

Welcome to Young Foresight. This ‘designing for the future’ is the fourth of five short booklets designed to help you make the most of Young Foresight in your school. It describes flexible approaches to enabling your pupils to use what they have learned in the Young Foresight toolkit to develop innovative designs for products and services for the future.

The first booklet ‘teacher guide’ describes how Young Foresight challenges orthodox practice and provides you with a range of teaching approaches and resources that will enable you to improve your pupils’ design skills, creativity, group working and communications skills.

The second booklet, ‘toolkit teaching’, describes in detail how you can use each worksheet to good effect in providing the knowledge, understanding and skills that your pupils will need to design products and services suitable for a world that has yet to arrive.

The third booklet ‘toolkit worksheets’ contains the worksheet copy masters.

The fifth booklet ‘young foresight guide to sketching’ provides activities to enhance pupils’ sketching ability.
Worksheets for Young Foresight
Designing for the future

DF1  What's new since 25 years ago?
DF2  The same thing then as now – what's changed?
DF3  Starter questions for electronic communications technology
DF4  Starter questions for food technology
DF5  Starter questions for modern materials
DF6  The Young Foresight Design Guide

Some teachers have found it useful to provide each pupil with a bound set of these activity sheets at the start of Part 2 of the Young Foresight programme.
Worksheets for Young Foresight Designing for the future

If you have any comments on these worksheets send them to: info@youngforesight.org. We are always pleased to hear from you. You may want to tell us about how your pupils tackled different activities, whether they enjoyed them or not, what they found easy or difficult, and whether they learned anything. You might like to suggest improvements. Whatever your views let us know.
You will need
Your workbook
A pencil

You will learn
To identify products and services that have appeared in the last 25 years.

What to do
Work in a group of four.
Look at the tables shown.
It describes different products and services.
Your task is to decide whether or not they were available to most people in Britain in 1975.

DF1: What’s new since 25 years ago?

<table>
<thead>
<tr>
<th>Products or services</th>
<th>Were these available in 1975? YES or NO</th>
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<tbody>
<tr>
<td>Fixed point telephones</td>
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<td>Mobile phones</td>
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<td>Transistor radio sets</td>
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<td>Black and white television sets</td>
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<td>Colour television sets</td>
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<td>TV remote control units</td>
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<td>Computers in the workplace</td>
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<td>Fax machines</td>
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<td>Home computers</td>
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<td>Laptop computers</td>
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<td>Electronic personal organisers</td>
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<td>Space invader computer games in arcades</td>
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<td>Game boys</td>
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<td>Play stations</td>
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<td>Vinyl records and record players</td>
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<td>Compact discs and CD players</td>
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<td>DVD discs and DVD players</td>
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<td>Audio tape players</td>
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<td>Video tape players</td>
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<td>Walkman tape players</td>
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<td>Email</td>
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<td>Internet and www</td>
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<tr>
<td>Microwave cookers</td>
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<td>Food processors</td>
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<tr>
<td>Microwave ready meals</td>
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<td>Satellite television</td>
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<td>Black-and-white photography</td>
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<table>
<thead>
<tr>
<th>Products or services</th>
<th>Were these available in 1975? YES or NO</th>
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<td>Colour photography</td>
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<td>Digital photography</td>
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<td>Air flights to Europe</td>
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<td>Air flights to America</td>
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<td>Bungy jumps</td>
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<td>Paragliding</td>
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<td>Chewing gum</td>
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<td>Shampoo and conditioner</td>
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<td>Hair gel</td>
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<td>Vitamin supplements</td>
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DF1: What’s new since 25 years ago?

What to discuss
Try to decide on the answers to the following.

❄ Draw up a list of products and service that were NOT available in 1975.
❄ Divide this list into groups according to where the product or service would be used and what the product or service would be used for.
❄ Use these groups to describe how people spend their time differently today than they did in 1975.

For homework
Show your yes/no list to older members of your family – parents, aunts and uncles, grandparents and ask them about life in the 1970s. Ask them about the differences between life then and now. Make a short written record of their answers.

❄ What products or service are there likely to be in 20 – 30 years time given the products and services that have developed over the past 20 – 30 years.

Make a short written record of the answers.
**DF2: The same thing then and now – what’s changed?**

**You will need**
- Your work book
- A pencil
- Access to products from the 1970's and their present day equivalent such as:
  - Kitchen equipment
  - White goods e.g. washing machines
  - Family motor car
  - Teenage clothes
  - Cosmetics and beauty products
  - Luggage
  - Power tools

**You will learn**
To compare products from the past with their present day equivalent.

**What to do**
Work in a group of four. Choose a pair of products and make a list of similarities and differences. When you have finished move on to another pair.

**What to discuss**
Try to decide on the answers to the following questions.

- For each difference you noted is it an improvement or a backward step?
- Explain what caused each of the differences you noted.
- Identify a set of change agents that have caused these differences to take place.
DF2: The same thing then and now – what’s changed?

For homework
Show your discussion answers to older members of your family – parents, aunts and uncles, grandparents and ask them if they agree on the change agents. Make a short written record of their answers.
You will need
Flip chart paper
Marker pens

You will learn
To work with others in using
the Young Foresight Toolkit
to generate ideas for future
products and services.

What to do
Use the following questions
from the television programme
as starting points for
brainstorming possible products
and services for the future.

DF3: Starter questions for Electronic
Communications Technology – The Future Of

Satellite technology
★ What new services will the world need in 20 years time and how could you use
satellite networks to provide them?

Fixed networks
★ What services could VDSL (or broadband) bring into your home in the future?

Mobile networks
★ Once your mobile phone becomes your personal assistant what would you want it
to do?
★ If each person in your school had a Cybiko unit what could you use it for?

Blue Tooth technology
★ What else could you see Blue Tooh technology being used for?

Computer interaction
★ In the future we will be able to interact with our computers through touch, voice
and thought. How can we take advantage of this?
★ In what other large data processing projects would you like to take part?
DF3: Starter questions for Electronic Communications Technology – The Future Of

What to discuss
Your teacher will help the whole class discuss the results of each group's brainstorm to decide which ideas for products and services should be taken further.

For homework
Discuss the ideas for new products and services with members of your family. Make a short written record of their answers.
DF4: Starter questions for Food Technology – The Future Of

You will need
Flip chart paper
Marker pens

You will learn
To work with others in using the Young Foresight Toolkit to generate ideas for future products and services.

What to do
Use the following questions from the television programme as starting points for brainstorming possible products and services for the future.

Packaging and retail design
★ When you walk around a supermarket what products and brand names attract your eye?
★ As designers of the future what can you learn from these observations?
★ The Internet has already revolutionised the way we communicate. Imagine the potential it has to change the way we buy food. What would you like in your virtual store?

Genetic modification
★ Using genetic engineering you could design fruit with added vitamins or vaccine, crops with their own insecticide, foods that no longer cause allergic reactions or fruits and vegetables that stay fresh and ripen when you need them. Which food would you grow and who would benefit from it?
★ Using this technology what food would you design to give you an optimum life?

Manufacturing
★ In the future we will need much greater quantities of food. What do you think are the challenges of producing food on a large scale?

Communication
★ What new and interesting applications for bar code information can you think of?

Organic food
★ What other food products can you design to get the benefits from wheat grass?

In designing food products for the future we have to ask three questions:
★ What is good for us?
★ What is good for the agricultural industry?
★ What is good for the environment?
DF4: Starter questions for Food Technology – The Future Of

What to discuss

Your teacher will help the whole class discuss the results of each group’s brainstorm to decide which ideas for products and services should be taken further.

For homework

Discuss the ideas for new products and services with members of your family. Make a short written record of their answers.
DF5: Starter questions for Modern Materials – The Future Of

You will need
Flip chart paper
Marker pens

You will learn
To work with others in using the Young Foresight Toolkit to generate ideas for future products and services.

What to do
Use the following questions from the television programme as starting points for brainstorming possible products and services for the future.

Car safety
[*] How do you think this new technology can be used in the future to improve safety in transport? Can you think of any other applications for this material?

Shape memory metal
[*] Shape memory metal has many applications: non-iron clothing, jet engines, aircraft, heat sensitive switches. What other applications can you think of?

Smart fabrics
[*] The future will see us use fabrics in many ways, from visual displays, to keyboards, to clothes that conduct electricity and never need washing. What kinds of fabric would you use for the future and how would you use them?

Nanotechnology
[*] The medical field could be revolutionised by nanotechnology. What applications can you think of for nanotechnology and what would you design?
DF5: Starter questions for Modern Materials – The Future Of

What to discuss
Your teacher will help the whole class discuss the results of each group’s brainstorm to decide which ideas for products and services should be taken further.

For homework
Discuss the ideas for new products and services with members of your family. Make a short written record of their answers.
This guide is to help your group make really good use of the Young Foresight Toolkit in designing products and services for the future.

**Thinking about the right things**
When your group is designing for the future you will need to think about four important things. These are shown in the diagram below:

- **Technology**
  Your products and services will need to work well so you need to be clear about the technology you will use.

- **Society**
  Your products and services will need to be acceptable in a future society.

- **People**
  People should need and want your products and services so you will need to think carefully about the people who will use them.

- **Markets**
  There will need to be a market for your products and services, one that exists already or one that you can create.

**Generating, selecting and communicating your first ideas**

**Step 1 Generating your ideas**
You can use the questions from the television programmes as starters for your brainstorming. These are available on the following printed sheets:
- DF3 Starter questions for Electronic Communications Technology – The Future Of
- DF4 Starter questions for Food Technology – The Future Of
- DF5 Starter questions for Modern Materials – The Future Of

It is important to get lots of ideas. If you get stuck on your initial brainstorm you can call upon the creativity techniques in the Young Foresight Toolkit for help.

It is important that your group generates lots of ideas.
Remember your teacher and mentor will be able to help you as well.
**DF6: The Young Foresight Design Guide**

**Step 2 Selecting the best ideas**

Once you have lots of ideas you will need to think about them carefully to see which ones are worth taking forward. Use the tetrahedron to see if they work for the technology, the people, the society and the market.

Remember your teacher and mentor will be able to help you as well.

**Step 3 Communicating your ideas**

To test out your ideas you should present them to the rest of the class. The teacher and mentor will listen to what you have to say as well. You will need to say something about the four key features – the technology, the people, the society and the market. You will need to explain why you think some ideas are better than others. This should be a short presentation that requires little preparation – use a flip chart.

**Step 4 Listening to the feedback**

Ask your audience for comments. Listen to what they have to say. They may have ideas that you haven’t thought of which change the direction of your thinking.
Developing and communicating your best ideas

Step 1 Developing your best ideas

At this stage you should have chosen a few ideas to develop further; no more than three. For each one you need to discuss in more detail the following questions.

The technology

✶ How will the technology be used in the product or service? What will the technology do?

The people

✶ What needs and wants will the product or service meet? Will there be lots of people with these needs and wants?

The society

✶ Why will the product or service be accepted in a future society? In what ways will it be seen as worthwhile?

The market

✶ What is the market for the product or service? Is it one that will need to be created? Or is it one that can grow from an existing market? How will the product or service be marketed?

Remember your teacher and mentor will be able to help you as well.

Step 2 Communicating your chosen idea

To communicate your ideas you will need to develop some visuals that show what your product will look like, how it will work and how it will be used. You can produce these as large bold drawings on paper or card. You can also produce them on a computer using CAD software such as ProDesktop®. You might even make a 3D model of your ideas which you can use in a demonstration. You will need to use these visuals in your final presentation. This will be different from your previous presentation. You will have lots of visual material; you may use an overhead projector or a data projector. Your presentation will need to show that your product and service makes good use of the new technology, will meet people's needs and wants, will be acceptable in a future society and will have a large market.

Remember your teacher and mentor will be able to help you as well.
The Young Foresight Promise to Pupils

Through the Young Foresight Programme you will get much better at designing. Your creativity will improve and you will understand more about really modern technology and the way it will affect our life in the future. Your communication skills will increase and you will be able to work well with other pupils and learn from them. You will do well at technology and design; much better than you ever thought you could!
“students did better than in normal D&T lessons … they revealed strengths and qualities I hadn’t seen before”

a design and technology teacher