



Manufacturing

Introduction

The aim of this web site is to provide teachers with a means of

- delivering up to date material.
- using local examples.
- covering a wide range of geographical themes.
- integrating ICT with good classroom practice.
- examining the themes with a sustainable focus.
- applying the differentiated tasks according to ability.

What is Education for Sustainable Development?

“Education for sustainable development enables people to develop the knowledge, values and skills to participate in decisions about the way we do things individually and collectively, both locally and globally, that will improve the quality of life now without damaging the planet for the future.”

(Panel for Education for Sustainable Development, 14 September 1998)

How to use site

The site is designed to allow teachers to integrate the material on the web site into their classroom practice. The material is available in a variety of formats to allow as wide a range of flexibility as possible. The material is available on CD-ROM, and on the Internet. The material can be accessed ‘live’ or downloaded to a single or cached computer.

The material covered within each section is sequential. However the individual topics of each theme may be examined separately. Initially each section is placed in a spatial context and then the relevant geographical themes are explored through a wide range of resources, with tasks and activities throughout. Within each section there is direct reference to the sustainable nature of the area in question. Each section has a terminal task in which the overriding themes are explored. Each section of the site has a Scheme of Work. This outlines the main Teacher activities, as well as pupil activities and links to other sites.

Therefore a wide range of approaches may be adopted when using the site.

- The material may be followed through from beginning to end in a linear fashion, using the tasks within the site and worksheets provided on the teachers’ site.
- Separate areas may be examined as part of a wider unit of work, as exemplar, or applicable tasks.
- Individual pieces of information may be lifted for use with KS3 students or older, or even to address different themes, or different subjects.
- Tasks may be set based on research from the material presented.



The aims of this section are that students will

- Have an appreciation of the significant changes that have taken place in Northern Ireland's manufacturing industry.
- Recognise that Northern Ireland's manufacturing industry is increasingly dynamic and diverse.
- Realise that manufacturing industry in Northern Ireland has to be sustainably developed in order to ensure its long-term viability.

Learning Outcomes

By the end of this section the students will be able to

- Recognise that the nature of Northern Ireland's industry is undergoing a transformation from an industrial to a knowledge-based economy.
- Identify different categories of employment.
- Appreciate that manufacturing involves the processing of raw materials as well as the processing of other manufactured products.
- Identify the factors that influence the location of manufacturing industry.
- Identify some of the major industries in Northern Ireland and the products that they manufacture.
- Understand that Northern Ireland's manufacturing base has changed significantly over time due to a wide range of influences.
- Realise that waste production is a consequence of the manufacturing process and must be managed carefully.
- Recognise that hi-tech industry is of increasing significance in Northern Ireland.
- Appreciate that products manufactured in Northern Ireland are used all over the world.
- Understand that manufacturing industry must be sustainably developed to ensure its survival.



Scheme of Work - Manufacturing

Activity - exercise within the site. Individual / Group-work.
Worksheet - PDF printable downloadable file.
Differentiated - depending on ability, age range, differentiation can be upward or downward.

Topic titles	Learning outcomes	Teaching activities	Pupil activities	Further activities [Differentiation U - upwards D - downwards]
<ul style="list-style-type: none"> Introduction 	<ul style="list-style-type: none"> Recognise that the nature of Northern Ireland's industry is undergoing a transformation from an industrial to a knowledge-based economy. 	<ul style="list-style-type: none"> Introduce the term manufacturing, identifying the traditional industries that were most significant in NI in the past. General outline the global importance of ICT and hi-tech industries and their importance in NI economy. Outline the growth in NI's economy in the recent times. 	<ul style="list-style-type: none"> Individual/ Group-work Read through introduction, investigating text and images, discussing general issues of change through time. 	<ul style="list-style-type: none"> Worksheet A [D] Match the words/phrases to the images and complete paragraphs to describe the differences between the two images.
<ul style="list-style-type: none"> NI Jobs 	<ul style="list-style-type: none"> Identify different categories of employment. 	<ul style="list-style-type: none"> Outline classification of employment. Discuss jobs and identify categories that they fit into. Investigate the changing nature of employment patterns, movement from primary to secondary to tertiary employment. Discuss factoid and give examples of quaternary employment. 	<ul style="list-style-type: none"> Individual/ group-work Discuss the nature of the jobs shown. Relate the categories to the jobs of friends/relations. Discuss employment aspirations, in relation to category of employment. Complete activity, drag and drop the job to the category. 	<ul style="list-style-type: none"> Worksheet B [D] Describe what is meant by the different employment categories. Match the jobs to the categories.
<ul style="list-style-type: none"> Manufacturing 	<ul style="list-style-type: none"> Appreciate that manufacturing involves the processing of raw materials as well the processing of other manufactured products. 	<ul style="list-style-type: none"> Use an example such as making a cake to illustrate the raw materials, processes, manufacturing process and final product. Outline the nature of the manufacturing process where raw materials and other manufactured products are processed into the finished product. Identify local examples of manufacturing. 	<ul style="list-style-type: none"> Group-work Investigate the manufacturing processes outlined, identifying the raw materials, other manufactured products, processes employed and final product. 	<ul style="list-style-type: none"> Worksheet C [U] Industry as a system. Identify the inputs, processes and outputs of the industries outlined. Complete a systems diagram for a local industry.



Scheme of Work - Manufacturing Continued

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Worksheet - PDF printable downloadable file.
Differentiated - depending on ability, age range, differentiation can be upward or downward.

Topic titles	Learning outcomes	Teaching activities	Pupil activities	Further activities [Differentiation U - upwards D - downwards]
<ul style="list-style-type: none"> Manufacturing 	<ul style="list-style-type: none"> Identify some of the major industries in Northern Ireland and the products that they manufacture. 	<ul style="list-style-type: none"> Outline some of the wide variety of industries of NI. Identify the raw materials to encourage an association with the finished product. 	<ul style="list-style-type: none"> Individual/ Group-work Discuss the companies and the products manufactured. Complete the drag and drop activity. 	<ul style="list-style-type: none"> [U][D] Using the Yellow Pages locate ten companies in the local area that manufacture ten different products.
<ul style="list-style-type: none"> Location 	<ul style="list-style-type: none"> Identify the many factors that influence the location of manufacturing industry. 	<ul style="list-style-type: none"> Discuss the location of the leading manufacturing companies. 	<ul style="list-style-type: none"> Individual/ group-work Investigate and identify the location of the top ten industries. Complete the drag and drop exercise. 	<ul style="list-style-type: none"> Worksheet D [U] Investigate the companies, place them on the map and complete the missing information. Describe the location of the industries.
<ul style="list-style-type: none"> Location 		<ul style="list-style-type: none"> Identification of the largest companies along the main transport routes, especially to the east and the North. 	<ul style="list-style-type: none"> Group-work Discuss the question, why the largest companies are located in the North and East. 	<ul style="list-style-type: none"> [U][D] In response to the question 'Why do you think most of the larger manufacturers are located in the North and East of Northern Ireland?', write a passage explaining the reasons why.
<ul style="list-style-type: none"> Location 		<ul style="list-style-type: none"> Discussion of the factors influencing the location of industry. Outline in what ways they are important. 	<ul style="list-style-type: none"> Individual Complete the drag and drop activity. 	<ul style="list-style-type: none"> [U] For your area, design an advertisement to promote the advantages of your area for an industry to locate.
<ul style="list-style-type: none"> Trends 	<ul style="list-style-type: none"> Understand that Northern Ireland's manufacturing base has changed significantly over time due to a wide range of influences. 	<ul style="list-style-type: none"> Outline the changes that have occurred over time, with the decline and growth of manufacturing industry in NI. 	<ul style="list-style-type: none"> Individual/ Group-work Investigate the timeline, changes and information. Discuss the implications of the changes at the time. Complete the cloze passage activity. 	<ul style="list-style-type: none"> Worksheet E [D][U] Fit the correct phrases to the correct place on the timeline.



Scheme of Work - Manufacturing Continued

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Topic titles	Learning outcomes	Teaching activities	Pupil activities	Further activities [Differentiation U - upwards D - downwards]
<ul style="list-style-type: none"> Environment 	<ul style="list-style-type: none"> Realise that resource and waste production is a consequence of the manufacturing process, both of which must be managed carefully. 	<ul style="list-style-type: none"> Identify the ways in which the manufacturing process can harm the environment. Place into context through discussion of the waste audit. 	<ul style="list-style-type: none"> Individual/group-work Investigate the causes of pollution. Discuss the implications of the pollution. Complete waste audit activity. 	<ul style="list-style-type: none"> [U][D] Write a report describing the ways in which manufacturing can use up resources and pollute the environment.
<ul style="list-style-type: none"> Seagate - case study. 	<ul style="list-style-type: none"> Recognise that hi-tech industry is of increasing significance in Northern Ireland. 	<ul style="list-style-type: none"> Outline where Seagate is located, what they produce and the significance of the company for the NI economy. 	<ul style="list-style-type: none"> Individual/group-work Investigate Seagate using the range of resources available. 	<ul style="list-style-type: none"> Worksheet F [U][D] Complete the job advertisement for Seagate.
<ul style="list-style-type: none"> Seagate – case study. 	<ul style="list-style-type: none"> Appreciate that products manufactured in Northern Ireland are used all over the world. 	<ul style="list-style-type: none"> General outline of the products their destination and the extent of the Seagate global network. 	<ul style="list-style-type: none"> Individual/group-work Investigate the extent of the company through the resources. Explore the locations of the Seagate operations across the globe. 	<ul style="list-style-type: none"> [U][D] On a map of the world, locate the Seagate centres that are mentioned in the audio clips and transcripts.
<ul style="list-style-type: none"> Sustainability 	<ul style="list-style-type: none"> Understand that manufacturing industry must be sustainably developed to ensure its future survival. 	<ul style="list-style-type: none"> General discussion of the sustainable nature of the manufacturing base in NI. To what extent is it sustainable? 	<ul style="list-style-type: none"> Individual/group-work. Complete the notebook activity and complete the report. 	