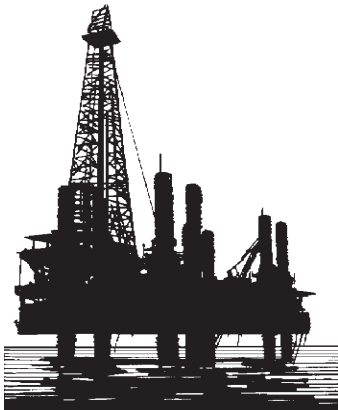


MANUFACTURING INDUSTRIES

Manufacturing engineering is about making products. The products range from cars to goods used in the home such as washing machines, TV sets, cutlery and furniture. Food and textiles are also part of the manufacturing industry.

Industry is divided into three sections:

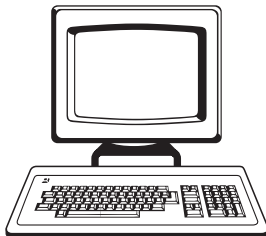


PRIMARY

These **produce the raw materials** needed by manufacturing industry. Examples are coal mining, mining minerals to extract metals, water, electricity and gas supply.

SECONDARY

These **turn the raw materials into products**. They can be subdivided into:



- producing goods for the consumer;
- producing equipment for other sectors of industry.

These two are manufacturing industry.

The third sub-division is the construction (building) industry.

TERTIARY

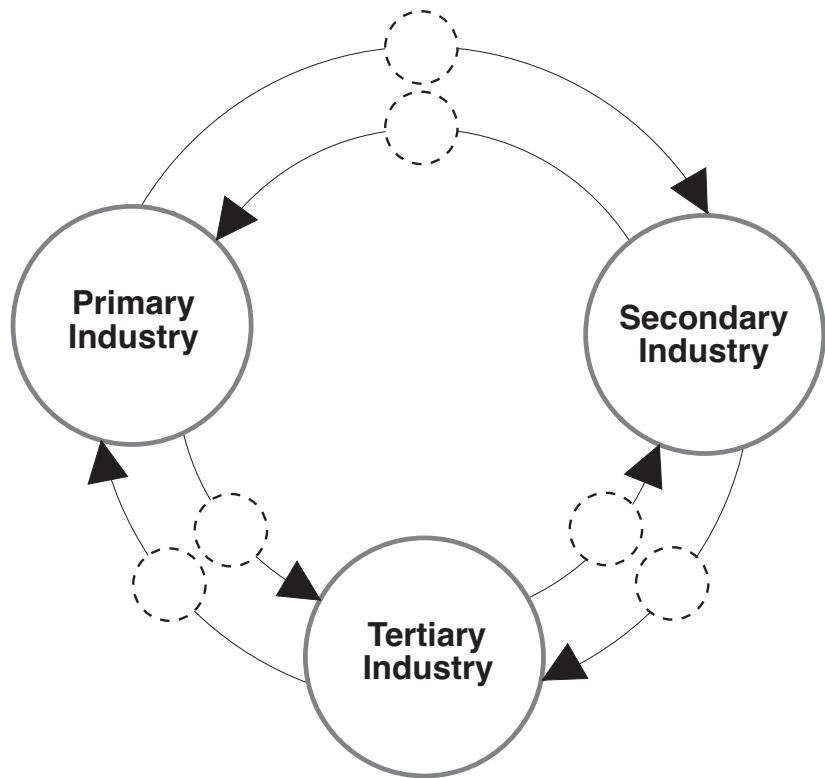
These **provide services** such as banking, insurance, engineering consultancy, advertising, retailing, tourism, transport and local government.



Explain what is meant by:

- produce raw materials;
- turn raw materials into products;
- provide services.

Carry out a survey of your local area. Use the Thomson Directory and your local Industrial Directory to identify examples of each type of industry. Your local offices of the CBI (Confederation of British Industry), SATRO (Science and Technology Regional Office), the Chamber of Commerce and the Engineering Council Regional Professional Engineering Institutions (PEI's) can also supply useful information.

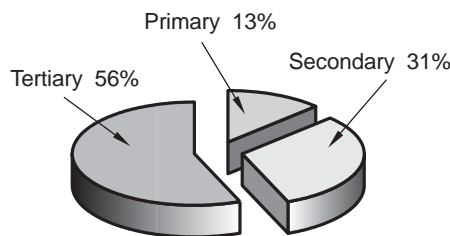


This diagram shows some links between the three types of industry.

Write down a product, service or industry that fits into each of the dotted circles in the diagram above.

In 1987 in the UK, the percentage of each sector was as shown in the pie chart.

There has been a large increase in the tertiary sector at the expense of the secondary.



Discuss these questions in a group:

- Why do you think this transfer from secondary to tertiary has taken place?
- What problems do you think this could cause?
- Why is manufacturing industry important?

Read this extract. It was written by Akio Morita, Chairman of the Japanese Sony Corporation.

*"In the long run, an economy which has lost its manufacturing base has lost its vital centre. This is because it is only **manufacturing** that creates something new, which **takes raw materials** and fashions them into products that are of more **value than the raw materials they are made from**. Services depend on manufacturing. When manufacturing prospers, all industries connected with it prosper - not only are more components, parts and salesmen needed, but also more accountants, more dentists, more petrol stations, more supermarkets and more schools."*

*"**When the manufacturing engine of an economy stalls**, all these things are in less demand. You do not build dentists' offices or department stores unless you have a population with the resources to take advantage of them - and these resources can only come from jobs that add real value to goods - that is, **manufacturing jobs**."*

- How does manufacturing add value?
- What would you add to this list?
- What other benefits are there?
- Why is manufacturing the engine of the economy?
- What does the last paragraph mean?

Manufacturing engineering covers all the processes of:

- Identifying needs; this creates markets.
- Defining the market by market research.
- Turning ideas into products people want.
- Design including engineering design.
- Materials technology.
- Making products.
- Quality control.
- Production engineering.

Whichever part of manufacturing industry you work in, 'hands on' experience of making things is essential.

