**Chapter 16 Manufacturing Systems**

Look around at objects in your classroom? What do you see? Doors? Tables? Books? Desks? These items, and probably everything else in your classroom, are manufactured products. They are made in factories. Most of the things you use every day were \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Manufactured in factories.

**The Evolution of manufacturing**

Manufactured products expected to last 3 years. Ex. Tvs, appliances, tools

Durable Good- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Manufactured products expected to last less than 3 years. Calendars and packaged foods.

Non-Durable Good\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Early Manufacturing**

A skilled occupation, usually done with the hands, such as carpentry or sewing.

 Craft-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Industrial Revolution-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Began around 1750, a period of change in the US economy from farm-based to an industry-based economy.

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Scientific Management-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Frederick Taylor developed this production practice for standard ways of doing a specific task in a factory.

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Time and Motion study-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

A method of finding a way to do a job in the shortest time with the fewest movements.

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Dividing of the work into smaller steps done by certain groups of specific skilled people for their role in the production process.

Division of Labor-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Production method featuring work stations along a moving line.

Assembly Line-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Organizing a Manufacturing System

All manufacturing companies use the same system inputs to produce their products.

Production Engineers-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Decide the best way to manufacture the products.

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The processed materials companies use to make their products. Ex. Wood that has been treated, spools of metal wire.

Ex. Metal ore, raw cotton, sand

Materials-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Raw Materials-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Materials in their natural state.

Ex. Iron ore, trees, raw cotton, and sand.

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Manufacturing System Inputs- -\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

All companies use the same system inputs to produce their products: People, Materials, Tools & Machines, Energy, Information, Capital, and Time.

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 Added Value- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Increase in a materials worth after being processed into a finished product.

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**Manufacturing Processes**

**Changing Size and shape**: Abrading-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

To scrape or rub off small pieces. Filing sanding and grinding remove material by abrading it.

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**Chemical Processing**: Conditioning-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Changes materials by using chemicals.

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Is combining 2 or more parts together. Furniture is fastened with nails, screws and glue.

**Fastening**-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Outputs and Feedback**

What outputs and feedback are part of a manufacturing system?\_\_\_\_\_\_\_\_\_\_\_\_\_

The products are the main outputs of a manufacturing system. Another output is jobs for the community. Waste and pollution maybe also part of outputs.

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The process of getting people’s opinions about a product so that a company knows what changes to make or whether to sell the product. Ex surveys & samples

Market Research-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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A person or company that provides the materials for making a manufactured product.

Supplier-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Inspection during the manufacturing process.

Quality Assurance-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Scheduling items to arrive just when needed in factory production.

Just-in-time delivery- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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When payment is based on sales.

Commission-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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The Money left over when all bills are paid.

Profit-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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