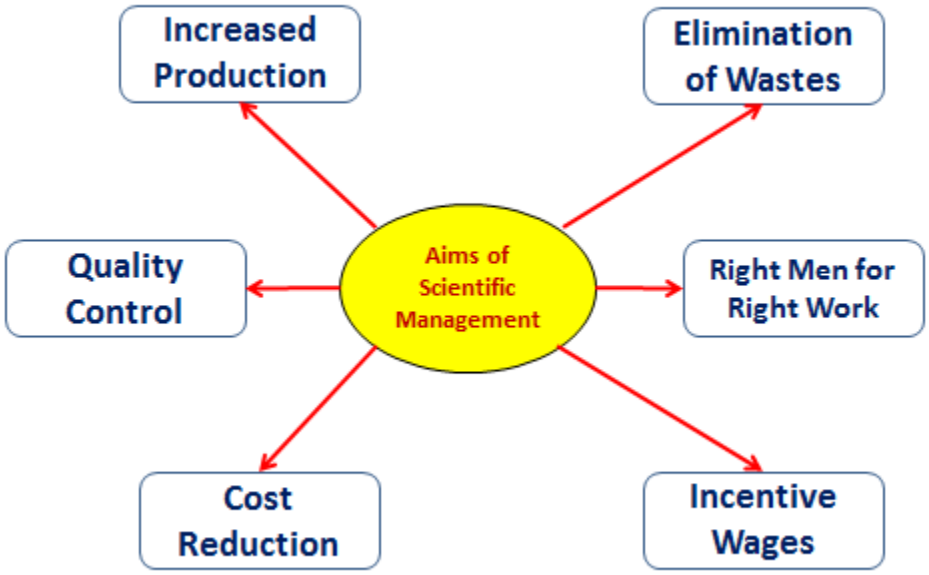
Scientific Management

- In general, scientific management is defined as the use of the scientific method to define the 'one best way' for a job to be done.
- The concept of Scientific management was developed by Frederick Winslow Taylor (F.W.Taylor).
- It is also called as Taylorism or The Taylor System.
- Taylor (1856-1915) was an American inventor and engineer that applied his engineering and scientific knowledge to management and developed a theory called scientific management theory.

According to Taylor:

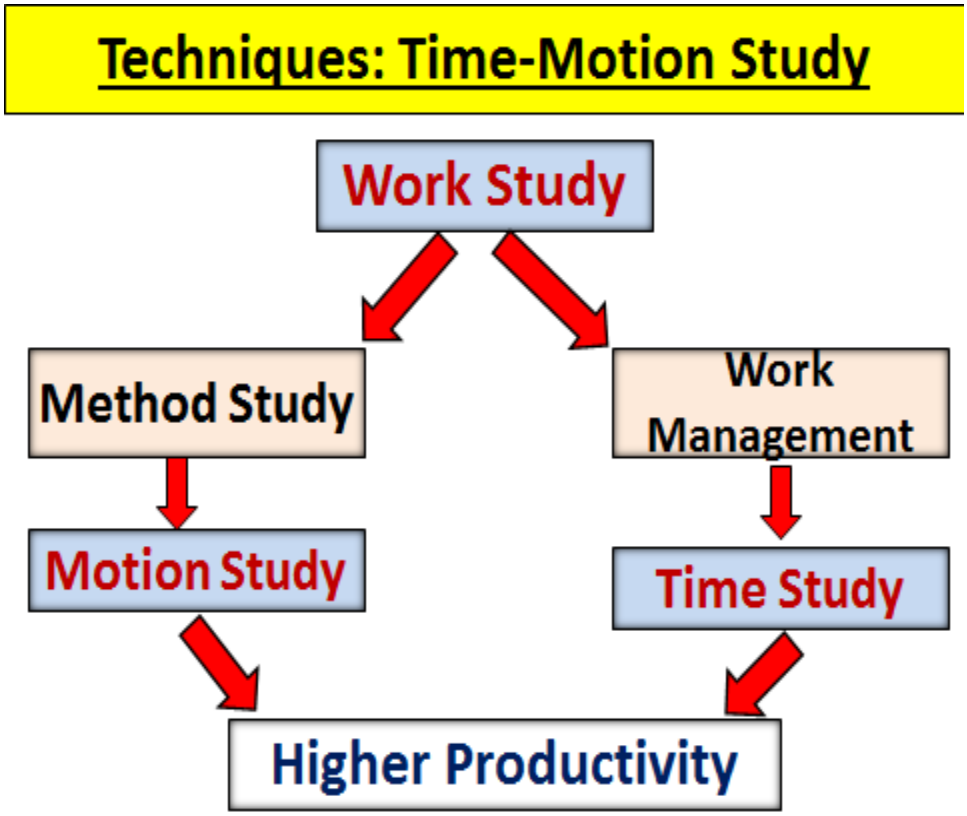
- Scientific management is a theory of management that analyzes and synthesizes workflows, with the objective of improving labour productivity.



Principle of Scientific Management

Taylor gave the following principles which are the cornerstone of scientific management:

1. Development and application of scientific methods in place of 'rule of thumb'.
2. Harmony between management & labour.
3. Cooperation with each other.
4. Maximum output in place of restricted output
5. Development of workers to their maximum efficiency
6. Equal division of responsibility between management & labour.



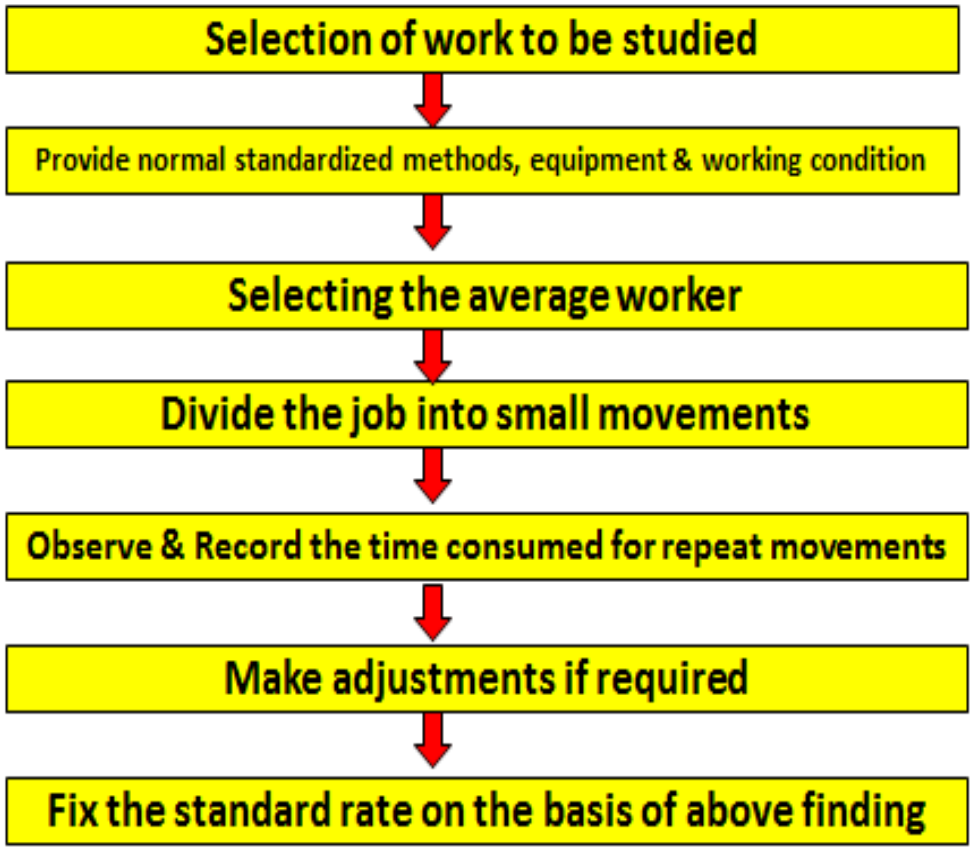
Time Study

This method is to determine the actual time for performing a particular task.

Aims & Objective of Time Study

- To create time consciousness among the workers.
- To minimize and control the cost.
- To set a fair hourly output standards for a worker.
- To improve working conditions.
- To use the standard time data so as to fix a fair incentive wage plan.

Procedure of Time Study



Advantage & Disadvantage of Time Study

Advantage:

- It helps to measure the efficiency of each worker by setting standards.
- It helps in determining the ideal workload of different categories of worker
- It helps in setting of production schedules
- It helps in making the effective incentive plans
- It reduces the cost also.

Disadvantages:

- It is not useful for repetitive job.
- Standardization is not possible until equipment, products, materials, working condition all are standard.

Motion Study

According to Gilbreth, "It is the science of eliminating wastefulness resulting from using unnecessary, ill-directed and inefficient motion".

Aim of Motion study

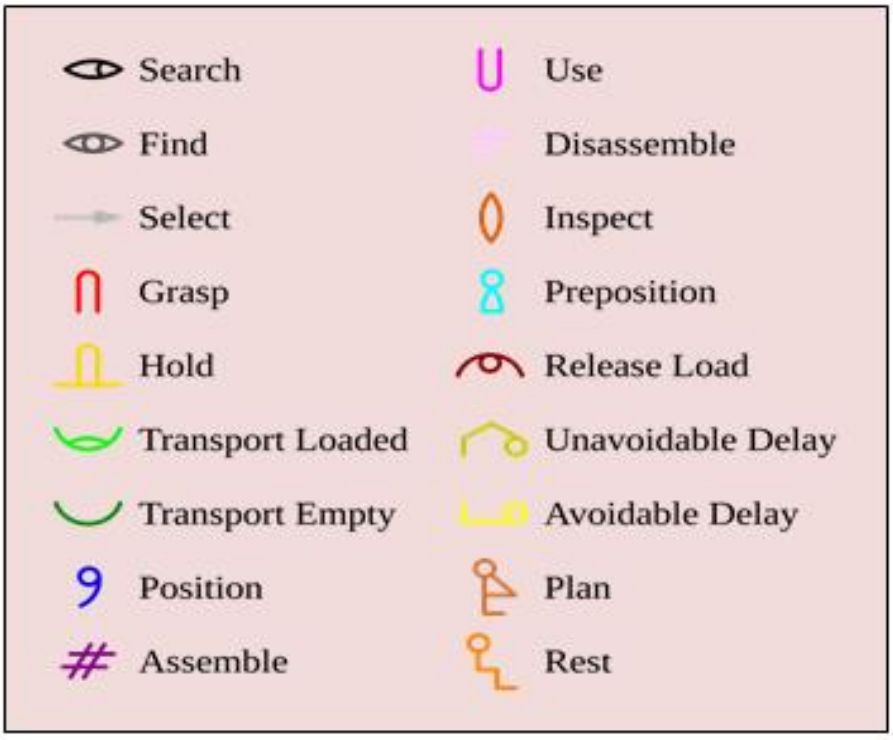
- To find and perpetuate the scheme of least wasteful methods of labour.

Motion study can be divided into three components

1. Analysis of Therbligs
2. Micromotion
3. Principles of motion economy

1. Analysis of THERBLIGS

'Therbligs' are 18 kinds of elemental motions used in the study of motion economy in the workplace.



2. Micro-motion Study:

- It is defined as "the fundamental elements of an operation with the help of a high speed movie camera in order to eliminate the unnecessary motions involved in the operation & balancing the necessary motion".
- The elements are expressed in the units of TMU (1 TMU= 0.036 Second).
- It enables greater detailing than eye observation provides greater accuracy than pencil-paper and stop watch technique.

3. Principles of Motion Economy:

The law of motion economy suggests ways to do the work with minimum fatigue and time.

According to Gilbreth, the laws of motion economy are:

- Both hands should work and rest at the same time
- Both hands should begin and complete their therblings at the same instant.
- Motion of arms should be in opposite and symmetrical directions instead of in the same direction and should be made simultaneously.
- All materials and tools should be so located to permit proper sequence

Advantages & Disadvantages of Motion Study

Advantages:

- It leads to increase the production.
- It increases the efficiency of workers by reducing fatigue and manual labour.
- It helps in to reduce the cost of the production.
- It improves the working conditions.

Disadvantages:

- It adversely affects the initiative and creativeness of workers.
- It lays down a certain pattern of motions which, if employed task become monotonous.
- It does not take into consideration the differences in the efficiency of various workers.

Motion Study vs Time Study

Basis of Comparison	Motion Study	Time Study
1. Meaning	To watching and recording the movements of worker	Careful measurement of time required to do the different parts of a job
2. Nature	Minimization of movement of operators	Increasing the productivity to labour
3. Purpose	To determine the best way of doing a job	To determine fair day's work
4. Technique	It is conducted with a moving camera	It is conducted with a stop watch