

**III YEAR – V SEMESTER
COURSE CODE: 7BHFE2A**

**ELECTIVE COURSE - II (A) - FAMILY RESOURCE MANAGEMENT
AND INTERIOR DESIGN**

Objectives:

1. To recognise the importance of wise use of resources to achieve one's goals.
2. To acquire the knowledge of various elements and principles of art in Interior.
3. To learn skills in using the basic principles of art at home, in commercial situations and other occasions.
4. To apply theoretical knowledge of interior decoration to practical Situations.

Unit – I

1. **Management** – Definition, principles and elements involved in management,
2. **Process** – planning, controlling and evaluation.
3. **Decision Making** – steps, importance, types of decisions, Habitual versus Conscious decision making. Individual and group decisions, resolving conflicts in group decisions.
4. **Management Concepts** - Goals and Values – their relationship to decision making.
5. **Resources** – Human and non-human resources. How they are utilized to achieve family goals.
6. **Time and Energy Management** – Time and energy as resources. Management process applied to the use of time and energy.

Unit – II

1. **Human Wants** – Their nature and classification. The concepts of Marginal utility, law of Diminishing Marginal Utility and the Law of Substitution and their application. Law of Demand.
2. **Standard of Living** – Definition, constituents – Means for raising the standard of living of families.
3. **Family Income** – Money income and Real income, sources of income. Family expenditure (family income management), family budget, its main items. Engles's Law of Consumption.
4. **Financial Records** – Types, purposes, maintenance.
5. **Savings** – Needs for savings in the family, types of savings institutions and schemes.

Unit - III

1. **Interior decoration:** Place of art in every day life. Good taste and its importance.
2. **Design :** Elements of design, types of design, characteristics of good design. Principles of design – Harmony, Emphasis, Proportion, Balance and Rhythm.
3. **Colour:** Qualities of color. hue, value, Intensity, colors and emotions, advancing and receding colors, prang colour system.and colors in interior decoration.
4. **Furniture:** - Selection, arrangement and care of furniture in the living area, dining area, study area, and bed room.

Unit –IV

1. **Furnishings** : Factors in the selection, types, use and care of furnishing materials (Draperies and curtains).
2. **Floor coverings** : Factors for selecting floor coverings, salient features of carpet, types, use and care of floor coverings.

Unit – V

1. **Accessories** : Selection, use and care of accessories .Flower arrangement- Types, principles and steps in preparing flower arrangement and Other art objects.
2. **Home illumination** : Functions, factors to be considered, types of illumination, planning for illumination for various areas.

Books for Reference:

1. Nickell.P. and Dorsey. J.M. – “Management in Family Living”, John Wiley and Sons, Inc, New York, 1960.
2. Goldstein. H and Goldstein. V. “Art in Everyday Life”, Macmillan and Company, New York, 1966.
3. Graig. H.T., And Rush, C.H. “Homes with Character”, D.C. Health and Company, Boston, 1965.
4. Rutt, A.H., “Home Furnishings”, John Wiley and Sons, New York, 1961
5. Roy Day, “All about Decorating Your Home” Hamlyn, London”, 1976
6. Alexander, M.J., “Designing Interior Environment”, Har court Brace Jauaroui Inc., New York. 1972.
7. Sherwood, R.F. “Homes Today and Tomorrow”: Chart Bannet, Co., Inc., PEORIC, Illinois, 1972
8. Premavathy Seetharaman and Parveen banu “Interior Design and Decoration” CBS Publishers, New Delhi, 2007.



FAMILY RESOURCE MANAGEMENT AND INTERIOR DESIGN(7BHFE2A)

UNIT-1

Definition and Concept of Family Resource Management

Resources can be defined as anything we use to achieve what we want (our goals). In other words, they are the materials and human attributes which satisfy our wants.

The concept of management involves planned use of resources directed towards the achievement of desired ends. This involves the weighing of values and the making of series of decisions.

In home management, a home in which goals (ends) are being attained with some degree of satisfaction may be considered as well managed home where management is practiced in an orderly manner.

Home management is the vital factor in every family contributing to the overall health, happiness and well-being and higher standard of living for the family members. In simpler terms, home management is defined as the mental process of utilising the available resources to achieve what you want in life.

management is a process involving activities, through which action is initiated and resources are used for achieving a goal. For this purpose, certain guidelines in the form of values, goals and standards can be formulated by every manager. For sure attainment of desired goals it becomes essential to plan, organise, coordinate and control all the activities, so that the resources are not wasted.

Management Process:

□ Management process consists of five steps 1) Planning 2) Organizing 3) Directing. Controlling 5) Evaluating and are discussed below in detail.

1. Planning

Planning is very important to the success of management process. It is basically working out ways or course of action to achieve the goals. Planning can be habitual or conscious.

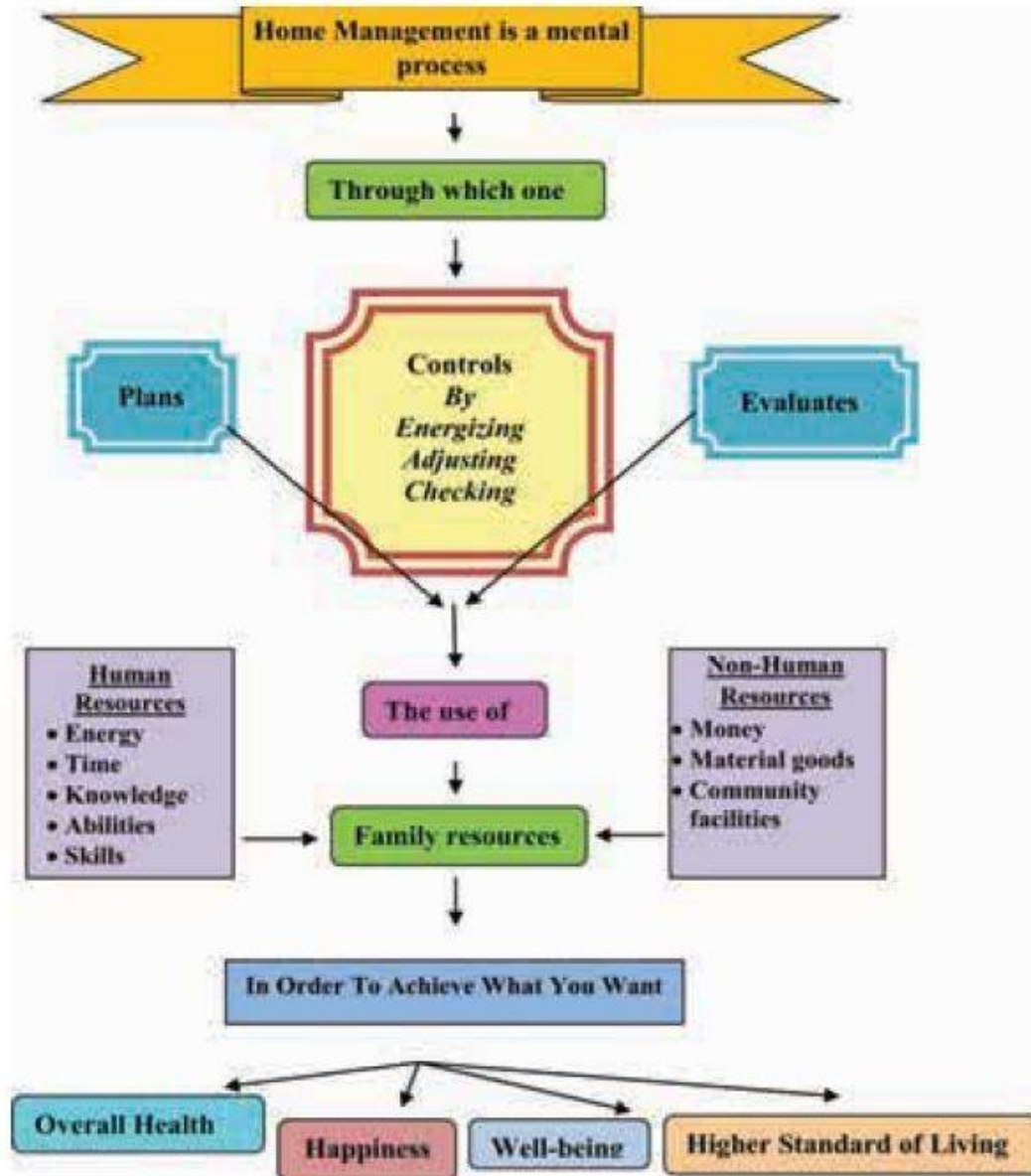


A hand holding a yellow marker points to a word cloud. The word 'PLANNING' is the largest and most central. Other words include 'strategy', 'economic', 'political', 'formal', 'discuss', 'meetings', 'policy', 'business', 'processes', 'need', 'activities', 'forecasting', 'organizational', 'directives', 'global', 'diagrams', 'international', 'psychological', 'process', 'flexible', 'integration', 'consequences', 'social', 'need', 'planning', 'activities', 'strategy', 'policy', 'business', 'processes', 'directives', 'global', 'diagrams', 'international', 'psychological', 'process', 'flexible', 'integration', 'consequences', 'social'.

Planning involves thinking through the possible ways of reaching a desired goal. It also involves developing a sequence of actions within an overall organizational structure.

The entire task from beginning to its completion must be viewed in whole. If the paths leading to the goals are easy to see, the choice of the best plan can be made quickly. When the path is hard to see due to some obstacle, the planner must find ways of overcoming them. As children do not have enough experience, they can get the help of an experienced adult to plan. The final act in planning is arriving at a decision. **‘It is the gate that releases action’.**

Good planning requires the use of the powers of thinking, memory, observation, reasoning and imagination.



▲ Fig. 1 Management Proces

These powers, make it easier to plan and to meet situations in everyday living. For example the following points should be borne in mind while planning a birthday party.

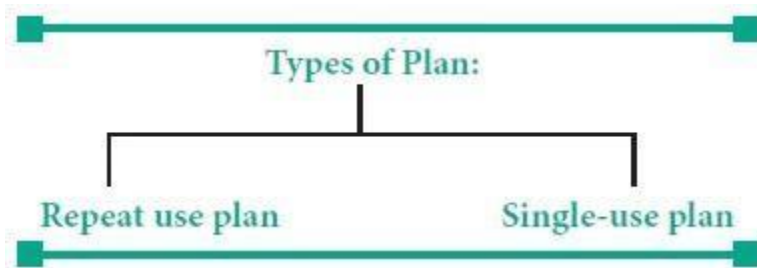
- ☐ The place or the venue of the party.
- ☐ Number of invitees
- ☐ Menu
- ☐ How much money are we going to spend?
- ☐ When are we going to have the party?

While planning, the following points should be considered.

- ☐ There should be a balance between the amount of resources available and the demands or needs.

- The decision should be made according to individual situations.
- The plan should be realistic.

The plan should be flexible.



Single-use plan is one that is developed for a specific function, event or activity with the anticipation it will not be used again. While **repeat use plan** is one that is developed in the anticipation, it will be modified and frequently used in similar situations, for similar demands or events or to resolve like problems. **Sequencing** is a phase of the planning component of management process in which all tasks necessary to achieve the goal are placed in a logical order; the standards for each task are established.

2. Organizing

Organising involves the performance of the following tasks.

- Division of work among employees (assignment of duties)
- Delegation of authority (transfer of official rights by a superior to his subordinate)
- Creation of accountability (the subordinate, to whom work has been assigned and authority has been delegated, is made answerable for the progress of work).

3. Directing

Directing the human resource does not mean the process of issuing mere orders and instruction to the subordinate staff. It is, in fact, the process of supervising, guiding and motivating the employees in order to get the best out of them. By performing the directing function, the human resource manager will also be able to get the whole –hearted support and co-operation of all his subordinate staff. This help in the effective attainment of the enterprise objective.

4. Controlling

Controlling is carrying out the plan. This step calls for flexibility in thinking. At times new decisions are required which may result in changes in plan. For example: when the menus are planned for meals, if certain things are not available during shopping a fresh decision need to be made. The different phases of controlling are

- **Energising:** This is initiating and sustaining the action. The individuals who are involved in doing a particular task must be energized in order to get results. In spite of having a good

plan, sometimes implementing the plan would become difficult. Here, the energizing function would act as a catalyst.

□ **Checking:** This is a quick step by step evaluation of the progress of a plan. To go to school on time one has to get the clothes, the meals and books ready, which need checking of time at all stages.

□ **Adjusting:** Adjusting is done in the plan if there is a need for fresh decisions to be taken. This should be done taking into account the problem in hand and the resources available. Getting into action, keeping the resources mobile and knowledge of what is to be done are all important in this step.

5. Evaluating

This is a checking up process, which may help one move forward. The efficiency of the process and the quality of the end product are to be checked. When there is clear cut objectives it becomes easier to evaluate the entire process. The success or failure of the plan must be evaluated on the basis of the set goals. In case of failure the demerits of the plan may be noted and rectified while making further plans. Evaluation can be general or more detailed.

Thus management in the home is a dynamic force in day to day living and is the administrative side of family living. The steps in the management process are interdependent and interrelated for efficient, effective and dynamic use of resources which leads to the proper management of the house, whereby goals are achieved to attain maximum satisfaction.

Values

Values, Goals and Standards are important factors in the management process. Values are the key to all motivating factors in human behavior. Value, as a concept is vague and subjective although it is very important to an individual. Values grow out of human desire and interest. Values differ in cultures. The family has the major responsibility for fostering values among the members. **The term “value” signifies the meaning or definition of worth that is attached to any object, condition, principle or idea.** Values provide a basis for judgement, discrimination and analysis and it is these qualities that make intelligent choices possible between alternatives. Thus, values are the fundamental forces that force or motivate human activities and endeavors.

According to **Gross and Crandall (1980)** a value is always important to the person who holds it. It is desirable and satisfying. It has the ability to develop in self-creative way and it tends to endure. It is a concept of the desirable, explicit or implicit which governs our choice of methods, modes or goals.

The following are the motivating values of human behavior-comfort, health, ambition, love, desire for knowledge, technological satisfaction, play, art, religion.

Classification of values

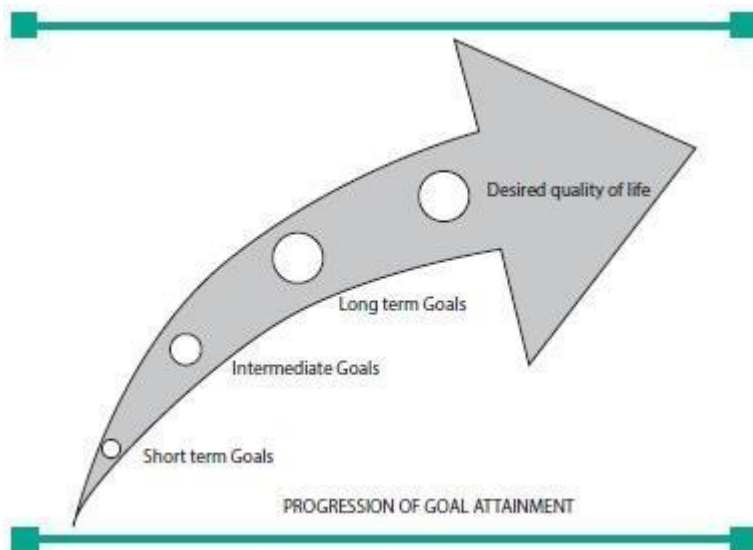
Intrinsic or Instrumental: An **intrinsic value** is one that is important and desirable simply for its own sake. It is worthy of being sought for itself alone. Honesty, co-operation, creativity, beauty, discipline, respect etc. are some of the intrinsic values in management. On the other hand, **instrumental values** are ways of reaching intrinsic or end values, sometimes called goal values. Therefore, they form the basic values leading to another. Planning, skills, order and efficiency and technological satisfaction are examples of instrumental values.

Factual and Normative Values: The other classification of values as factual or normative brings out the difference between the factual values that exist, regardless of their level of desirability and the normative values that have an ethical basis. The factual values also called descriptive, generally are based on people's preferences and desires. The normative are ethical values, which carry the idea of right or wrong. Some examples of factual values are honesty, religion, loyalty, faithfulness.

Goals

- Goals are important factors in the management process. Goals are the desires that individuals or families are willing to work for. They are more definite and clear than values because they are to be accomplished. They are tangible things, objects, ends or purposes. Goal is an objective or purpose to be attained. They are specific ways of realizing the values one hold.
- **Definition: Goal is defined as an objective, condition or something you desire to achieve or attain at any given period or time.**
- At present, your goals are to complete your courses and obtain higher degree so as to get job in your chosen profession. As each of these goals are achieved, new goals, will emerge leading to other higher goals in your life.
- Goals, like values, play an important role in your life. Values give meaning to your life. Goals on the other hand, point the direction you want your path to follow. Thus, it can be said that values and goals are inter-related. Values are the vehicles and goals are the highways you use to attain your desired quality of life.
- **Types of Goals**
- Goals are classified under the following heads.
- They are classified:
 - **I) According to the number of groups:**
 - **Individual goals** are established by an individual for himself. These are based on his own values. He puts in efforts for their achievement and receives satisfaction to himself, for example scoring 70% marks in the examination.

- **Group goals** are established by the group. These are based on the some of the common values and interests of the group members, for example, achievement of 100% result of the class at the S.S.L.C. examination.
- **II) According to duration for achievement of goals**
- Throughout life each individual and each family is always seeking some objectives.
- According to duration for achievement, goals are classified as short-term, intermediate and long-term goals.
- ☐☐☐ **Short-term goals**
- In short term goal, the period of attainment of goal is short. Example is to successfully complete the course of study. Since the achieve-ment is anticipated in the near future, these goals usually involve a time period of six months or less.
- ☐☐☐ **Intermediate goals**
- Intermediate goals are nothing but the link connecting between short term and long term goals. They have definite characteristics and serve a purpose in your life time achieve-ment. The time duration involved in intermediate goals is longer than short term goals. Achievement of these goals is measured in terms of several months or years. For exam-ple, to complete your graduation you will require few years.
-



- **iii)Long term goal**
- The duration in achieving this goal is long. Classification differs from the other two, in regard to the time period, the degree of specificity and the extent of active implementation involved in attainment. Long term goals are those you have set for yourself in the distant future.
- Long term goals may include one or more of the following – get-ting a good job in chosen pro-fession, getting married, owning home or farm.
- **DECISION MAKING**

- Management occurs when there is some problem to solve, some choice to make. The various steps in the management process are really a series of decisions, based upon our previous experiences. Therefore, decision making is the heart of the management. **A decision can be defined as a course of action consciously chosen from the available alternatives for the purpose of desired result.** So the role of decision making in management involves knowing and actually applying essential information in problem situations of day to day life. Thus it is used to achieve goals and assessing standards.
- Management is a mental process which involves a series of decision making.
- **The steps in decision making process are:**
 - **1) Defining the Problem**
 - It involves the recognition of the problem. It needs relevant information to identify and define it first. Unless the problem is clearly defined and analysed the ultimate decision would not be effective. For e.g. planning house-hold activities, purchasing labour saving devices, selecting clothing for the family.
 - **2) Identifying the Alternatives**
 - Decision making will be effective only when one identifies possible alternatives. The choice of best selection of alternatives requires thorough knowledge about the availability of resources and their limitations.
 - **3) Analysing the Alternatives**
 - After identifying the alternatives, one should think of the consequences of each alternative systematically to find out the relevant one, considering the goals, values and standards.
 - **4) Selecting an Alternative**
 - After analysing the problem one should carefully select from the possible alternatives. Evaluation plays a very important role in this selection. Choosing the best from the several possible alternatives will be helpful in solving the problem.
 - **5) Accepting the Consequences of the Decision**
 - This is the ability to assess and accept the consequences of the decision for making future decision. It is the evolutionary process. The process of evaluating the alternatives is based on your goals, values and standards. This experience would indicate the final outcome of the decision making. It creates self confidence in people and gives feedback to make effective decisions in the future.
-



▲ Fig. 3 Steps in Decision making

• **Types of Decisions**

- There are different types of decisions namely individual decision, group decision, habitual decision, central decision, economic decision, technical decision and decision making due to experience and knowledge.

• **Individual Decision**

- It is the decision pertaining to an individual e.g. education. Individual decisions are more quickly made. The decision making of an individual revolves around the values, goals, standards and roles the individual assumes in the relevant set of framework.

• **Group Decision**

- It is made from the collective action of several individuals each of whom has distinct values, goals, standards and role perception. It is a difficult process and a slow process. Role conflicts would emerge in this situation.

• **Habitual Decision**

- It is the lowest level of decision. Once an individual is trained to do systematic work, he will follow that throughout his life. They are routine, repetitive actions related to daily activities. Once it becomes a habitual choice, the resultant action is quick and spontaneous.

• **Central Decision**

- Central decision has many supporting decisions to complete the whole task e.g. purchasing a house is a central decision. This leads to look out for other supporting decisions like transportation facilities, community facilities, savings etc.

• **Economic Decision**

- It is based on allocation and exchange process relating to resource use. This decision needs the allocation of human and non-human resources to attain a goal. It reveals the

allocation of resources among the combination of goals that will bring about the greatest degree of satisfaction.

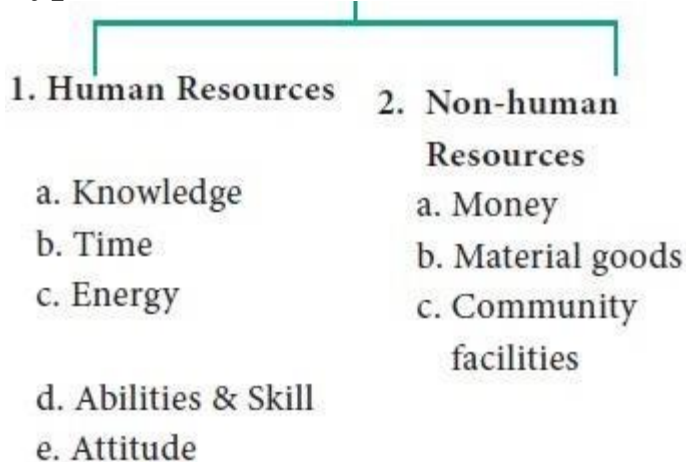
- **Technical Decision**

- This decision involves a decision, which will enable the best combination of resources to achieve the stated goal.
- Decisions must be made based on past experiences and knowledge. This helps a person to become more efficient and skilled in decision making process.

- **FAMILY RESOURCES**

- Resources can be defined as anything we use to achieve what we want (our goals). In other words, they are the materials and human attributes which satisfy our wants.

- **Types of Resources**



- **1. Human Resources:** These are the capacities and characteristics of an individual. These can be used only by the person who possesses them. They have the high potential to achieve what we want and many a times may not be cultivated or made available. Most of the time, families underestimate these resources and are unaware of them.
- **i. Knowledge:** It is important to be aware of things to be able to achieve what we want. If we want to buy a T.V. we need to know what features to look for, brands available. This will help in buying a better quality product.
- **ii. Time:** It is constant for everyone, 24 hours a day. The way a person manages and uses her time is her personal choice. A student may finish all the work before going to play; another may waste his time watching television or talking on the cell phone.
- **iii. Energy:** This is both mental and physical power of a person. To achieve goals, one needs to plan, organise and finally implement the plans. This would require both mental and physical energy.
- **iv. Abilities and skill:** These are inherited and acquired. These may include skills like cooking, decorating, gardening. Each individual has particular abilities with which he/

she can achieve his/her goals. These skills can also be developed by systematic learning and practice.

- **v. Attitude:** These are opinions or feelings a person has towards a thing which may hinder or help in achieving his goals. A positive attitude may help a person achieve what he wants whereas a negative attitude may hinder her in achieving what she wants.
- **2. Non-human Resources:** These are tools and assets that families have at their disposal to achieve what they want. These are available for everyone to use. A person works hard and earns money to be used by him and his family. He/she may buy material goods or land from this money and may build a house on this land. Community facilities like banks, post offices, parks, and library. These are tangible and are more identifiable.
-
- **a. Money:** It is the pivotal resource which can be exchanged to buy material things, commodities and services. It can also be used for future use and thus gives a sense of security to the family.
- **b. Material goods:** These include durable goods or perishable goods used and owned by a family in their everyday use. Land, house, furniture and vehicle are examples. These help to make life easier and more comfortable for all family members. Durable goods like land can also help families to earn or save money. If vegetables are grown on land, the family can save money on buying vegetables or sell these vegetables to earn money.
- **c. Community facilities:** These are those facilities which are common for all members of a community. Parks, libraries, post office, police and fire protection, banks, hospitals, transport facilities, roads, rail-ways, electricity, water supply, markets, community centres and ration shops are examples of community facilities. All families can avail these facilities without directly paying for them but indirectly paying for them through taxes.
- **Characteristics of Resources**
- **1. All resources are useful and all help to achieve goals.**
- One cannot call energy or time as a resource if it is wasted or not used. If a piece of land is lying vacant, it is not a resource, only when a family grows vegetables on it, does the land become a resource.
- **2. All resources are limited.**
- There is a limit to a person's knowledge, skill, energy, material goods and money available to the family.
- **3. All resources are inter-related.**
- A resource cannot be used in isolation. If a homemaker has to go to the market, she will use her knowledge, skill of bargaining, time, energy, money, market and transport to achieve this goal.

- **4. Resources can be substituted.**
- One can exchange one resource for another. A family uses time, skill and energy of a servant and gives her money in exchange. Similarly, material goods can be bought in exchange of money. One can exchange knowledge by paying tuition fees.
- **5. All resources need to be managed.**
- Since all resources are limited, they need to be utilized properly, otherwise they may be wasted. Time and energy have to be managed by work simplification techniques, proper postures and labour saving devices.
- **TIME AND ENERGY MANAGEMENT**
- Many activities are performed throughout a day. Some of the activities like eating, cooking, exercising, sleeping, bathing and entertaining are also carried out along with work related activities but all these are to be completed within the available time that is 24 hours. If energy will not be rebuilt from time to time the work would cease. The capacity needed to perform these activities is called energy.
- **Energy is the capacity to do the work. It means that just as available time as a resource is limited, we also have limited amount of energy. So we can say that within limited time we must finish all our work with our limited energy.**
- Time and energy are the resources available to all the individuals. These two resources are very closely interlinked. Each one affects the other. Although energy available to each one is different but the time available is equal i.e. 24 hours in a day. If the work is needed to be finished properly and on time, it is needed to make best possible use of time and energy. In other words one must learn to manage time and energy properly.



- **1. Steps in Time-Planning**
- **Listing all the activities:** List activities that have to be performed on a particular day. These can be eating, sleeping, going to school, school time and completing homework.

- **Grouping flexible and inflexible activities:** Separate the activities into two types. Those which are **flexible** like going to market for shopping. The timing and day for shopping can be changed as the situation demands and can be delayed to the next day. The other set of activities are those which are **inflexible**, like going to school, music or dance classes. The time for performing these activities is fixed and cannot be delayed or changed.
- **Estimating time required for performing each activity:** In the list that is prepared in step-1, allot time required for performing each activity. Going to school may take between 7 -10 minutes or 1 hour. School time may be 5-6 hours. Fill in all other works which can be done within a short time in between all the other activities with fixed activities.
- **Balancing:** Balancing is the adjustment of time for each of the activities. This is the most difficult task. After allot-ting time to each of the activities, you might find that the total time required by you to do all the work is more than 24 hours. This is done by the identify-ing the time needed for various activi-ties in a day and allotting the time for each activity based on their priority.
- **2. Factors that influence effective time management**
 - ☐ Make a time schedule which can be easily followed.
 - ☐ Make a time schedule which is prac-tical and flexible and can be changed easily in emergencies.
 - ☐ Think of an alternative plan of action for emergency.
 - ☐ Allow for rest and leisure time activities.
 - ☐ Combine activities (Dovetail) for bet-ter time utilization of time.
- **3. Energy Management**
 - Energy management is a difficult task as the energy expenditure for various activ-ities depends on the individuals physical and mental health. Various efforts are needed to perform different household tasks. They are mental effort, visual effort, manual effort, torsal effort and pedal effort.
 - During the day, different types of activities are performed requiring differ-ent amount of energy.
 - **i. Heavy activities** like running, jog-ging and mopping requires large amount of energy.
 - **ii. Moderate activities** like sweeping, ironing and cooking require aver-age amount of energy.
 - **iii. Light activities** like reading, watch-ing T.V. and listening to music need very little energy.

Money Management

Among all the resources that are available to the family, the most important one is money. Money plays an important role in the life of man as an instrument through which he can satisfy his physical, material and mental needs. The income and expenditure pattern of the family decides the family's standard of living and its place in the society.



1. Concept of Income

Income is the inflow of money, goods and services. Family income is one of the concept of income. It is defined as money or purchasing power earned by family members during a specific period of time and goods and services received or created in that time by the family eg. goods like vegetables from kitchen garden, services like doing household chores, teaching children etc.

Family income can be classified as:

1. Money income
2. Real income

3. Psychic income

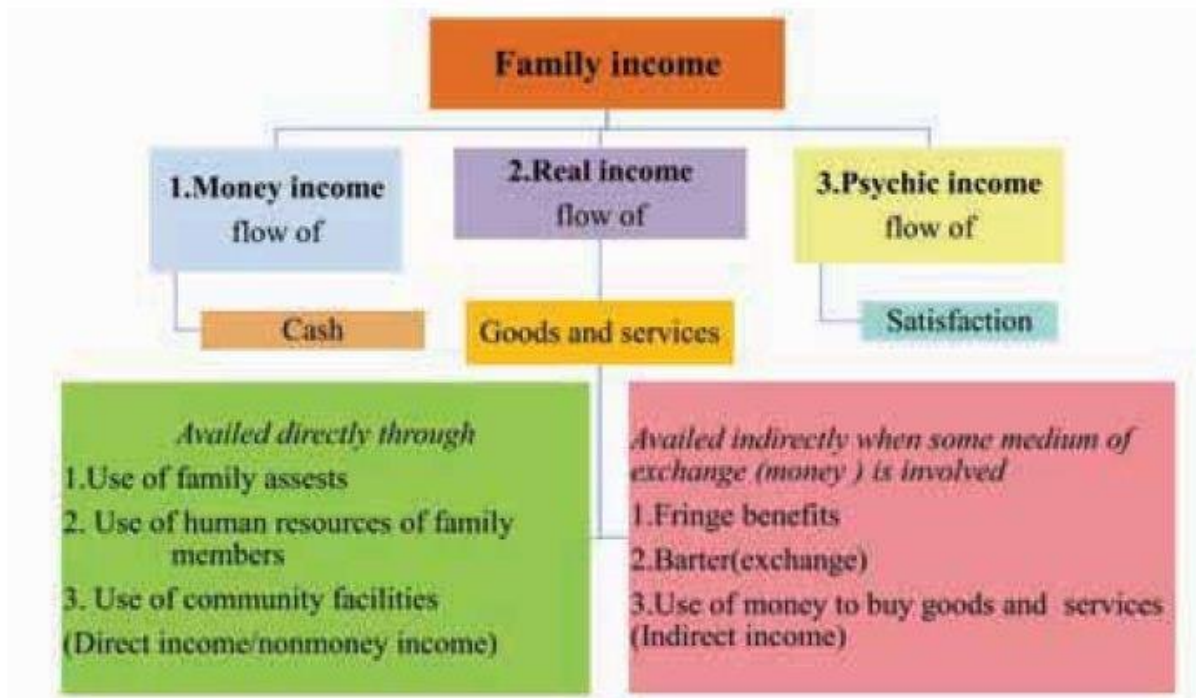
1. Money income

Money income is the cash available to a family from any source, over a period of time. The period can be daily, weekly, monthly or yearly. It is obtained in the form of a currency, bank draft or cheques.

Money income is tangible and is used for purchasing goods and services for the family. The sources of money income are given below.

Sources of money income

- **Salary**
- **Rent**
- **Bonus**
- **Profits**
- **Wages**
- **Cash gifts**
- **Dividends from shares**
- **Interest from banks**
- **Pension**
- **Investments**
- **Lotteries**



▲ Fig. 4 Types of family income

2. Real income

Real income is the stream of goods and services available to a family over a period of time. Real income is derived from properties and possessions owned by a family, skills, efforts and abilities of the family members and also from community facilities. These goods and services may be available to a family either directly through direct contribution of family members or by community facilities or indirectly when some medium of exchange, usually money is involved.

3. Psychic income:

It is that flow of satisfaction that arises out of everyday experiences, derived largely from use of money and real income. It is intangible, subjective and is the most important income in terms of quality of living. Psychic income depends on the skills of family members in utilizing their money and commodities judiciously. Satisfaction derived out of flowers obtained from the plants at home is an example for psychic income.

2. Factors Affecting Income of a Family

Several factors affect income generation such as:

- a. Skills and talents:** If a person has tailoring skills, they can start a boutique, while a knowledgeable home-maker can conduct bakery classes and generate income.
- b. Time and energy:** A person with time and adequate energy would be able to supplement his income by doing additional work.
- c. Interest in job:** A higher interest in the job increases efficiency which in turn helps in career advancement through promotions and results in a higher salary.
- d. Location of home:** Living in a remote area may lead to lesser job opportunities as compared to Cos-mopolitan cities where there are more job opportunities.
- e. Investments/assets:** The more a person invests, the more interest can be earned. Other assets like property/ land also help in generating income through rent.

EXPENDITURE AND BUDGET MANAGEMENT

Happiness of the family is secured by income use or expenditure. The outflow of money is called expenditure. After earning money, a family spends it on their various needs, basic necessities such as food, clothing and shelter. After their needs are fulfilled, the family desires to have comforts and luxuries, which makes the family members more comfortable. All these expenses are referred to as expenditure. Expenditure provides the satisfaction of life for the members of the family.

Factors Affecting Expenditure of a Family

Income: In low-income groups, a major portion of income is spent on food whereas in high income groups only %50 of their money is spent on food.

Family size: Expenses on food, clothing, and education is more in larger families as compared to small sized families.

Family composition: In the expanding stage of the family more money is spent on education and clothes while in the contracting stage, more expenses are incurred on medicines.

Family status: Influenced by the social circles they move in, a considerable amount of cash may be spent by some families on, maintaining a number of cars, designer clothes, entertainment, luxury items.

Type of family: In a joint family, money is saved on rent and childcare.

Family values: Some people give more value to education and prefer spending more on books. Those giving more importance to religion spend more on religious activities.

Location: There is less expense in small towns as compared to that in cities. If the school or office is nearby, less money is spent on transport.

Skill, knowledge and an interest to save: A homemaker with her knowledge, skill and interest in culinary arts can prepare exotic dishes at home and thus reduce her expenditure.

Access to community facilities:

Community facilities help save expenses. A person using a library need not spend money on buying books.

Budgeting

The common planning device for the use of money is the budget. It is a care-fully prepared spending plan based on the actual family income. It is a plan based on previous experience, present needs and future expectations. A budget is always prepared for a fixed period of time gen-erally for a month. Budget is a guide to realistic spending aimed at avoiding over expenditure.

Importance of budgeting

- ☐ Budget acts as an intelligent guide to spending.
- ☐ It enables a family to have an overall view of their income.
- ☐ Budgeting facilitates adjusting irregu-lar income to regular expenditure.
- ☐ Budgeting helps people to discuss their needs and set their own priorities on them.
- ☐ It helps one to cut unnecessary expenditure.
- ☐ It helps one to be free from debts.

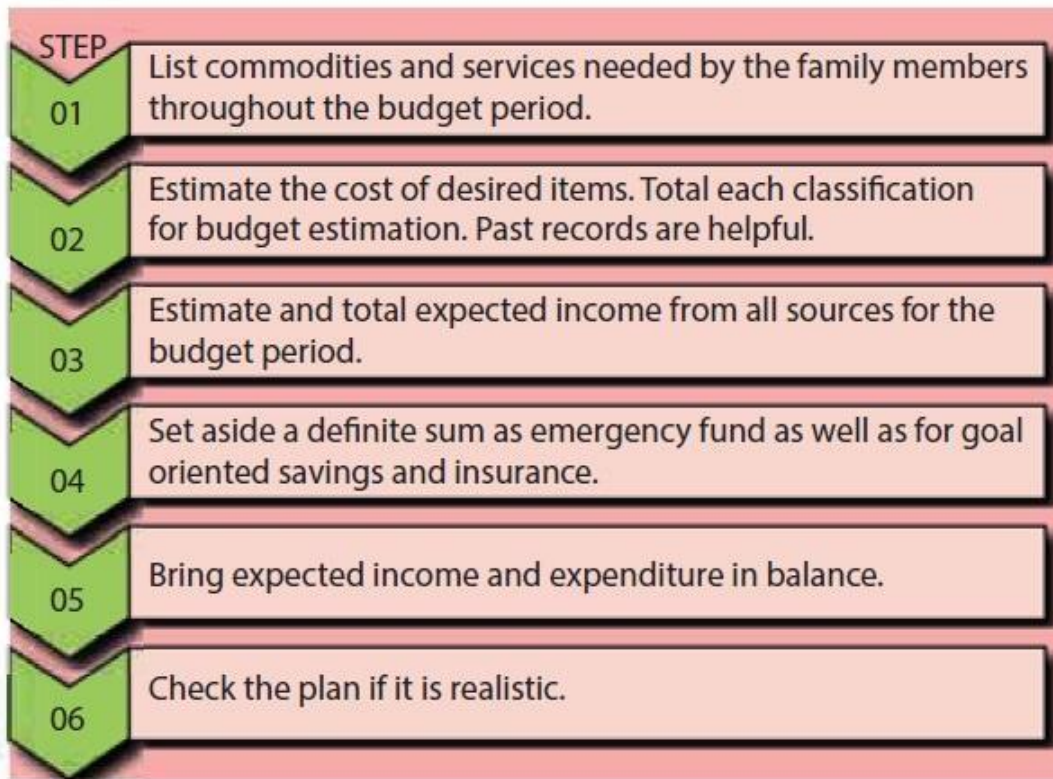
- ☐ It helps one to live within one's income.
- ☐ It encourages conscious decision making which may help in including long term goals in the budget.
- ☐ It relieves the family members from worries of future.
- ☐ It forces one to decide what one wants most out of life.
- ☐ It provides for future saving.

Its success depends upon its being simple, realistic, flexible and suited to the family or individual for whom it is made.

The List of Budget Items

It is necessary to list the chief budget items to make sure that each item is attended to in the expenditure plan while portioning the income. Each family may have their own way of listing the items.

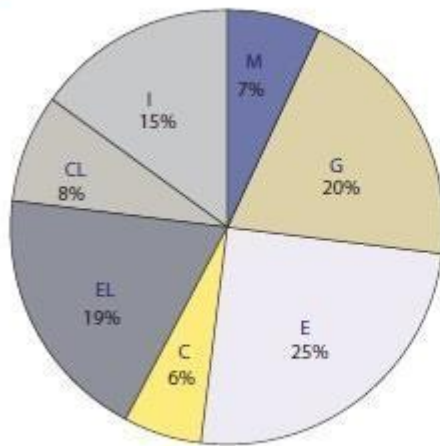
Steps in preparing the budget for a family are given below.



▲ Fig. 5 Steps in preparing budget

The chief budget items include:

- i. Food**
- ii. Clothing**
- iii. Housing**
- iv. Education**
- v. Transport**
- vi. Personal Expenses (Sundries)**
- vii. Household Expenses**
- viii. Savings**

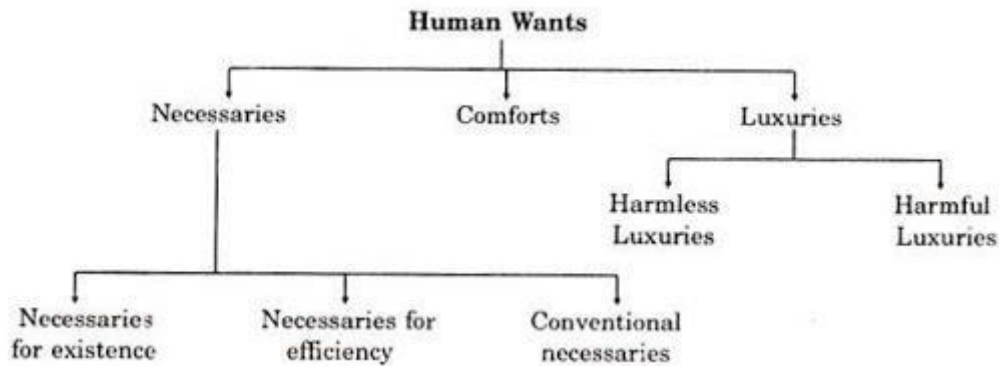


M - Miscellaneous
G - Grocery
E - Education
C - Call Bill
EL - Electricity
CL - Clothing
I - Investment

EXPENSES

UNIT-2

HUMAN WANTS



Human Wants: Characteristics and Classification of Human Wants

Definition:

It is very difficult to define human wants within few words. All of us want to live. For this reason, we need food, clothing and shelter.

Human desire for better and ever better living, the desire for change, increasing knowledge, human progress etc. have led to emergence and growth of more and newer wants.

Thus wants have been increasing because of the addition of more and more wants as also because of rise in population and new inventions and discoveries. Therefore, human wants are 'ever growing and never ending'.

Human wants have grown for two basic reasons:

- (i) Desire for better living due to introduction of new things;
- (ii) Rise in population growth.

These are two main factors responsible for the growth of human wants.

Characteristics of Human Wants:

There are several characteristics of human wants.

These are listed below:

(i) Wants are repeated:

Several human wants occur again and again during the same day. We want food during breakfast, lunch, dinner etc. However, we want medicine at the time we feel sick. Therefore, some of our wants are reoccurred many times during a day, while some human wants only repeated after a long time. In some cases, human wants are only occasional.

(ii) Wants may differ with age:

Human wants are changing according to the age. A child wants toys, whereas an adult wants a motor-bike. A student wants to go to school. A grown-up wants a job and a secured life.

(iii) Wants may differ with gender:

Wants of a boy and a girl are different. A girl wants to dance, whereas a boy wants to play. A gentleman wants shirts, pants, ties etc. However, a lady wants sarees and salwar suits. Thus, both men and women want different goods according to their needs.

(iv) Wants may differ with preferences:

Human wants are also changing according to tastes and preferences. A twin sisters may want different types of foods and dresses. Some persons want spicy foods while some others want very simple non-spicy foods. Wants may also change according to the habits of the people.

(v) Wants may differ with climate:

A same person wants woolen clothes during winter, cotton clothes in summer and raincoats at the time of rainy season. People from mountain or hilly areas want room-heater, but plain-land people demand for AC machine.

(vi) Wants may differ with culture:

A Bengali wants rice and fish, a Punjabi wants roti and dal, a Tamil wants iddli and dosa etc. in their food. An European wants 'coat, pant & tie', whereas an Indian wants 'kurta and pajama'. Thus, human wants are varying with culture.

(vii) Wants may differ with health:

A healthy person wants sufficient good food. However, a sick or ill person wants proper medicines.

(vii) Wants Are Unlimited:

Crisis is the mother of civilization. With the passage of time, human wants are increasing. We may satisfy some of our wants for time being, but they may also reoccur. Moreover, there are so many wants which will never be satisfied during our lifetime.

Classification of Wants:

Wants can be classified in following ways:

(i) Economic and Non-Economic Wants:

The wants which cannot be satisfied by such goods and services that can be bought are known as economic wants. For example, want for food, want for book, want for dress etc. To satisfy these wants, a consumer has to spend money.

The wants which cannot be satisfied by making monetary payment for them, are known as non-economic want. We want love and affection of our parents, relatives, neighbours etc. We want stable government. We also want international peace and amity. We want universal brotherhood.

(ii) Individual Wants and Collective Wants:

Personal or individual wants refer to those wants which are only demanded by a single person or an individual. For example, Sachin wants a cricket bat, Baichug Bhutia wants a football, Leander Paes wants tennis-racket etc. These are the personal wants. 'On the other hand' all the things are wanted by us collectively. For example, good government, roads, hospitals, schools etc. are collective wants or social wants. Again, we all want India's win either in a football match or in a cricket match.

(iii) Necessity, Comfort and Luxury:

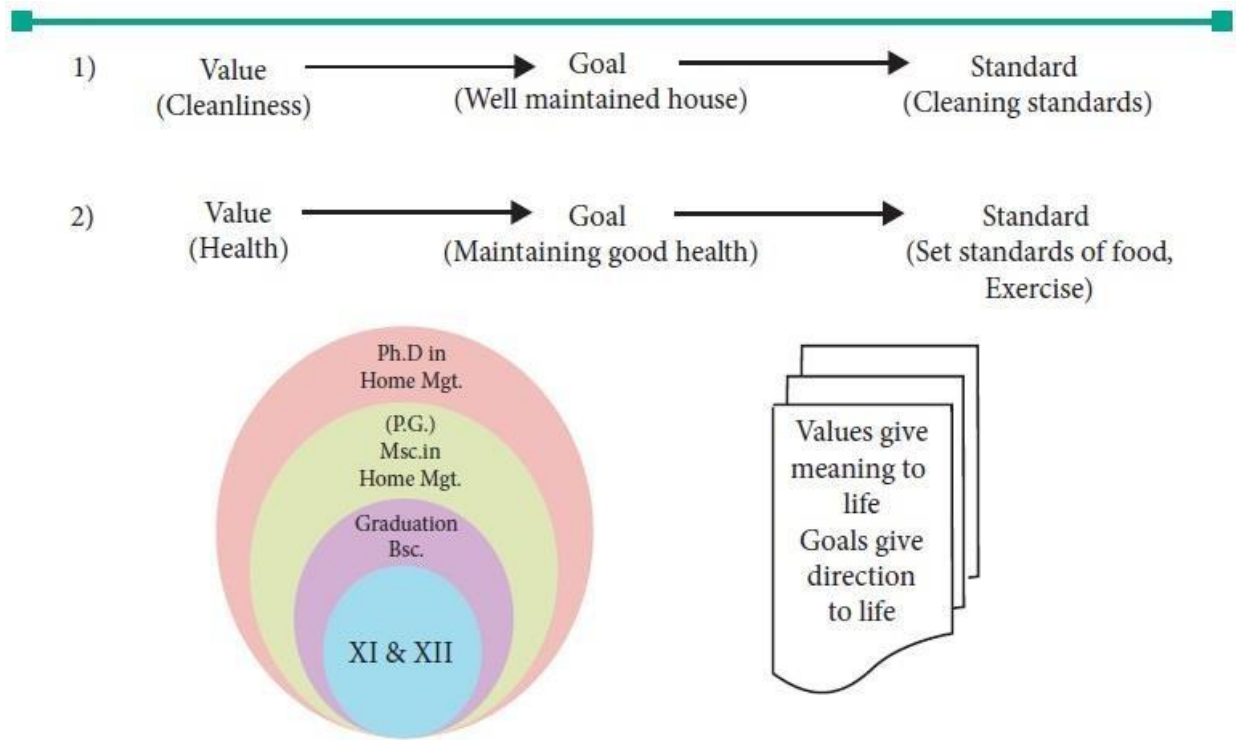
Human wants are varying in nature. Want for food, clothing, shelter are the basic necessities of human beings. We want books, pens, pencils, medicines, fuel and cooking gas etc. All these are basic necessities of human life.

On several occasions, we want to make our life comfortable. We want washing machine, AC- machine, pressure cooker, mixer, geyser, motor cycle, mobile phone etc. for our little comfort. These wants are classified as comforts.

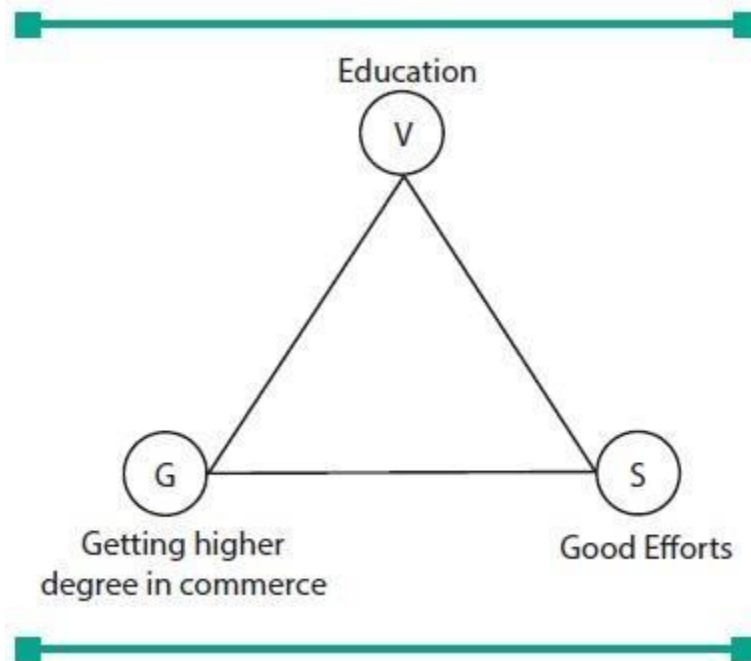
There are other wants which are meant for pleasure. Wants for Plasma-TV, AC-car, well furnished house, computers to play games, travel by air etc. All these wants are called luxuries. However, what are considered as comforts today may become necessities in near future.

- **Standards**

- Standard is a scale of measurement of values. **According to Nickell and Dorsey (1970), standards are a set of measure of values stemming from our value patterns, determining the amount and kind of interest in something and the satisfaction we receive.** Standards serve as a measure or criterion for measurement of objects or ways of doing things.
- There are standards that apply to a single situation or area such as standard of food or dress or conduct. Standards set the limits one will accept in working towards a goal.
- Gross and Crandall classify standards as (1) conventional and (2) flexible.
- **i. Conventional Standards:**
- Conventional standards are those that are traditional and accepted by the community at large or by a social group within it. To illustrate 'high' standard of cleanliness, we can take an example of cleaning and dusting furniture twice a day. This can be standard of any family. If an unexpected guest arrives and there is dust visible, the homemaker is apt to say 'I did not dust today'.
- **ii. Flexible standards:**
- Flexible standards can be changed to suit different situations; they give greater freedom of choice. Adjusting family standards to changing conditions is an example of the need to have flexibility in one's standards.
- **Interrelationship between goals, values and standards:** Using kitchen as a selected area of the house, the concept of values, goals and standards can be illustrated as follows.



▲ Fig. 2 Inter-relationship of values, goals and standard



Key concepts in understanding motivation within the person and the family are values and standards and the closely related concept of goals.

□ Values give meaning to your life.

□ Values are a prime motivating force in all management.

- □ Values is a dominant term
-
- Goals are closely related to both values and standards in initiating management. They stem from values and are influenced by standards. Each exerts an influence on the other two. Goals are indicators of values. For example, the goal of owning one's home may be one expression of the value of security. Standards are specifications of values. They measure the degree of influence of a value. Standards set the limits one will accept in working towards a goal.

Family income

Family Income can be defined as money /purchasing power earned by **family** members during specific period of time plus goods and services received or created in that time by the **family**-goods like vegetables from kitchen gardens, services like teaching children , doing **household** chores etc (Varghese et al).

According to Nickel and Dorsey "Family income is that stream of money, goods services and satisfaction that comes under the control of the family to be used by them to satisfy the needs and desires and to discharge obligations/family duties.

Income Management-

It is an organized, goals oriented system of allocating and controlling the human, economic and environmental resources to achieve the specified goals of the family.

Nickel and Dorsey define Income management as a "Planning, controlling and evaluating the use of all types of Income". Its purpose is to get greatest satisfaction from the resource on hand. Satisfaction include three important aspects in the family

- The development of various individuals in the family.
- The increase in the group happiness
- Opportunity to contribute to civic well -being.

Family Income Types: Money, Real and Psychic Income

Family income is classified into three types:

(1) Money Income

(2) Real Income

(3) Psychic Income

1. Money Income:

Money Income is the purchasing power in rupees during a given period of time. Money income is one of the important material resources of the family. It is said, "Money is a matter of function four, a medium, a measure, a standard and store". Some people say that "We cannot eat money, but we cannot eat without money." According to D.H. Robertson, "Money is anything which is widely accepted in payment for goods or in discharge of other kinds of business obligations." Money income

of the family includes all the earnings which come to the family in terms of rupees, coins or notes in a specific period of time, daily, weekly, or monthly.

Money income may be in the following forms:

(a) Salary:

Monthly salary of all the members who are doing government or private services.

(b) Wages:

Daily, weekly or monthly wages.

(c) Rent:

Rent of the house and real estate.

(d) Interest:

Interest of the capital deposited in banks, post offices or from lending money.

(e) Profits:

Profits from investment either in business or any other sources.

(f) Sick Benefits:

Medical Allowances.

(g) Pensions:

To the retired persons, old age widow and other pensions

(h) Gift, dividends, securities, royalties etc.

Money income controls the basic standard of living and the additional comforts enjoyed by the family.

Money income is affected by the following factors:

(i) The abilities and skill of the wage earner.

(ii) Personal attitude towards the work.

(iii) Good relationship with co-workers.

Money income may be converted into goods and services, whenever required by the family. Some parts of money income may be diverted into savings for future use. Money management includes the management of family income. As money is a limited resource it must be managed properly in order to achieve family goals. Money income is called a flow as it is received regularly.

2. Real Income:

Real income is the flow of goods, services and community facilities available for a specific period of time. According to Donaldson, "The real value of income received is the goods and services and security and well being, that income (money) will purchase." The concept of real income is very much important for family living. Real time consists of both producers and consumer's goods.

The real income of the family consists of:

- a. Inherited landed property, which yields crops for the family.
- b. Food furnished by a kitchen garden.
- c. Dairy farming and poultry farming.
- d. Durable goods and commodities owned by the family.
- e. Kneading, embroidery, tailoring, pickling, baking and activities carried out in home.
- f. All types of knowledge and services (Household activities) provided by the members of the family.
- g. Community facilities like parks, markets, hospitals, roads, schools, colleges, libraries, dispensaries, fire and police protection, community entertainments, social centres etc. Proper utilization of all these can increase the real income of the family.

Another concept of real income is that it is the goods and services that money income will provide. The potential quantity of Real income available for any family is impressive. The way families make use of all forms of real income is important. It depends upon the managerial ability of the home maker.

The real income may be of two types:

(i) Direct Income:

It means a family receives different facilities without paying for them. For example, free well furnished house, telephone at residence, vehicle for private use, hospital facilities etc.

(ii) Indirect Income:

It refers to the commodities and services received by the family members on payment. For example, vegetables from the kitchen garden, milk from the dairy farm etc. These things can be used by the family or may be sold in the market.

3. Psychic Income:

This income is the flow of satisfaction derived by the family from the use of money income and real income. This income is intangible and qualitative or subjective. This income is also called as Enjoyment income, experienced over a given period of time by the proper utilization of money income and real income. We must maximize psychic income, because our ultimate goal is to derive maximum satisfaction and peace from life.

As Real income is directly utilized, it is called as direct income. Money income cannot be directly utilized, but it is used as a medium of exchange for obtaining goods and services. So it is called as Indirect income of the family. Money income is mainly based on the earning capacity of the members, but the real and psychic income depends on the skill that is exercised in management of everyday living.

Total Income:

Total income consists of money income received over a certain period of time and the real income received during the same period from other sources without spending one's own money income. The family utilizes this total income to obtain goods and services for the satisfaction of its needs and saves some unused money income for future use, gifts to other persons or payment of taxes.

marginal utility

In [economics](#), utility is the satisfaction or benefit derived by consuming a product; thus the **marginal utility** of a [good](#) or [service](#) is the change in the utility from an increase in the [consumption](#) of that good or service.

In the context of [cardinal utility](#), economists sometimes speak of a **law of diminishing marginal utility**, meaning that the first [unit](#) of consumption of a good or service yields more utility than the second and subsequent units, with a continuing reduction for greater amounts. Therefore, the fall in marginal utility as consumption increases is known as diminishing marginal utility. This concept is used by economists to determine how much of a good a consumer is willing to purchase.

Marginality[\[edit\]](#)

The term marginal refers to a small change, starting from some baseline level. [Philip Wicksteed](#) explained the term as follows:

Marginal considerations are considerations which concern a slight increase or diminution of the stock of anything which we possess or are considering.^[1]

Frequently the marginal change is assumed to start from the [endowment](#), meaning the total resources available for consumption (see [Budget constraint](#)). This endowment is determined by many things including physical laws (which constrain how forms of energy and matter may be transformed), accidents of nature (which determine the presence of natural resources), and the outcomes of past decisions made by the individual himself or herself and by others.

For reasons of tractability, it is often assumed in [neoclassical analysis](#) that goods and services are [continuously divisible](#). Under this assumption, [marginal concepts](#), including marginal utility, may be expressed in terms of [differential calculus](#). Marginal utility can then be defined as the first derivative of total utility—the total satisfaction obtained from consumption of a good or service—with respect to the amount of consumption of that good or service.

In practice the smallest relevant division may be quite large. Sometimes economic analysis concerns the marginal values associated with a change of one unit of a discrete good or service, such as a motor vehicle or a haircut. For a motor vehicle, the total number of motor vehicles produced is large enough for a continuous assumption to be reasonable: this may not be true for, say, an aircraft carrier.

Depending on which theory of *utility* is used, the interpretation of marginal utility can be meaningful or not. Economists have commonly described utility as if it were *quantifiable*, that is, as if different levels of utility could be compared along a numerical scale.^{[2][3]} This has affected the development and reception of theories of marginal utility. Quantitative concepts of utility allow familiar arithmetic operations, and further assumptions of continuity and differentiability greatly increase tractability.

Contemporary mainstream economic theory frequently defers metaphysical questions, and merely notes or assumes that preference structures conforming to certain rules can be usefully *proxied* by associating goods, services, or their uses with quantities, and *defines* "utility" as such a quantification.^[4]

In any standard framework, the same object may have different marginal utilities for different people, reflecting different preference

s or individual circumstances.^[13]

Diminishing marginal utility^[edit]

The concept in cardinal utility theory that marginal utilities diminish across the ranges relevant to decision-making is called the "law of diminishing marginal utility" (and is also known as [Gossen's First Law](#)). This refers to the increase in utility an individual gains from increasing their consumption of a particular good. "The law of diminishing marginal utility is at the heart of the explanation of numerous economic phenomena, including [time preference](#) and the [value of goods](#) ... The law says, first, that the marginal utility of each homogenous unit decreases as the supply of units increases (and vice versa); second, that the marginal utility of a larger-sized unit is greater than the marginal utility of a smaller-sized unit (and vice versa). The first law denotes the law of diminishing marginal utility, the second law denotes the law of increasing total utility."^[14]

In modern economics, choice under conditions of certainty at a single point in time is modeled via [ordinal utility](#), in which the numbers assigned to the utility of a particular circumstance of the individual have no meaning by themselves, but which of two alternative circumstances has higher utility *is* meaningful. With ordinal utility, a person's preferences have no unique marginal utility, and thus whether or not marginal utility is diminishing is not meaningful. In contrast, the concept of diminishing marginal utility is meaningful in the context of [cardinal utility](#), which in modern economics is used in analyzing [intertemporal choice](#), [choice under uncertainty](#), and [social welfare](#).

The law of diminishing marginal utility is similar to the law of [diminishing returns](#) which states that as the amount of one [factor of production](#) increases as all other factors of production are held the same, the marginal return (extra output gained by adding an extra unit) decreases.

As the rate of commodity acquisition increases, *marginal* utility decreases. If commodity consumption continues to rise, marginal utility at some point may fall to zero, reaching maximum total utility. Further increase in the consumption of units of commodities causes the marginal utility to become negative; this signifies dissatisfaction. For example,

Diminishing marginal utility is traditionally a microeconomic concept and often holds for an individual, although the marginal utility of a good or service might be *increasing* as well. For example:

- bed sheets, which up to some number may only provide warmth, but after that point may be useful to allow one to effect an escape by being tied together into a rope;

- tickets, for travel or theatre, where a second ticket might allow one to take a date on an otherwise uninteresting outing;
- dosages of antibiotics, where having too few pills would leave bacteria with greater resistance, but a full supply could effect a cure.
- the third leg is more useful than the first two when building a chair.

As suggested elsewhere in this article, occasionally one may come across a situation in which marginal utility increases even at a macroeconomic level. For example, the provision of a service may only be viable if it is accessible to most or all of the population, and the marginal utility of a raw material required to provide such a service will increase at the "tipping point" at which this occurs. This is similar to the position with very large items such as aircraft carriers: the numbers of these items involved are so small that marginal utility is no longer a helpful concept, as there is merely a simple "yes" or "no" decision.

Law Of Diminishing Marginal Utility

The Law of Diminishing Marginal Utility Explained

Whenever an individual interacts with an economic good, that individual acts in a way that demonstrates the order in which they value the use of that good. Thus, the first unit that is consumed is dedicated to the individual's most valued end. The second unit is devoted to the second most valued end, and so on. In other words, the law of diminishing marginal utility postulates that when consumers go to market to purchase a commodity, they do not attach equal importance to all the commodities they buy. They will pay more for some commodities and less for others.

As another example, consider an individual on a deserted island who finds a case of bottled water that washes ashore. That person might drink the first bottle indicating that satisfying their thirst was the most important use of the water. The individual might bathe themselves with the second bottle, or they might decide to save it for later. If they save it for later, this indicates that the person values the future use of the water more than bathing today, but still less than the immediate quenching of their thirst. This is called ordinal time preference. This concept helps explain savings and investing versus current consumption and spending.

The Law and Marketing

Marketers use the law of diminishing marginal utility because they want to keep marginal utility high for products that they sell. A product is consumed because it provides satisfaction, but too much of a product might mean that the marginal utility reaches zero because consumers have had enough of a product and are satiated. Of course, marginal utility depends on the consumer and the product being consumed.

KEY TAKEAWAYS

- Marginal utility is the added satisfaction a consumer gets from having one more unit of a good or service.
- The concept of marginal utility is used by economists to determine how much of an item consumers are willing to purchase.
- The law of diminishing marginal utility is often used to justify progressive taxes.
- Marginal utility can be positive, zero, or negative.

Volume 26%

Types of Marginal Utility

There are multiple kinds of marginal utility. Three of the most common ones are as follows:

Positive Marginal Utility

Positive marginal utility occurs when having more of an item brings additional happiness. Suppose you like eating a slice of cake, but a second slice would bring you some extra joy. Then, your marginal utility from consuming cake is positive.

Zero Marginal Utility

Zero marginal utility is what happens when consuming more of an item brings no extra measure of satisfaction. For example, you might feel fairly full after two slices of cake and wouldn't really feel any better after having a third slice. In this case, your marginal utility from eating cake is zero.

Negative Marginal Utility

Negative marginal utility is where you have too much of an item, so consuming more is actually harmful. For instance, a fourth slice of cake might even make you sick after eating three pieces of cake.

law of demand

The law of demand is one of the most fundamental concepts in economics. It works with the [law of supply](#) to explain how market economies allocate resources and determine the prices of goods and services that we observe in everyday transactions. The law of demand states that quantity purchased varies inversely with price. In other words, the higher the price, the lower the quantity demanded. This occurs because of [diminishing marginal utility](#). That is, consumers use the first units of an economic good they purchase to serve their most urgent needs first, and use each additional unit of the good to serve successively lower valued ends.

KEY TAKEAWAYS

- The law of demand is a fundamental principle of economics which states that at a higher price consumers will demand a lower quantity of a good.
- Demand is derived from the law of diminishing marginal utility, the fact that consumers use economic goods to satisfy their most urgent needs first.
- A market demand curve expresses the sum of quantity demanded at each price across all consumers in the market.
- Changes in price can be reflected in movement along a demand curve, but do not by themselves increase or decrease demand.
- The shape and magnitude of demand shifts in response to changes in consumer preferences, incomes, or related economic goods, NOT to changes in price.

Family income

Family Income can be defined as money /purchasing power earned by **family** members during specific period of time plus goods and services received or created in that time by the **family**-goods like vegetables from kitchen gardens, services like teaching children , doing **household** chores etc (Varghese et al).

According to Nickel and Dorsey “Family income is that stream of money, goods services and satisfaction that comes under the control of the family to be used by them to satisfy the needs and desires and to discharge obligations/family duties.

Income Management-

It is an organized, goals oriented system of allocating and controlling the human, economic and environmental resources to achieve the specified goals of the family.

Nickel and Dorsey define Income management as a “Planning, controlling and evaluating the use of all types of Income”. Its purpose is to get greatest satisfaction from the resource on hand. Satisfaction include three important aspects in the family

- The development of various individuals in the family.
- The increase in the group happiness
- Opportunity to contribute to civic well -being.

Family Income Types: Money, Real and Psychic Income

Family income is classified into three types:

(1) Money Income

(2) Real Income

(3) Psychic Income

1. Money Income:

Money Income is the purchasing power in rupees during a given period of time. Money income is one of the important material resources of the family. It is said, “Money is a matter of function four, a medium, a measure, a standard and store”. Some people say that “We cannot cat money, but we cannot eat without money.” According to D.H. Robertson, “Money is anything which is widely accepted in payment for goods or in discharge of other kinds of business obligations.” Money income of the family includes all the earnings which come to the family in terms of rupees, coins or notes in a specific period of time, daily, weekly, or monthly.

Money income may be in the following forms:

(a) Salary:

Monthly salary of all the members who are doing government or private services.

(b) Wages:

Daily, weekly or monthly wages.

(c) Rent:

Rent of the house and real estate.

(d) Interest:

Interest of the capital deposited in banks, post offices or from lending money.

(e) Profits:

Profits from investment either in business or any other sources.

(f) Sick Benefits:

Medical Allowances.

(g) Pensions:

To the retired persons, old age widow and other pensions

(h) Gift, dividends, securities, royalties etc.

Money income controls the basic standard of living and the additional comforts enjoyed by the family.

Money income is affected by the following factors:

(i) The abilities and skill of the wage earner.

(ii) Personal attitude towards the work.

(iii) Good relationship with co-workers.

Money income may be converted into goods and services, whenever required by the family. Some parts of money income may be diverted into savings for future use. Money management includes the management of family income. As money is a limited resource it must be managed properly in order to achieve family goals. Money income is called a flow as it is received regularly.

2. Real Income:

Real income is the flow of goods, services and community facilities available for a specific period of time. According to Donaldson, "The real value of income received is the goods and services and security and well being, that income (money) will purchase." The concept of real income is very much important for family living. Real time consists of both producers and consumer's goods.

The real income of the family consists of:

a. Inherited landed property, which yields crops for the family.

b. Food furnished by a kitchen garden.

c. Dairy farming and poultry farming.

d. Durable goods and commodities owned by the family.

e. Kneading, embroidery, tailoring, pickling, baking and activities carried out in home.

f. All types of knowledge and services (Household activities) provided by the members of the family.

g. Community facilities like parks, markets, hospitals, roads, schools, colleges, libraries, dispensaries, fire and police protection, community entertainments, social centres etc. Proper utilization of all these can increase the real income of the family.

Another concept of real income is that it is the goods and services that money income will provide. The potential quantity of Real income available for any family is impressive. The way families make use of all forms of real income is important. It depends upon the managerial ability of the home maker.

The real income may be of two types:

(i) Direct Income:

It means a family receives different facilities without paying for them. For example, free well furnished house, telephone at residence, vehicle for private use, hospital facilities etc.

(ii) Indirect Income:

It refers to the commodities and services received by the family members on payment. For example, vegetables from the kitchen garden, milk from the dairy farm etc. These things can be used by the family or may be sold in the market.

3. Psychic Income:

This income is the flow of satisfaction derived by the family from the use of money income and real income. This income is intangible and qualitative or subjective. This income is also called as Enjoyment income, experienced over a given period of time by the proper utilization of money income and real income. We must maximize psychic income, because our ultimate goal is to derive maximum satisfaction and peace from life.

As Real income is directly utilized, it is called as direct income. Money income cannot be directly utilized, but it is used as a medium of exchange for obtaining goods and services. So it is called as Indirect income of the family. Money income is mainly based on the earning capacity of the members, but the real and psychic income depends on the skill that is exercised in management of everyday living.

Total Income:

Total income consists of money income received over a certain period of time and the real income received during the same period from other sources without spending one's own money income. The family utilizes this total income to obtain goods and services for the satisfaction of its needs and saves some unused money income for future use, gifts to other persons or payment of taxes.

The standard of living of a people is reflected in their family budgets.

A family budget is a statement which shows how family income is spent on various items of expenditure on necessities, comforts, luxuries, and other cultural wants.

It shows the distribution of the family income over the various items of expenditure.

ADVERTISEMENTS:

The following is a typical family budget of a person with a monthly income of Rs. 900.

Item	Expenditure Rs.	Percentage
Food	540.00	60%
Fuel	54.00	6%
Clothing	90.00	10%
House Rent	72.00	8%
Lighting	18.00	2%
Children’s Education	36.00	4%
Medical Aid	9.00	1.0%
Travelling	9.00	1.0%
Religious and Social Ceremonies	18.00	2%

Entertainment and Luxuries	18.00	2%
Miscellaneous	36.00	4%
Total	Rs. 900.00	100%

This is the family budget of our imaginary consumer family.

From a study of this budget, we may draw the following conclusions:

(a) That very small percentage of income is being spent on children's education, religious and social functions, travelling, entertainment and luxuries,

ADVERTISEMENTS:

(b) Expenditure on light and medical aid is negligible,

(c) 10% of the income is spent on dress and 6% on fuel,

(d) But the biggest item of expenditure is food which absorbs 60% of the income.

According to Engels' Law of Consumption, it is a typical poor man's budget in which about 3/5ths of the income is swallowed up by food alone and practically nothing is left for medical aid, education and for the satisfaction of educational and recreational needs of the members of the family.

Importance of Family Budgets:

ADVERTISEMENTS:

Study of family budgets is of very great use from the economic point of view. That is why many economic organisations devote special attention to the study of family budgets. The economic and statistical organisation of a State Government in India makes a special study of family budgets of different classes of the people in the State.

To the householder, the study of this budget is very useful. He will be able to find out from the budget before him whether his income has been properly distributed among the various items of expenditure and also whether he has been able to balance his budget or not. If the house-holder is to derive maximum satisfaction from his limited income, then mapping out of expenditure beforehand is absolutely necessary.

To the economist, the legislator and the social reformer, the value of the study of family budgets is undoubtedly very great. They are able to form an idea of the standard of living of the people and the measure of economic welfare which is enjoyed by them. They are deeply interested in the economic welfare of the people, which very much depends on the way the income is spent.

A man may have a very large income, but, if it is not spent in a rational manner, he may not be able to derive maximum advantage from it. If the people waste most of their income on drinks and other harmful forms of consumption, then the economists and social reformers must sound a strong note of warning and call for urgent reforms. Another great utility of family budgets lies in this that they greatly help in determining the wages of labour and salaries of employees and in deciding about the dearness allowance claimed by them.

Thus, family budgets are a mirror of the consumption of a people. On consumption depends the standard of living, and the standard of living determines economic efficiency, which in its turn leads to economic prosperity. There is no doubt that the study of family budgets is very useful to the economist, to the householder, the social reformer and the State.

Engels' Law of Family Expenditure:

Ernest Engels was a Prussian official. He studied a number of family budgets and arrived at certain conclusions. These conclusions have been given the name of Engels' Law of Consumption.

They are:

1. As income increases, the percentage expenditure on necessities of life decreases, and vice versa.
2. Percentage expenditure on luxuries and other cultural and recreational wants increases with an increase in income and decreases when income decreases.

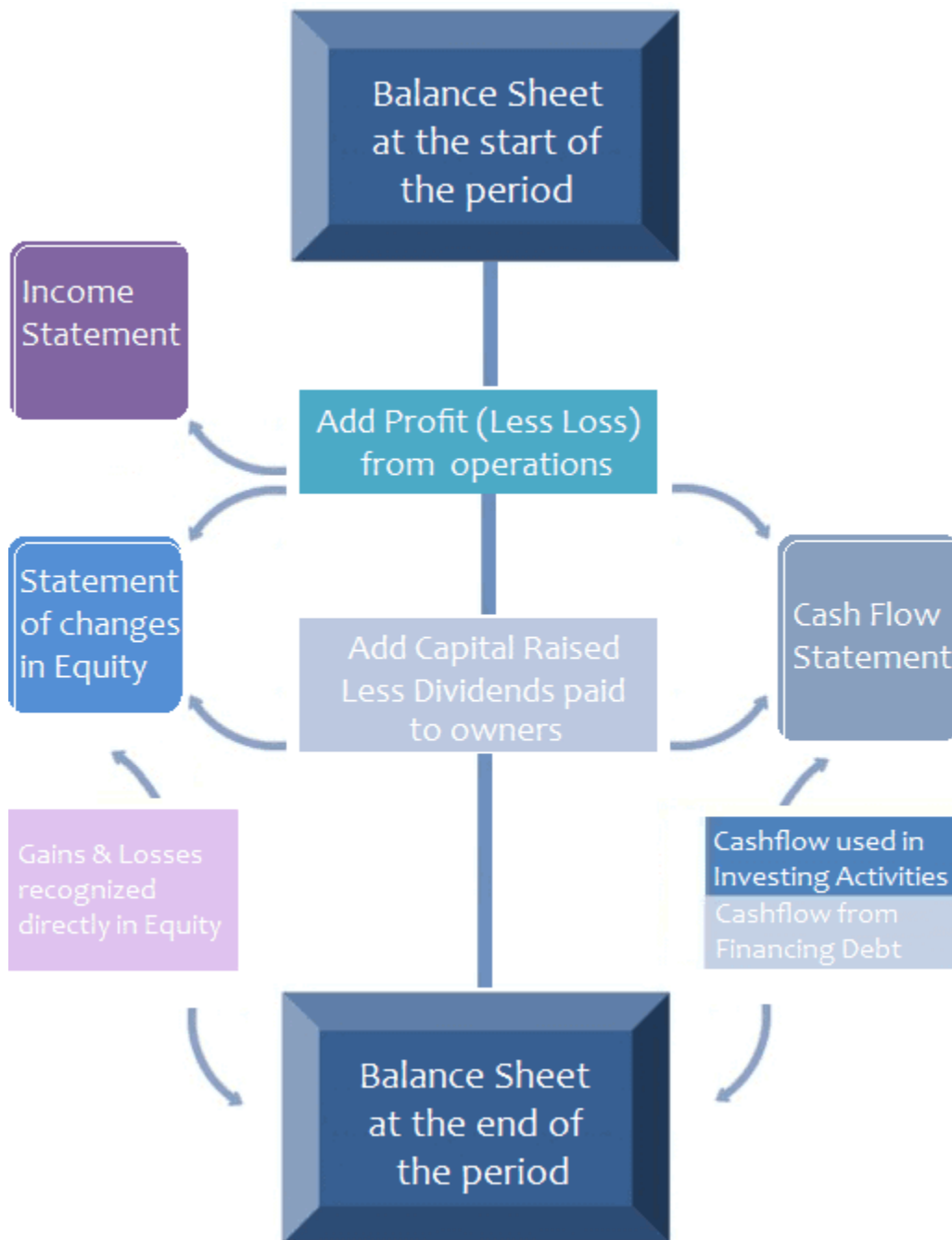
ADVERTISEMENTS:

3. As for lodging or rent, fuel and light, percentage expenditure is generally the same for all incomes.
4. Whatever the income, percentage outlay on clothing is practically the same.

It should be carefully noted that it is percentage increase or decrease in expenditure which is mentioned and not the total amount of expenditure. A rich man, certainly spends a larger sum on food and other necessities of life but the percentage expenditure on food, etc., is certainly less. This law was enunciated in Europe but it has got a universal application. It applies to India also. Family budgets have been studied in almost all States of India. All these studies amply bear out Engels' conclusions.

The percentages of expenditure may slightly vary, but these conclusions broadly hold good. A very large percentage of the small incomes go into the purchase of the bare necessities of life, whereas

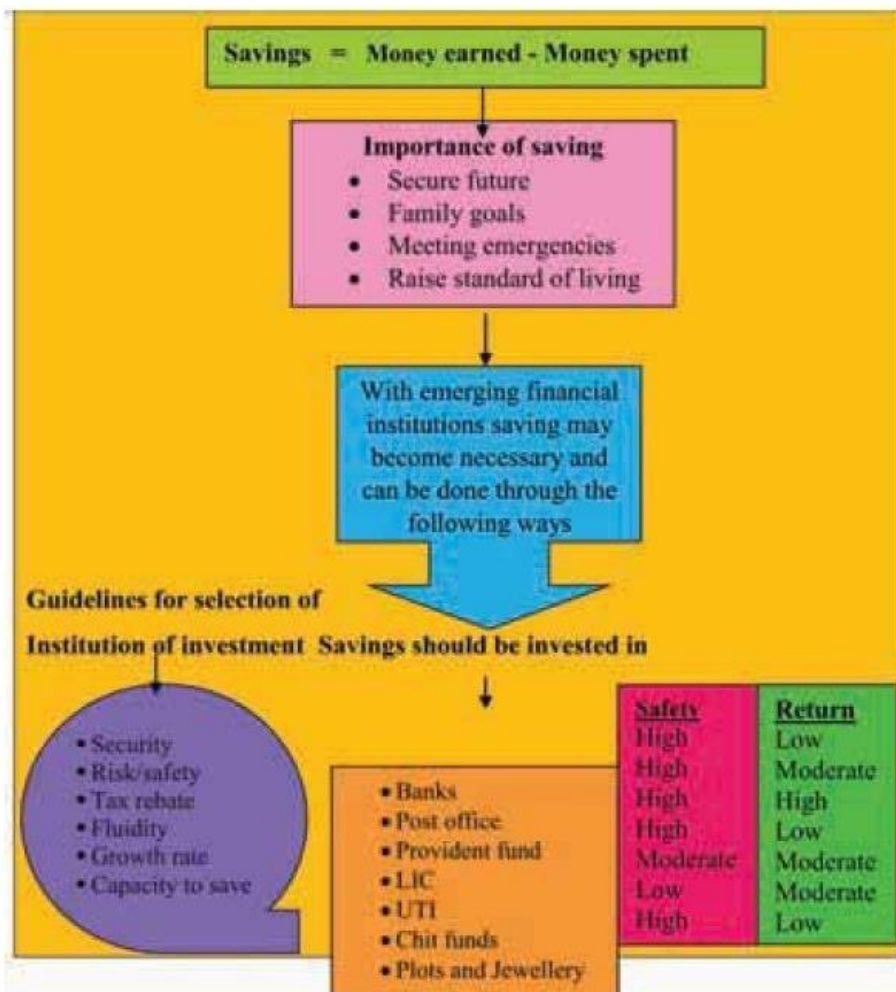
people with large incomes spend a small percentage of their income on such things. In the case of luxuries, the case is quite the opposite.



• SAVINGS AND INVESTMENTS

- Money from the present income that is collected and put aside for future consumption is known as **savings**. Savings of a month is the difference between the income and expenditure of that month. Families should make sure that they save by cutting down their wasteful expenditures. The following figure shows the importance of savings and various institutions for savings and guidelines for selection of those institutions.

- **1. Bank Accounts**
- Savings Account
- Current Account
- **2. Post office**
- Savings Account
- Recurring Deposit Scheme
- Post Office Time Deposit Scheme
- **3. Provident Fund**
- General Provident Fund
- Contributory Provident Fund
- **4. Life Insurance Scheme**
- LIC (Whole Life Policy)
- Medical Insurance Scheme
- Endowment Policy
- **5. Units of Unit Trust of India**
- **6. Shares and debentures**
- **7. Bonds**
- **8. Chit Funds**
- **9. Real Estate**
- **10. Gold, Silver Jewellerys**
- **Important Avenues of Investment**
- When the **savings** are made to grow, it is called investment. There are various ave-nues of investment. They are:
-



▲ Fig. 6 Importance of Savings and Institution

• Banks

- An investor deposits his savings in a bank account which earns him a nominal rate of interest. Besides banking, the banks offer a series of diverse financial services such as loans, credit cards, ATMs (Automatic Teller Machines). With the computerization and networking of some of the banks, their services have become faster and customers can operate their account from any of its branches. This is called core banking. These are the main accounts used for depositing money in a bank.

1. Savings Account	<ul style="list-style-type: none"> • An individual can open this account either singly or jointly. The minimum balance amount required in an account with nationalized banks is ₹ 500/- and ₹ 1000/-* with cheque book facility. This amount may vary in private banks. • The deposit can be made as and when the investor desires. Withdrawals are done with the help of cheques or withdrawal slips. A passbook is also provided for the record of deposits (credits) and withdrawals (debits). • Advantages of paying through cheques: Cheques are considered safe method because <ol style="list-style-type: none"> 1) Cheques are deposited directly into the payee's account. 2) Currency is not handled directly by either the payer or the payee. 3) Cheques are an unquestionable proof of having paid or received a payment.
--------------------	--

2. Current Account	<ul style="list-style-type: none"> • This account is suitable for business persons who would like to keep their money in safe custody and withdraw or make payments as and when required. • There is no limit to the number of withdrawals. A person can withdraw his money any number of times. • No interest is paid in this account. • The bank charges for the services of keeping the money safe and offering it whenever required.
--------------------	--

3. Fixed Deposit Account	<ul style="list-style-type: none"> • A certain amount of money is deposited in the bank for a fixed period. • The interest rate varies with the period of investment. The interest rate is higher than that of the ordinary savings account. • After the stipulated period, the principal amount and the total interest is paid to the investor. • An investment up to 1 lakh for 5 years qualifies for tax rebate.
--------------------------	---

4. Recurring Deposit	<ul style="list-style-type: none"> • This is an ideal form of savings for those having salaried income with a view to inculcate a regular saving habit. • A fixed amount of money (core money) is deposited every month (only once, between 1st -10th). At the end of the term the amount is paid.
----------------------	--

- Post offices are situated in every locality and are found even in remote areas. There are various post office schemes, each having its distinct advantages.

1. Post Office Saving Accounts	<ul style="list-style-type: none"> • For opening of new account the introduction of depositor is necessary by a responsible person. • This is simple account involving a minimum deposit of ₹ 50/- • A cheque book facility is available; subject to a minimum balance of ₹ 500/-* in the account. • Maximum amount allowed in a single account is 1 lakh * and 2 lakh in a joint account. However, there is no limit for group and institutional account. • The rate of interest is 4 %* per annum.
2. Post Office Recurring Deposit Scheme	<ul style="list-style-type: none"> • Any individual (a single adult or two adults jointly) can open a account. • Minimum: Rs.10/- and multiples of Rs.5/- thereafter. Maximum No limit. • Maturity period: 5 years. • Rate of interest 7.1% per annum with effect from 01.07.2017 • One withdrawal up to 50% of the balance allowed after one year • Premature closure allowed after three years. • Interest earned is deductible under Section 80L of I.T. Act.
3. National Saving Certificate	<ul style="list-style-type: none"> • These can be purchased by an adult for himself or on behalf of minor, jointly by two adults, a minor and a trust. • Certificates in denominations of ₹ 100/-, 500/-, 1000/-, 5000/- and 10,000/- may be purchased from any post office, either directly or through authorised agents. • Minimum ₹ 100/- can be invested. There is no limit on amount of investment. • Period of maturity is 6 years. • Interest rate is 7.8%* per annum, (w.e.f 01-07-2017). • Deposit qualifies for tax rebate. • Premature withdrawals are not allowed. • Certificates can be kept as collateral security to get loan from banks.

- **Provident fund**

1. General Provident Fund	<ul style="list-style-type: none"> • It is compulsory only for government employees. • 10% of basic salary is contributed in the provident fund. • The employee can take loan from this fund and can return the loan in easy instalments every month, deducted from his/her salary. • At the time of retirement, the person gets this money in lump sum and pension. • Get tax rebate on amount invested. • Rate of interest is 8.5%.
2. Contributory Provident Fund	<ul style="list-style-type: none"> • This is compulsory for private and semi-private company employees. • In this both employee and the employer contribute certain percentage of money. On retirement, the employee gets his/her part of contribution in a lump sum but he/she gets employers' contribution in instalments as pension. • Eligible for tax rebate.
3. Public Provident Fund	<ul style="list-style-type: none"> • This is a statutory scheme of central government framed under the provisions of the Public Provident Fund Act, 1968. Such account can be opened in any Head Post Office, any branch of the State Bank of India and selected branches of other Nationalized Banks. • This is a 15 year scheme and the rate of interest is 8.8% • Only one Public Provident Fund account can be opened by any adult in his/her names or as guardian of a minor. • Invested amount can be minimum ₹ 500/- and maximum ₹ 1, 00,000/- in a financial year. The financial year starts from year ending 31st March.

-
-
- **Insurance**
- Insurance is provided by private as well as government institutions. Life Insurance Corporation is provided by government of India. It is a means of providing against loss caused by natural or man-made factors. It is the most popular method of securing the future.
- LIC has a variety of schemes to choose from. These schemes cater to all categories of people and to their diverse needs. Some of the popular schemes are given below:

- 1. New Money Back Plan- (20 years)
 - This is a participating non-linked plan which offers an attractive combination of protection against death throughout the term of the plan.
 - Also there is periodic payment on survival at specified durations during the term.

- This unique combination provides financial support for the family of the deceased policyholder any time before maturity and lump sum amount at the time of maturity for the surviving policyholders.
- This plan also takes care of liquidity needs through its loan facility.
- In case of Life Assured surviving to the end of the specified durations 20% of the Basic Sum Assured at the end of each of 5th, 10th and 15th policy year.
- In case of Life Assured surviving the stipulated date of maturity, 40% of the Basic Sum Assured along with vested Simple Reversionary Bonuses and Final Additional Bonus, if any, shall be payable.

- 2. Term Policy- AnmolJeevan and AmulyaJeevan - II
 - These are a protection plan which provides financial protection to the insured's family in case of his/her unfortunate demise.
 - **Death Benefit:** In case of unfortunate death of the life assured during the policy term Sum Assured shall be payable.
 - On survival to the end of the policy term, nothing shall be payable.

- 3. Medical Insurance
 - One year temporary medical assurance is provided to the insured.
 - This policy needs to be bought every year.
 - It has the benefit of 100% tax rebate and provides insurance cover for any hospitalization, major operation or illness. Some concession is given if the scheme is purchased for the whole family.

• **Shares**

- Shares are a fractional part of the capital of a company. When a company wants to develop, they float shares to the public.
- When a person buys shares she becomes part owner of the company. She will then share both profit and loss of the company. The profits are called dividends.
 - ☐ A person can get high rate of interest, if the company is making profits.
 - ☐ Dividends are tax-free.
 - ☐ There is a risk of losing money, in case the company goes in a loss.

- □ Investor may not be able to find a suit-able buyer for his/her shares or may not get a good price.
- **Bonds**
- Bonds are also debentures which are issued by government or Government Company. On liquidation (closing) of the company, the creditor is secured.
- **Chit Funds**
- This is an easy and simple device where a group of people join as committee and agree to contribute a fixed sum every month. Chits are taken out once every month. Chits are taken out once every month. The promoter gets the first collection and after that, whosoever gets his name on the chit drawn, gets the money.

•

• UNIT-3

Interior Decoration

Special skills: **Interior decorators** are all about aesthetics. They can handle tasks such as selecting color schemes, purchasing new design items, arranging furniture layouts, and hanging wall art. Think of them as an expert who can help you bring an entirely new look to your existing space.

As the old saying goes, “The whole is more than the sum of its parts.” The same thing is true for interior design — which is really just an illusion created by balancing different elements effectively.

Think of it like this: learning about the ingredients that go into your favorite recipes will help you master cooking. In the same way, learning about the design elements that go into your favorite styles will help you master decorating.

So what *are* the seven key elements of interior design? They include:

1. Color
2. Form
3. Light
4. Line
5. Pattern
6. Texture
7. Space

Color

Color is more than just an aesthetic choice — it can also influence the entire mood and feeling of a space. For example, most people think of red as a “passionate” or “intense” hue, while blues and greens are usually perceived as “tranquil” or “soothing” and

yellow is often associated with words like “happy” and “optimistic.” Think about not only your visual preferences, but also, the sort of energy or attitude you’re trying to cultivate when deciding on a color scheme for your room.



Form

“Form” is simply another term for “shape,” expressing the contours of any artwork, furniture, or other 3-D object you could imagine. Furniture, sculpture, and even rooms themselves can take on two types of forms: organic forms (which are natural and irregular, with curvy or abstract shapes), and geometric forms (which feature sharp, man-made lines and edges, like squares or triangles).



Light

Have you ever cringed at a photograph that was taken in bad lighting? Then you already know the power that lighting has to affect our perception!

Quality lighting is integral to any space, whether its sources are natural, man-made, or some combination of both. When choosing lighting for your room, think about factors like the color of the light (cool blue or warm yellow?), the light intensity (bright for cooking, or soft for reading?), and whether the light should be dimmable.



Line

Think of line as the perimeter around a form or shape. For example, if you were to draw any object in the room, you would probably start with its outline.

Lines can be “vertical” (up-and-down), “horizontal” (side-to-side), or “dynamic” (lines that express motion, like zig-zags or curlicues). Design experts say that horizontal lines create a feeling of security,

while vertical lines are expressive and bold. Dynamic lines, which follow their own set of rules, can add a fun, exciting touch to any space when used strategically.



Pattern

A pattern is the intentional repetition of forms, lines, or other design elements. Patterns usually pop up on wallpaper or fabrics, but can appear anywhere in the home, even in the use of light or other design elements. While patterns can add life and motion to a space, too *many* clashing patterns can start to look chaotic, so tread lightly when choosing your favorite prints.



Texture

Not to be confused with pattern, texture is the way an object feels. This can mean the way the object literally feels to the touch, or the sense it gives when simply observing the object. For example, you might say that a surface looks “weathered” or “vintage” without actually touching it, thanks to the creative use of texture.

Careful consideration of texture is especially important in parts of the home that you contact frequently, like your flooring. We can help you find floors with the perfect, comfortable texture to start every day on the right foot.



Space

Last but not least, space is at the heart of virtually every design decision. There are two basic types of space to consider: 2-D space (which accounts for the length and width of a room), and 3-D space (which covers height). For example, only 2-D space is important when thinking of carpets or rugs — but you'll need to think about 3-D space before adding new shelving or furniture. It's also important to leave enough empty or "negative" space to allow for fluid, easy navigation (and break the room up visually).

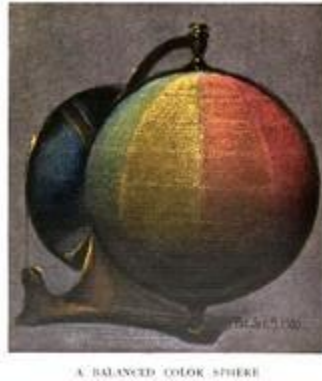


Munsell color system

In [colorimetry](#), the **Munsell color system** is a [color space](#) that specifies [colors](#) based on three properties of color: [hue](#) (basic color), [chroma](#) (color intensity), and value ([lightness](#)). It was created by

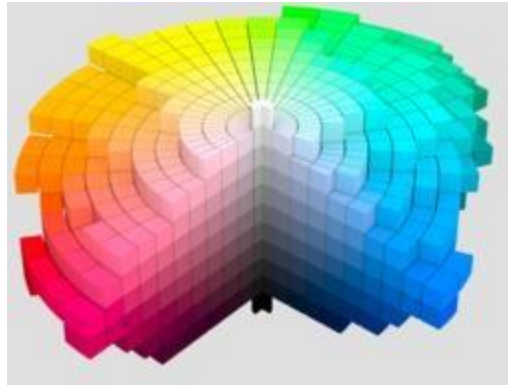
Professor [Albert H. Munsell](#) in the first decade of the 20th century and adopted by the [United States Department of Agriculture](#) (USDA) as the official color system for [soil](#) research in the 1930s.

Explanation^[edit]



A BALANCED COLOR SPHERE

Munsell's color sphere, 1900. Later, Munsell discovered that if hue, value, and chroma were to be kept perceptually uniform, achievable surface colors could not be forced into a regular shape.



Three-dimensional representation of the 1943 Munsell renotations (with portion cut away). Notice the irregularity of the shape when compared with Munsell's earlier color sphere.

The system consists of three independent properties of color which can be represented [cylindrically](#) in three dimensions as an irregular [color solid](#):

- *hue*, measured by degrees around horizontal circles
- *chroma*, measured radially outward from the neutral (gray) vertical axis
- *value*, measured vertically on the core cylinder from 0 (black) to 10 (white)

Munsell determined the spacing of colors along these dimensions by taking measurements of human visual responses. In each dimension, Munsell colors are as close to perceptually uniform as he could make them, which makes the resulting shape quite irregular. As Munsell explains:

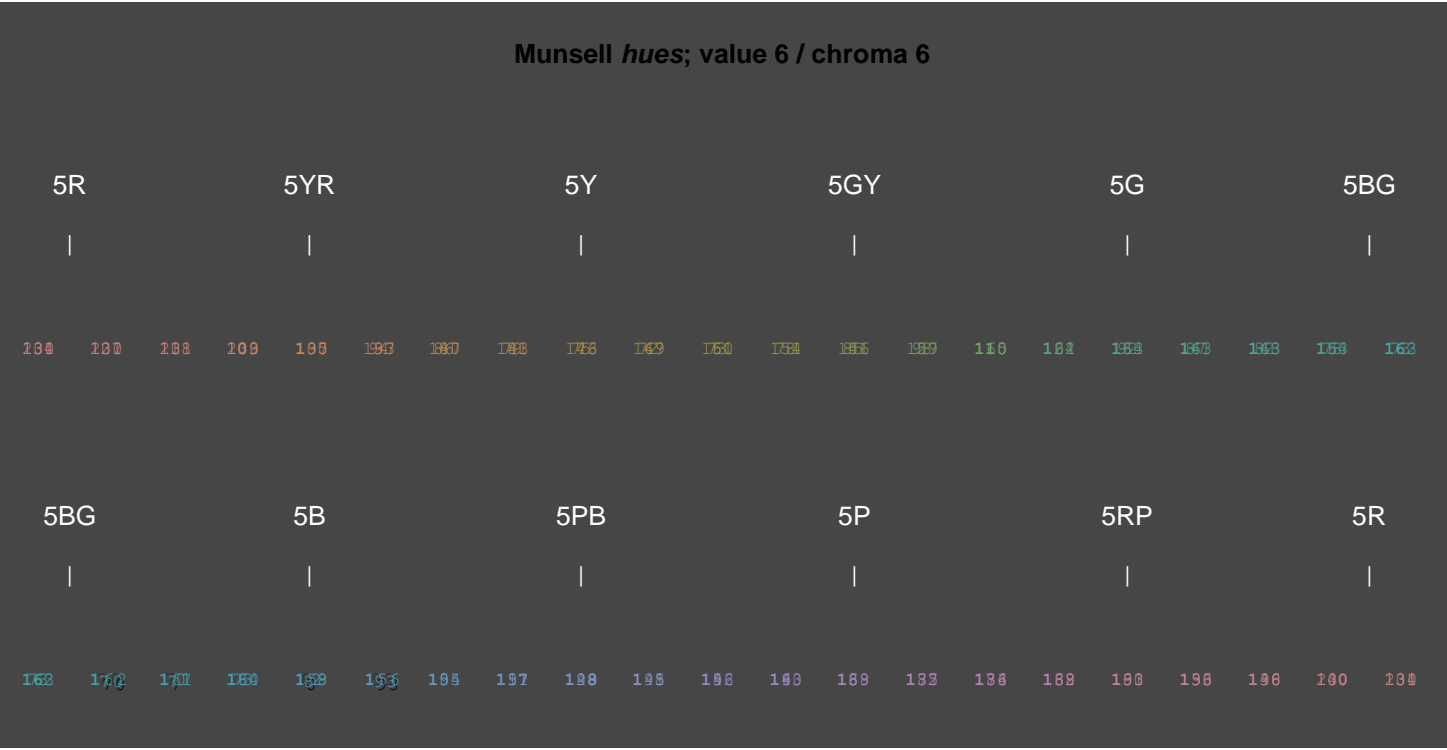
Desire to fit a chosen contour, such as the pyramid, cone, cylinder or cube, coupled with a lack of proper tests, has led to many distorted statements of color relations, and it becomes evident, when physical measurement of pigment values and chromas is studied, that no regular contour will serve.

^[3] Hue^[edit]

Each horizontal circle Munsell divided into five principal *hues*: **Red**, **Yellow**, **Green**, **Blue**, and **Purple**, along with 5 intermediate hues (e.g., **YR**) halfway between adjacent principal hues.^[4] Each of these 10 steps, with the named hue given number 5, is then broken into 10 sub-steps, so that 100 hues are

given integer values. In practice, color charts conventionally specify 40 hues, in increments of 2.5, progressing as for example 10R to 2.5YR.

Two colors of equal value and chroma, on opposite sides of a hue circle, are [complementary colors](#), and mix [additively](#) to the neutral gray of the same value. The diagram below shows 40 evenly spaced Munsell hues, with complements vertically aligned.



Value^[edit]

Value, or [lightness](#), varies vertically along the color solid, from black (value 0) at the bottom, to white (value 10) at the top.^[5] Neutral grays lie along the vertical axis between black and white.

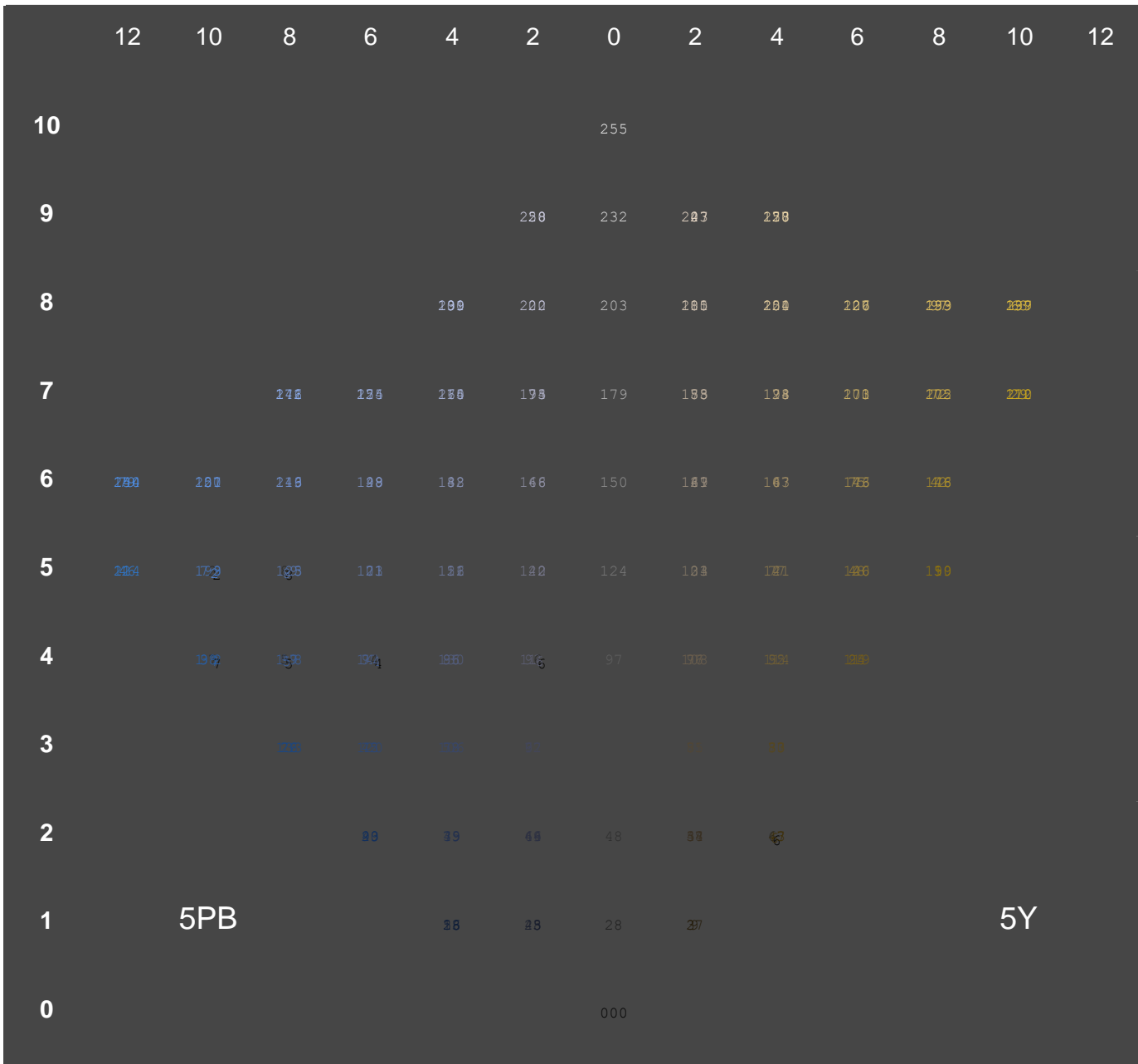
Several color solids before Munsell's plotted luminosity from black on the bottom to white on the top, with a gray gradient between them, but these systems neglected to keep perceptual lightness constant across horizontal slices. Instead, they plotted fully saturated yellow (light), and fully saturated blue and purple (dark) along the equator.

Chroma^[edit]

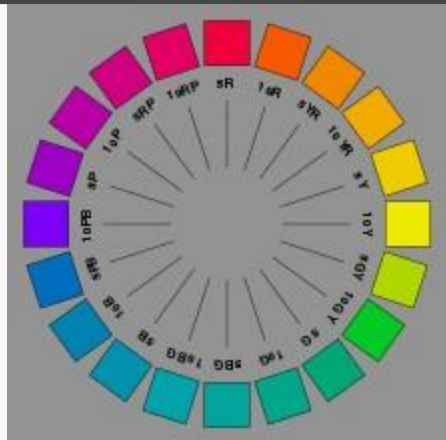
Chroma, measured radially from the center of each slice, represents the “purity” of a color (related to [saturation](#)), with lower chroma being less pure (more washed out, as in [pastels](#)).^[6] Note that there is no intrinsic upper limit to chroma. Different areas of the color space have different maximal chroma coordinates. For instance light yellow colors have considerably more potential chroma than light purples, due to the nature of the [eye](#) and the physics of color stimuli. This led to a wide range of possible chroma levels—up to the high 30s for some hue–value combinations (though it is difficult or impossible to make physical objects in colors of such high chromas, and they cannot be reproduced on current computer displays). Vivid solid colors are in the range of approximately 8.



Note that the chart for both



However, the limited color displays. Ther which are the of value 1.



Twenty hues of the Munsell color system at maximum chroma to stay in the sRGB gamut.

Albert Munsell, an artist and professor of art at the Massachusetts Normal Art School (now [Massachusetts College of Art and Design](#), or MassArt), wanted to create a “rational way to describe color” that would use decimal notation

instead of color names (which he felt were “foolish” and “misleading”),^[8] which he could use to teach his students about color. He first started work on the system in 1898 and published it in full form in *A Color Notation* in 1905.

Living Room Furniture

It's the focal point of your home. The ultimate gathering spot. The pressure is on, then, to create a space that is both practical yet beautiful, comfortable yet gracious. Be sure to remember not only to fill the space with enough furniture to host a crowd, but to leave enough space to allow guests to



maneuver
comfortably.

through the space

- Sofas: Fabric and Leather
- Sectionals: Fabric and Leather
- Sleeper Sofas: Fabric and Leather
- Accent Chairs: Fabric and Leather
- Loveseats: Fabric and Leather
- Chaises
- Chairs-and-a-half
- Recliners: Fabric and Leather
- Swivels & Gliders: Fabric and Leather
- Chair Ottomans: Fabric and Leather

And, of course, your living room will need spaces for you to place a television, a serving tray, or décor. Some types of tables and shelving include:

- Coffee tables
- End tables
- Benches
- Accent tables
- Accent chests
- Bookcases and open shelving
- Credenzas and consoles

Dining Room Furniture

Of course, this is the room that will host your big celebrations: Thanksgiving dinners, birthday candle blow-outs, Sunday brunches. But the dining room also sets the scene for some of your quiet moments: a weeknight dinner for two, game night with the kids, morning coffee alone. Choose the pieces for all of these moments, big and small, with the right dining room furniture:

- Dining tables: Round, rectangular, and square
- Arm Chairs: Wood and upholstered
- Side Chairs: Wood and upholstered
- Bar and counter stools
- Sideboards
- Console tables

Bedroom Furniture

The bedroom allows for more design creativity than any other room. After all, this one can be furnished with just your and your partner's tastes in mind. To get started, begin with the key pieces:



- Beds: Wood and upholstered
- Headboards
- Nightstands
- Dressers
- Chests and armoires
- Mirrors
- Mattresses
- Benches

Office Furniture

Whether you work from this office full time or if you use it to catch up on business after hours, it's important to have a space that allows you to feel organized, productive, and comfortable. Shop for your office furniture essentials:

- Desks
- Storage cabinets
- Bookcases

Shop for Furniture of all Kinds at Bassett Furniture

Whether you're shopping for the big pieces or the small details, our design experts can help you put it all together. Book [a free design consultation or schedule a phone chat with a design consultant](#) for advice on creating the perfect spaces in your home.

UNIT-4

A **carpet** is a [textile floor covering](#) typically consisting of an upper layer of [pile](#) attached to a backing. The pile was traditionally made from wool, but since the 20th century, synthetic fibers such as [polypropylene](#), [nylon](#) or [polyester](#) are often used, as these fibers are less expensive than wool. The pile usually consists of twisted tufts that are typically heat-treated to maintain their structure. The term *carpet* is often used in a similar context to the term *rug*, but rugs are typically considered to be smaller than a room and not attached to the floor.

Carpets are used for a variety of purposes, including insulating a person's feet from a cold tile or concrete floor, making a room more comfortable as a place to sit on the floor (e.g., when playing with children or as a [prayer rug](#)), reducing sound from walking (particularly in [apartment buildings](#)), and adding decoration or color to a room. Carpets can be made in any color by using differently dyed fibers. Carpets can have many different types of patterns and motifs used to decorate the surface. Carpets are used in industrial and commercial establishments such as retail stores and [hotels](#) and in private homes. Today, a huge range of carpets and rugs are available at many price and quality levels, ranging from inexpensive, synthetic carpets that are [mass-produced](#) in [factories](#) and used in commercial buildings to costly hand-knotted wool rugs that are used in private homes of wealthy families.

Carpets can be produced on a [loom](#) quite similarly to [woven fabric](#), made using needle [felts](#), knotted by hand (in [oriental rugs](#)), made with their pile injected into a backing material (called tufting), flatwoven, made by hooking wool or cotton through the meshes of a sturdy fabric, or [embroidered](#). Carpet is commonly made in widths of 12 feet (3.7 m) and 15 feet (4.6 m) in the US and 4 m (13 ft) and 5 m (16 ft) in Europe. Since the 19th and 20th century, where necessary for wall-to-wall carpet, different widths of carpet can be seamed together with a seaming iron and seam tape (formerly it was [sewn](#) together) and fixed to a floor over a cushioned [underlay](#) (pad) using nails, [tack strips](#) (known in the UK as gripper rods), adhesives, or occasionally decorative metal [stair rods](#). Wall-to-wall carpet is distinguished from rugs or [mats](#), which are loose-laid floor coverings, as wall-to-wall carpet is fixed to the floor and covers a much larger area.



A carpet seller in [Jaipur](#), India

Etymology and usage^{[[edit](#)]}

The term [carpet](#) comes from [Old French](#) *carpite*. One derivation of the term states that the [French](#) term came from the [Old Italian](#) *carpita*, from the [verb](#) "carpire" meaning *to pluck*.^{[1][2]} The *Online Etymology Dictionary* states that the term "carpet" was first used in English in the late 13th century, with the meaning "coarse cloth", and by the [mid-14th century](#), "tablecloth, [or] bedspread".^[3] The *Online Etymology Dictionary* states that the term comes "...from Old French *carpite* "heavy decorated cloth, carpet," from [Medieval Latin](#) or Old Italian *carpita* "thick woolen cloth," probably from Latin *carpere* "to card, pluck," probably so called because it was made from unraveled, shred[d]ed, "plucked" fabric".^[3] The meaning of the term "carpet" shifted in the 15th century to refer to floor coverings.^[3]

The term "carpet" is often used interchangeably with the term "rug". Some sources define a carpet as stretching from wall to wall.^[4] Another definition treats rugs as of lower quality or of smaller size, with carpets quite often having finished ends. A third common [definition](#) is that a carpet is permanently fixed in place while a rug is simply laid out on the floor. Historically, the term "carpet" was also applied to table and wall coverings, as carpets were not commonly used on the floor in European interiors until the 15th century.

The term "rug" was first used in [English](#) in the [1550s](#), with the meaning "coarse fabric". The term is of "...Scandinavian origin; compare Norwegian dialectal *rugga* "coarse coverlet," from [Old Norse](#) *rogg* "shaggy tuft," from Proto-Germanic **rawwa-*, perhaps related to *rag* (n.) and *rough* (adj.)."^[5] The meaning of "rug" "...evolved to "coverlet, wrap" (1590s), then "mat for the floor" (1808)".^[6]

Types[\[edit\]](#)



Modern carpet illustrating a camel caravan on the [Silk Road](#)

Woven[\[edit\]](#)

The carpet is produced on a [loom](#) quite similar to [woven fabric](#). The pile can be [plush](#) or [Berber](#). Plush carpet is a cut [pile](#) and Berber carpet is a loop pile. There are new styles of carpet combining the two styles called cut and loop carpeting. Normally many colored yarns are used and this process is capable of producing intricate patterns from predetermined designs (although some limitations apply to certain weaving methods with regard to accuracy of pattern within the carpet). These carpets are usually the most expensive due to the relatively slow speed of the manufacturing process. These are very famous in Iran, India, Pakistan, and Arabia.

Needle felt[\[edit\]](#)



A [toranj medallion](#), a common design in [Persian carpets](#)

These carpets are more technologically advanced. Needle [felts](#) are produced by intermingling and felting individual [synthetic fibers](#) using barbed and forked needles forming an extremely durable carpet. These carpets are normally found in commercial settings such as hotels and restaurants where there is frequent traffic.

Knotted[\[edit\]](#)

Main article: [Knotted-pile carpet](#)



A traditional rug being woven on a carpet [loom](#)

On a **knotted pile** carpet (formally, a "supplementary weft cut-loop pile" carpet), the structural [weft](#) threads alternate with a supplementary weft that rises at right angles to the surface of the weave. This supplementary weft is attached to the [warp](#) by one of three knot types (see below), such as [shag carpet](#) which was popular in the 1970s, to form the pile or [nap](#) of the carpet. Knotting by hand is most prevalent in [oriental rugs](#) and carpets. Kashmir carpets are also hand-knotted. Pile carpets, like flat carpets, can be woven on a loom. Both vertical and horizontal looms have been used in the production of European and oriental carpets. The warp threads are set up on the frame of the loom before weaving begins. A number of weavers may work together on the same carpet. A row of knots is completed and cut. The knots are secured with (usually one to four) rows of weft. The warp in woven carpet is usually cotton and the weft is jute.^{[\[citation needed\]](#)}

There are several styles of knotting, but the two main types of knot are the **symmetrical** (also called Turkish or [Ghiordes](#)) and **asymmetrical** (also called Persian or [Senna](#)). Contemporary centres of knotted carpet production are: [Lahore](#) and [Peshawar](#) ([Pakistan](#)), [Kashmir](#) ([India](#)), [Mirzapur](#) and [Bhadohi](#) ([India](#)),^{[\[6\]](#)} [Tabriz](#) ([Iran](#)), [Afghanistan](#), [Armenia](#), [Azerbaijan](#), [Turkey](#), [Northern Africa](#), [Nepal](#), [Spain](#), [Turkmenistan](#), and [Tibet](#). The importance of carpets in the culture of Turkmenistan is such that [the national flag](#) features a vertical red stripe near the hoist side, containing five carpet guls (designs used in producing rugs). Kashmir is known for handknotted carpets of silk or wool.

Tufted[\[edit\]](#)



[Swatches](#) of [tufted](#) carpet



Drying carpets in a village workshop at the [Ourika Valley, Morocco](#)

These are carpets that have their pile injected into a backing material, which is itself then bonded to a secondary backing made of a woven [hessian](#) weave or a man made alternative to provide stability. The pile is often sheared in order to achieve different textures. This is the most common method of manufacturing of domestic carpets for floor covering purposes in the world.

Others[\[edit\]](#)

A **flatweave** carpet is created by interlocking warp (vertical) and weft (horizontal) threads. Types of oriental flatwoven carpet include [kilim](#), [soumak](#), [plain weave](#), and [tapestry weave](#). Types of European flatwoven carpets include Venetian, Dutch, [damask](#), list, [haircloth](#), and ingrain (aka double cloth, two-ply, triple cloth, or three-ply).

A **hooked rug** is a simple type of rug handmade by pulling strips of cloth such as wool or cotton through the meshes of a sturdy fabric such as burlap. This type of rug is now generally made as a [handicraft](#). The process of creating a hooked rug is called [Rug hooking](#).^[7]

Unlike woven carpets, **embroidery carpets'** are not formed on a loom. Their pattern is established by the application of [stitches](#) to a [cloth](#) (often [linen](#)) base. The tent stitch and the cross stitch are two of the most common. Embroidered carpets were traditionally made by royal and aristocratic women in the home, but there has been some commercial manufacture since steel needles were introduced (earlier needles were made of bone) and linen weaving improved in the 16th century. [Mary, Queen of Scots](#), is known to have been an avid embroiderer. 16th century designs usually involve scrolling vines and regional flowers (for example, the [Bradford carpet](#)). They often incorporate animal heraldry and the [coat of arms](#) of the maker. Production continued through the 19th century. [Victorian](#) embroidered carpet compositions include highly illusionistic, 3-dimensional flowers. Patterns for tiled carpets made of a number of squares, called [Berlin wool work](#), were introduced in [Germany](#) in 1804, and became extremely popular in England in the 1830s. Embroidered carpets can also include other features such as a pattern of shapes, or they can even tell a story.

Fibres and yarns



A [Moldovan stamp](#) featuring a carpet

Carpet can be formulated from many single or blended [natural](#) and [synthetic fibres](#). Fibres are chosen for durability, appearance, ease of manufacture, and cost. In terms of scale of production, the dominant yarn constructions are polyamides (nylons) and polypropylene with an estimated 90% of the commercial market.^[8]

Nylon

Since the 20th century, [nylon](#) is one of the most common materials for the construction of carpets. Both [nylon 6](#) and [nylon 6-6](#) are used. Nylon can be dyed topically or dyed in a molten state (solution dyeing). Nylon can be printed easily and has excellent wear characteristics. Due to nylon's excellent wear-resistance, it is widely used in industrial and commercial carpeting. In carpets, nylon tends to stain easily because of the dye sites which exist on the fibre. These dye sites need to be filled in order to give nylon carpet any type of stain resistance. As nylon is petroleum-based it varies in price with the price of oil.

Polypropylene

[Polypropylene](#), a [polyolefin](#) stiffer than the cheaper [polyethylene](#), is used to produce carpet yarns because it is still less expensive than the other materials used for carpets. It is difficult to dye and does not wear as well as wool or nylon. Polypropylene, sometimes referred to simply as "olefin", is commonly used to construct berber carpets. Large looped olefin berber carpets are usually only suited for light domestic use and tend to mat down quickly. Berber carpets with smaller loops tend to be more resilient and retain their new appearance longer than large looped berber styles. Commercial grade level-loop carpets have very small loops, and commercial grade cut-pile styles can be well constructed. When made with polypropylene, commercial grade styles wear very well, making them very suitable for areas with heavy foot traffic such as offices. Polypropylene carpets are known to have good stain resistance, but not against oil-based agents. If a stain does set, it can be difficult to clean. Commercial grade carpets can be glued directly to the floor or installed over a 1/4" thick, 8-pound density padding. Outdoor grass carpets are usually made from polypropylene.

Wool and wool-blends



A wool carpet

[Wool](#) has excellent durability, can be dyed easily and is fairly abundant. When blended with synthetic fibres such as nylon the durability of wool is increased. Blended wool yarns are extensively used in production of modern carpet, with the most common blend being 80% wool to 20% synthetic fibre, giving rise to the term "80/20". Wool is relatively expensive and consequently it only comprises a small portion of the market.

Polyester

The [polyester](#) known as "PET" ([polyethylene terephthalate](#)) is used in carpet manufacturing in both spun and filament constructions. After the price of raw materials for many types of carpet rose in the early 2000s, polyester became more competitive. Polyester has good physical properties and is inherently stain-resistant because it is hydrophobic, and, unlike nylon, does not have dye sites.

Colour is infused in a molten state (solution dyeing). Polyester has the disadvantage that it tends to crush or mat down easily. It is typically used in mid- to low-priced carpeting.

Another polyester, "PTT" ([Polytrimethylene terephthalate](#)), also called Sorona or 3GT (Dupont) or Corterra (Shell), is a variant of PET. Lurgi Zimmer PTT was first patented in 1941, but it was not produced until the 1990s, when Shell Chemicals developed the low-cost method of producing high-quality 1,3 propanediol (PDO), the starting raw material for PTT Corterra Polymers. DuPont subsequently commercialized a [biological process](#) for making [1,3-propanediol](#) from [corn syrup](#), imparting significant [renewable](#) content on the corresponding Sorona polyester carpet fibers.^[9] These carpet fibers have resiliency comparable to nylon.^[10]

Acrylic[

[Acrylic](#) is a synthetic material first created by the Dupont Corporation in 1941 but has gone through various changes since it was first introduced. In the past, acrylic carpet used to fuzz or "pill" easily. This happened when the fibres degraded over time and short strands broke away with contact or friction. Over the years, new types of acrylics have been developed to alleviate some of these problems, although the issues have not been completely removed. Acrylic is fairly difficult to dye but is colourfast, washable, and has the feel and appearance of wool, making it a good rug fabric.



The [Pazyryk](#) Carpet, the oldest surviving carpet in the world ([Armenia](#) or [Persia](#), 5th century BC)



The [Czartoryski](#) carpet with coat of arms of the Polish Myszkowski family,^[11] made with a [cotton](#) warp, a [silk](#) weft and pile, and metal wrapped thread (Iran, 17th century)

The knotted pile carpet probably originated in the [Caspian Sea](#) area (Northern Iran) ^[12] or the [Armenian Highland](#).^[13] Although there is evidence of goats and sheep being sheared for wool and hair which was spun and woven as far back at the 7th millennium, the earliest surviving pile carpet is the "Pazyryk carpet", which dates from the 5th-4th century BC. It was excavated by [Sergei Ivanovich Rudenko](#) in 1949 from a [Pazyryk burial](#) mound in the [Altai Mountains](#) in [Siberia](#). This richly coloured carpet is 200 x 183 cm (6'6" x 6'0") and framed by a border of griffins.^[14]

Although claimed by many cultures, this square tufted carpet, almost perfectly intact, is considered by many experts to be of Caucasian, specifically Armenian, origin. The rug is woven using the Armenian double knot, and the red filaments' color was made from [Armenian cochineal](#).^{[15][16]} The eminent authority of ancient carpets, Ulrich Schurmann, says of it, "From all the evidence available I am convinced that the Pazyryk rug was a funeral accessory and most likely a masterpiece of Armenian workmanship".^[17] Gantzhorn concurs with this thesis. At the ruins of [Persepolis](#) in [Iran](#) where various nations are depicted as bearing tribute, the horse design from the Pazyryk carpet is the same as the relief depicting part of the Armenian delegation.^[13] The historian [Herodotus](#) writing in the 5th century BC also informs us that the inhabitants of the Caucasus wove beautiful rugs with brilliant colors which would never fade.^[18]

Afghanistan[

There has recently been a surge in demand for Afghan carpets, although many Afghan carpet manufacturers market their products under the name of a different country.^[19] The carpets are made in Afghanistan, as well as by [Afghan refugees](#) who reside in Pakistan and Iran. Famous Afghan rugs include the [Shindand](#) or [Adraskan](#) (named after local Afghan villages), woven in the [Herat](#) area in western Afghanistan.

Afghan carpets are commonly known as Afghan rugs. Afghan carpets are a unique and well recognized handmade material design that originates from Afghanistan. They often exhibit intricate detailing, mainly using traditional tribal designs originating from the Turkmen, Kazakh, Baloch, and

Uzbeks. The hand-made rugs come in many patterns and colors, yet the traditional and most common example of Afghan carpet is the octagon-shaped elephant-foot (Bukhara). The rugs with this print are most commonly red in color. Many dyes, such as [vegetable dyes](#), are used to impart rich color.

Armenia[

The historian Herodotus writing in the 5th century BC also informs us that the inhabitants of the Caucasus wove beautiful rugs with brilliant colors which would never fade.[23] Various rug fragments have been excavated in Armenia dating back to the 7th century BC or earlier. The oldest, single, surviving knotted carpet in existence is the Pazyryk carpet, excavated from a frozen tomb in Siberia, dated from the 5th to the 3rd century BC, now in the Hermitage Museum in St. Petersburg. This square tufted carpet, almost perfectly intact, is considered by many experts to be of Caucasian, specifically Armenian, origin. The eminent authority of ancient carpets, Ulrich Schurmann, says of it, "From all the evidence available I am convinced that the Pazyryk rug was a funeral accessory and most likely a masterpiece of Armenian workmanship".^[20] Gantzhorn concurs with this thesis. At the ruins of Persepolis in Iran where various nations are depicted as bearing tribute, the horse design from the Pazyryk carpet is the same as the relief depicting part of the Armenian delegation. [Armenian carpets](#) were renowned by foreigners who travelled to Artsakh; the Arab geographer and historian [Al-Masudi](#) noted that, among other works of art, he had never seen such carpets elsewhere in his life.^[21]

Art historian Hravard Hakobyan notes that "Artsakh carpets occupy a special place in the history of Armenian carpet-making."^[22] Common themes and patterns found on Armenian carpets were the depiction of dragons and eagles. They were diverse in style, rich in colour and ornamental motifs, and were even separated in categories depending on what sort of animals were depicted on them, such as *artsvagorgs* (eagle-carpet), *vishapagorgs* (dragon-carpet) and *otsagorgs* (serpent-carpet).^[22] The rug mentioned in the Kaptavan inscriptions is composed of three arches, "covered with vegetative ornaments", and bears an artistic resemblance to the [illuminated manuscripts](#) produced in Artsakh.^[22]

The art of carpet weaving was in addition intimately connected to the making of curtains as evidenced in a passage by [Kirakos Gandzaketsi](#), a 13th-century Armenian historian from Artsakh, who praised Arzu-Khatun, the wife of regional prince Vakhtang Khachenatsi, and her daughters for their expertise and skill in weaving.^[23]

Azerbaijan

The Gultapin excavations discovered several carpet weaving tools which date back to the 4th-3rd millennium BC. According to Iranica Online "*The main weaving zone was in the eastern Transcaucasus south of the mountains that bisect the region diagonally, the area now comprised in the Azerbaijan SSR; it is the homeland of a Turkic population known today as Azeri. Other ethnic groups also practiced weaving, some of them in other parts of the Caucasus, but they were of lesser importance.*"^[24] Azerbaijan was one of the most important centers of carpet weaving and as a result of that, several different schools have evolved. While traditionally schools are divided into four main branches, each region has its own version of the carpets. The Schools are divided into four main branches: Kuba-Shirvan, Ganja-Kazakh carpet-weaving school, The Baku carpet school, Karabakh school of carpet weaving.^[25] Carpet weaving is a family tradition in [Azerbaijan](#) which is transferred verbally and with practicing and also associated with the daily life and customs of its people. A variety of carpet and rug types are made in Azerbaijan such as silk, wool, gold and silver threads, pile and pileless carpets, as well as, kilim, sumakh, zili, verni, mafrashi and khurjun. In 2010, traditional art of Azerbaijani carpet weaving was added to the [Representative List of the Intangible Cultural Heritage of Humanity](#) of [UNESCO](#).^{[26][27]}

As opposed to most antique rug manufactory practices, Chinese carpets were woven almost exclusively for internal consumption. China has a long history of exporting traditional goods; however, it was not until the first half of the 19th century that the Chinese began to export their rugs. Once in

contact with western influences, there was a large change in production: Chinese manufactories began to produce [art-deco](#) rugs with [commercial](#) look and price point. The centuries-old Chinese textile industry is rich in history. While most antique carpets are classified according to a specific region or manufactory, scholars attribute the age of any specific Chinese rug to the ruling emperor of the time. The earliest surviving examples of the craft were produced during the time of [Ch'ung Chen](#), the last emperor of the [Chen Dynasty](#).

India

Carpet weaving may have been introduced into the area as far back as the eleventh century with the coming of the first Muslim conquerors, the [Ghaznavids](#) and the [Ghauris](#), from the West. It can with more certainty be traced to the beginning of the Mughal Dynasty in the early sixteenth century, when the last successor of Timur, Babar, extended his rule from Kabul to India to found the Mughal Empire. Under the patronage of the Mughals, Indian craftsmen adopted Persian techniques and designs. Carpets woven in the Punjab made use of motifs and decorative styles found in Mughal architecture.

[Akbar](#), a Mogul emperor, is accredited to introducing the art of carpet weaving to India during his reign. The Mughal emperors patronized Persian carpets for their royal courts and palaces. During this period, he brought Persian craftsmen from their homeland and established them in India. Initially, the carpets woven showed the classic Persian style of fine knotting. Gradually it blended with Indian art. Thus the carpets produced became typical of the Indian origin and gradually the industry began to diversify and spread all over the subcontinent. During the Mughal period, the carpets made on the Indian subcontinent became so famous that demand for them spread abroad. These carpets had distinctive designs and boasted a high density of knots. Carpets made for the Mughal emperors, including [Jahangir](#) and [Shah Jahan](#), were of the finest quality. Under Shah Jahan's reign, Mughal carpet weaving took on a new aesthetic and entered its classical phase.^{[[citation needed](#)]} Indian carpets are well known for their designs with attention to detail and presentation of realistic attributes. The carpet industry in India flourished more in its northern part with major centres found in Kashmir, Jaipur, [Agra](#) and Bhadohi.

Indian carpets are known for their high density of knotting. Hand-knotted carpets are a speciality and widely in demand in the West. The carpet industry in India has been successful in establishing social business models that help underprivileged sections of the society. Notable examples of [social entrepreneurship](#) ventures are [Jaipur rugs](#),^{[[28](#)]} [Fabindia](#).^{[[29](#)]}

Another category of Indian rugs which, though quite popular in most of the western countries, have not received much press, is hand-woven rugs of Khairabad (Citapore rugs).^{[[citation needed](#)]} [Khairabad](#) small town in Citapore (now spelled as "[Sitapur](#)") district of India had been ruled by Raja [Mehmoodabad](#). Khairabad (Mehmoodabad Estate) was part of [Oudh](#) province which had been ruled by [shi'i](#) Muslims having Persian linkages. Citapore rugs made in Khairabad and neighbouring areas are all hand-woven and distinct from tufted and knotted rugs. Flat weave is the basic weaving technique of Citapore rugs and generally cotton is the main weaving material here but jute, rayon and chenille are also popular. [IKEA](#) and [Agocha](#) have been major buyers of rugs from this area.

Pakistan

The art of weaving developed in South Asia at a time when few other civilizations employed it. Excavations at [Harappa](#) and [Mohenjo-Daro](#)— ancient cities of the [Indus Valley Civilization](#)— have established that the inhabitants used spindles and spun a wide variety of weaving materials. Some historians consider that the Indus Valley civilization first developed the use of woven textiles. As of the late 1990s, hand-knotted carpets were among Pakistan's leading export products and their manufacture is the second largest cottage and small industry. Pakistani craftsmen have the capacity to produce any type of carpet using all the popular motifs of gulls, medallions, paisleys, tracteries, and geometric designs in various combinations.^{[[30](#)]} At the time of independence, manufacturing of carpets was set up in [Sangla Hill](#), a small town of District Sheikhupura. Chaudary Mukhtar Ahmad Member son of Maher Ganda introduced and taught this art to locals and immigrants. He is considered

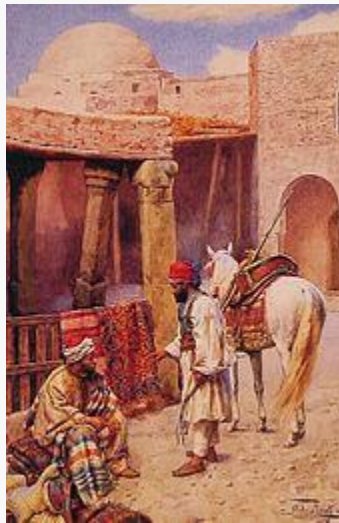
founder of this industry in Pakistan. Sangla Hill is now a focal point in Carpet Industry in Pakistan. Almost all the exporters and manufacturers who are running their business at Lahore, Faisalabad and Karachi have their area offices in Sangla Hill.

Persia [Iran](#)^[edit]

Main article: [Persian carpet](#)



A [Tree of Life](#) pattern



The Carpet Seller ([Giulio Rosati](#))

The Persian carpet is a part of [Persian](#) ([Iranian](#)) art and culture. Carpet-[weaving](#) in Persia dates back to the [Bronze Age](#). The earliest surviving corpus of Persian carpets come from the [Safavid](#) dynasty (1501–1736) in the 16th century. However, painted depictions prove a longer history of production. There is much variety among classical Persian carpets of the 16th and 17th century. Common motifs include scrolling vine networks, [arabesques](#), [palmettes](#), [cloud bands](#), medallions, and overlapping geometric compartments rather than animals and humans.^{[\[citation needed\]](#)} This is because [Islam](#), the dominant religion in that part of the world, forbids their depiction.^{[\[citation needed\]](#)} Still, some show figures

engaged either in the hunt or feasting scenes. The majority of these carpets are wool, but several [silk](#) examples produced in [Kashan](#) survive.^[31]

Iran is also the world's largest producer and exporter of handmade carpets, producing three quarters of the world's total output and having a share of 30% of world's export markets.^{[32][33]} Iran is also the maker of the largest handmade carpet in history, measuring 60,546 square feet (equal to over 5600 square meters).^{[34][35]}

Scandinavia[

Scandinavian rugs are among the most popular of all weaves in modern design. Preferred by influential modernist thinkers, designers, and advocates for a new aesthetic in the mid-twentieth century, Scandinavian rugs have become very widespread in many different avenues of contemporary interior design. With a long history of adaptation and evolution, the tradition of Scandinavian rug-making is among the most storied of all European rug-making traditions.

Turkey[



[Oushak](#) (Usak) carpet (late 19th century)



[Kayseri](#) prayer rug from [Anatolia](#), Turkey

Turkish carpets (also known as [Anatolian](#)), whether hand knotted or flat woven, are among the most well known and established hand crafted art works in the world.^[36] Historically: religious, cultural, environmental, sociopolitical and socioeconomic conditions created widespread utilitarian need and

have provided artistic inspiration among the many tribal peoples and ethnic groups in [Central Asia](#) and Turkey.^[37] Turks; nomadic or pastoral, agrarian or town dwellers, living in tents or in sumptuous houses in large cities, have protected themselves from the extremes of the cold weather by covering the floors, and sometimes walls and doorways, with carpets and rugs. The carpets are always hand made of wool or sometimes cotton, with occasional additions of silk. These carpets are natural barriers against the cold. Turkish pile rugs and kilims are also frequently used as tent decorations, grain bags, camel and donkey bags, ground cushions, oven covers, sofa covers, bed and cushion covers, blankets, curtains, eating blankets, table top spreads, prayer rugs and for ceremonial occasions.

The oldest records of flat woven kilims come from [Çatalhöyük](#) Neolithic pottery, circa 7000 B.C. One of the oldest settlements ever to have been discovered, Çatalhöyük is located south east of Konya in the middle of the Anatolian region.^[38] The excavations to date (only 3% of the town) not only found carbonized fabric but also fragments of kilims painted on the walls of some of the dwellings. The majority of them represent geometric and stylized forms that are similar or identical to other historical and contemporary designs.^[39]

The knotted rug is believed to have reached Asia Minor and the Middle East with the expansion of various nomadic tribes peoples during the latter period of the great [Turkic migration](#) of the 8th and 9th centuries. Famously depicted in European paintings of [The Renaissance](#), beautiful Anatolian rugs were often used from then until modern times, to indicate the high economic and social status of the owner.

Women learn their weaving skills at an early age, taking months or even years to complete the beautiful pile rugs and flat woven kilims that were created for their use in every aspect of daily life. As is true in most weaving cultures, traditionally and nearly exclusively, it is women and girls who are both artisan and weaver.^{[40][41][42]}

Turkmen[



The largest hand-woven carpet in the world at the [Turkmen Carpet Museum](#) in [Ashgabat](#)

Türkmen carpet (also called "Bukhara Uzbekistan") is a type of handmade floor-covering textile traditionally originating in Central Asia. It is useful to distinguish between the original Turkmen tribal rugs and the rugs produced in large numbers for export in the 2000s, mainly in Pakistan and Iran. The original Turkmen rugs were produced by the [Turkmen](#) tribes who are the main ethnic group in [Turkmenistan](#) and are also found in Afghanistan and Iran. They are used for various purposes, including tent rugs, door hangings and bags of various sizes.^[43]

Oriental carpets in Europe[\[edit\]](#)

Oriental carpets began to appear in Europe after the [Crusades](#) in the 11th century, due to contact by Crusaders with Eastern traders. Until the mid-18th century they were mostly used on walls and tables. Except in royal or ecclesiastical settings they were considered too precious to cover the floor. Starting in the 13th century oriental carpets begin to appear in paintings (notably from Italy, Flanders, England, France, and the Netherlands). Carpets of Indo-Persian design were introduced to Europe via the Dutch, British, and French [East India Companies](#) of the 17th and 18th century^[44] and in the [Polish–Lithuanian Commonwealth](#) by Armenian merchants ([Polish carpets](#) or Polonaise carpets).^[11]

Spain[\[edit\]](#)



The 16th-century [Alcaraz rug](#) at the [Nazmiyal collection](#)

Although isolated instances of carpet production pre-date the Muslim invasion of Spain, the [Hispano-Moresque](#) examples are the earliest significant body of European-made carpets. Documentary evidence shows production beginning in Spain as early as the 10th century AD. The earliest extant Spanish carpet, the so-called Synagogue carpet in the Museum of Islamic Art, Berlin, is a unique survival dated to the 14th century. The earliest group of Hispano-Moresque carpets, Admiral carpets (also known as armorial carpets), has an all-over geometric, repeat pattern punctuated by blazons of noble, Christian Spanish families. The variety of this design was analyzed most thoroughly by [May Beattie](#). Many of the 15th-century, Spanish carpets rely heavily on designs originally developed on the Anatolian Peninsula.^[citation needed] Carpet production continued after the Reconquest of Spain and eventual expulsion of the Muslim population in the 15th century. 16th-century Renaissance Spanish carpet design is a derivative of silk textile design. Some of the most popular motifs are [wreaths](#), [acanthus leaves](#) and [pomegranates](#).

During the [Moorish](#) (Muslim) period production took place in [Alcaraz](#) in the province of Murcia, as well as being recorded in other towns. Carpet production after the Christian reconquest continued in Alcaraz while [Cuenca](#), first recorded as a weaving centre in the 12th century, became increasingly important, and was dominant in the 17th and early 18th century. Carpets of completely different French based designs began to be woven in a royal workshop, the [Royal Tapestry Factory](#) (*Real Fábrica de Tapices de Santa Bárbara*) in Madrid in the 18th century. Cuenca was closed down by the royal degree of Carlos IV in the late 18th century to stop it competing with the new workshop. Madrid continued as a weaving centre through to the 20th century, producing brightly coloured carpets most of whose designs are strongly influenced by French carpet design, and which are frequently signed (on occasions with the monogram MD; also sometimes with the name Stuyck) and dated in the outer stripe. After the [Spanish civil war General Franco](#) revived the carpet weaving industry in workshops named after him, weaving designs that are influenced by earlier Spanish carpets, usually in a very limited range of colours.^[45]

Serbia

Pirot carpet^[a] ([Serbian](#): Пиротски ћилим, *Pirotski ćilim*) refers to a variety of flat tapestry-woven carpets or rugs traditionally produced in [Pirot](#), a town in southeastern Serbia. Pirot kilims with some 122 ornaments and 96 different types have been protected by geographical indication in 2002. They are one of the most important traditional handicrafts in Serbia. In the late 19th century and up to the Second World War, Pirot kilims have been frequently used as insignia of Serbian and Yugoslav royalty. This tradition was revived in 2011 when Pirot kilims were reintroduced for state ceremonies in Serbia. Carpet weaving in Pirot dates back to the Middle Ages.^{[46][full citation needed]} One of the first mentions of the Pirot kilim in written sources date to 1565, when it was said that the šajkaši boats on the Danube and Drava were covered with Pirot kilims. Pirot was once the most important rug-making centre in the Balkans. Pirot is located on the historical main highway which linked central Europe with Constantinople. Pirot was also known as Şarköy in Turkish. The Pirot carpet varieties are also found in Bulgaria and Turkey, and in many other international collections. One of the chief qualities are the colour effects achieved through the choice and arrangement of colours.

In the beginning of the 19th century plant dyes were replaced by aniline colourings. "The best product of the country is the Pirot carpet, worth about ten shillings a square metre. The designs are extremely pretty, and the rugs, without being so heavy as the Persian, or so ragged and scant in the web and weft as Caramanian, wear for ever. The manufacture of these is almost entirely confined to Pirot. From Pirot's old Turkish signification as Şarköy stems the traditional trade name of the rugs as Şarköy-kilims. Stemming from the homonym to the today's Turkish settlement of Şarköy in Thracia, which had no established rug making tradition, Şarköys are often falsely ascribed to originate from Turkey. Also in the rug selling industry, Şarköy are mostly labeled as being of oriental or Turkish origin as to easier sell them to non familiar customers as they prefer rug with putative oriental origin. In fact, Şarköys have been established from the 17th century in the region of the Western Balkan or Stara Planina mountains in the towns of Pirot, Berkowiza, Lom, Chiprovtsi and Samokow. Later they have been also produced in Knjaževac and Caribrod.

Bulgaria

The [Chiprovtsi carpet](#) (Чипровци килим) is a type of handmade carpet with two absolutely identical sides, part of Bulgarian national heritage, traditions, arts and crafts. Its name is derived from the town of [Chiprovtsi](#) where their production started in the 17th century. The carpet weaving industry played a key role in the revival of Chiprovtsi in the 1720s after the devastation of the failed 1688 [Chiprovtsi Uprising](#) against Ottoman rule. The western traveller [Ami Boué](#), who visited Chiprovtsi in 1836–1838, reported that "mainly young girls, under shelters or in corridors, engage in carpet weaving. They earn only five [francs](#) a month and the payment was even lower before". By 1868, the annual production of carpets in Chiprovtsi had surpassed 14,000 square metres.^{[47][full citation needed]} In 1896, almost 1,400 women from Chiprovtsi and the region were engaged in carpet weaving. In 1920, the locals founded the *Manual Labour* carpet-weaving cooperative society, the first of its kind in the country.^{[48][full citation}

needed At present, the carpet (*kilim*) industry remains dominant in the town.^[49] Carpets have been crafted according to traditional designs, but in recent years it is up to the customers to decide the pattern of the carpet they have ordered. The production of a single 3 by 4 m (9.8 by 13.1 ft) carpet takes about 50 days; primarily women engage in carpet weaving. Work is entirely manual and all used materials are natural; the primary material is wool, coloured using plant or mineral dyes. The local carpets have been prized at exhibitions in London, Paris, Liège and Brussels. In recent decades, however, the Chiprovtsi carpet industry has been in decline as it had lost its firm foreign markets. As a result, the town and the municipality have been experiencing a demographic crisis.

France[

In 1608 Henry IV initiated the French production of "Turkish style" carpets under the direction of Pierre DuPont. This production was soon moved to the Savonnerie factory in Chaillot just west of Paris. The earliest, well-known group produced by the Savonnerie, then under the direction of Simon Lourdet, are the carpets that were produced in the early years of Louis XIV's reign. They are densely ornamented with flowers, sometimes in vases or baskets, against dark blue or brown grounds in deep borders. The designs are based on Netherlandish and Flemish textiles and paintings. The most famous Savonnerie carpets are the series made for the Grande Galerie and the Galerie d'Apollon in the Palais du Louvre between c. 1665-1685. These 105 masterpieces, made under the artistic direction of Charles Le Brun, were never installed, as Louis XIV moved the court to Versailles in 1688. Their design combines rich acanthus leaves, architectural framing, and mythological scenes (inspired by Cesare Ripa's Iconologie) with emblems of Louis XIV's royal power.

Pierre-Josse Joseph Perrot (Q28017591) is the best-known of the mid-eighteenth-century carpet designers. His many surviving works and drawings display graceful rococo s-scrolls, central rosettes, shells, acanthus leaves, and floral swags. The Savonnerie manufactory was moved to the Gobelins in Paris in 1826.^[50] The Beauvais manufactory, better known for their tapestry, also made knotted pile carpets from 1780 to 1792. Carpet production in small, privately owned workshops in the town of Aubusson began in 1743. Carpets produced in France employ the symmetrical knot.^[45]



An 18th century Savonnerie tapisserie at the Palace of Versailles



Manufacture de la Savonnerie à Paris en 2018

England



Machine used to cut and re-roll carpet lengths

Knotted pile carpet weaving technology probably came to England in the early 16th century with [Flemish Calvinists](#) fleeing religious persecution. Because many of these weavers settled in South-eastern [England](#) in Norwich the 14 extant 16th and 17th century carpets are sometimes referred to as "Norwich carpets." These works are either adaptations of Anatolian or Indo-Persian designs or employ Elizabethan-Jacobean scrolling vines and blossoms. All but one are dated or bear a coat of arms. Like the French, English weavers used the symmetrical knot. There are documented and surviving examples of carpets from three 18th-century manufactories: Exeter (1756–1761, owned by [Claude Passavant](#), 3 extant carpets), Moorfields (1752–1806, owned by Thomas Moore, 5 extant carpets), and Axminster (1755–1835, owned by [Thomas Whitty](#), numerous extant carpets). Exeter and Moorfields were both staffed with renegade weavers from the French Savonnerie and, therefore, employ the weaving structure of that factory and Perrot-inspired designs. Neoclassical designer [Robert Adam](#) supplied designs for both Moorfields and Axminster carpets based on [Roman](#) floor [mosaics](#) and coffered ceilings. Some of the most well-known rugs of his design were made for [Syon House](#), [Osterley House](#), [Harewood House](#), [Saltram House](#), and [Newby Hall](#).

Axminster carpet was a unique floor covering made originally in a [factory](#) founded at Axminster, Devon, England, in 1755 by the cloth weaver [Thomas Whitty](#). Resembling somewhat the Savonnerie carpets produced in France, Axminster carpets were symmetrically knotted by hand in wool on woolen warps and had a weft of flax or hemp. Like the French carpets, they often featured Renaissance architectural or floral patterns; others mimicked oriental patterns. Similar carpets were produced at the same time in Exeter and in the Moorfields section of London and, shortly before, at Fulham in Middlesex. The Whitty factory closed in 1835 with the advent of machine-made carpeting. The name Axminster, however, survived as a generic term for machine-made carpets whose pile is produced by techniques similar to those used in making velvet or chenille. ^[51]

Axminster carpet has three main types of broadloom carpet construction in use today (machine woven, tufted & hand knotted). Machine woven carpet is an investment that will last 20 or 30 years

and woven Axminster and Wilton carpets are still extremely popular in areas where longevity and design flexibility are a big part of the purchasing decision. Hotels and leisure venues almost always choose these types and many homes use woven Axminsters as design statements.

Machine-woven carpets like Axminster and Wilton are made by massive looms that weave together 'bobbins' of carpet yarn and backing. The finished result, which can be intricately patterned, creates a floor that provides supreme underfoot luxury with high performance. Tufted carpets are also popular in the home. They are relatively speedy to make - a pre-woven backing has yarns tufted into it. Needles push the yarn through the backing and which is then held in place with underlying "loopers". Tufted carpets can be twist pile, velvet, or loop pile. Twist pile carpets are produced when one or more fibres are twisted in the tufting process, so that in the finished carpet they appear to be bound together. Velvet pile carpets tend to have a shorter pile and a tighter construction, giving the finished article a smooth, velvety appearance. Loop pile carpets are renowned for being hard wearing and lend carpets great texture. The traditional domain of rugs from far away continents, hand knotted squares and rugs use the expertise of weavers to produce work of the finest quality. Traditional rugs often feature a deliberate 'mistake' on behalf of the weaver to guarantee their authenticity.

Six of Axminster carpets are known as the "Lansdowne" group. These have a tripartite design with reeded circles and baskets of flowers in the central panel flanked by diamond lozenges in the side panels. Axminster Rococo designs often have a brown ground and include birds copied from popular, contemporary engravings. Even now a large percentage of the 55,000 population town still seek employment in this industry. The town of [Wilton, Wiltshire](#) is also known for its carpet weaving, which dates back to the 18th century.^[52]

The Brussels Loom was introduced into England towards the middle of the eighteenth century marked the beginning of a new era in carpet-weaving. It was the first loom on which a pile carpet could be woven mechanically, the pile consisting of rows of loops, formed over wires inserted weftwise during weaving and subsequently withdrawn. Brussels was the first type of carpet to be woven in a loom incorporating the jacquard pattern selecting mechanism and in 1849 power was applied to the loom by Biglow in the U.S.A.

Later when bladed wires were developed the pile loops were severed on withdrawal of the blade wires to produce a carpet known as Wilton, after this development the loom became known as the Wilton loom, and in modern usage the designation Wilton applies to both cut-pile and loop-pile carpets made in this loom. The latter now variously described as Brussels-Wilton, round wire Wilton, loop-pile Wilton, and round wired jacquard. The methods of manufacture, including the principles of designing, preparatory processes, and weaving, are the same in most respects for both Brussels and Wilton qualities. The chief difference between them is that whereas Brussels loop-pile is secured satisfactorily by the insertion of two picks of weft to each wire (2-shot), the Wilton cut-pile is woven more often with three picks of weft to each wire (3-shot) to ensure that the tufts are firmly secured in the carpet backing.

Brussels carpets have a smooth slightly ribbed surface and their patterning is well defined, a characteristic feature of the carpet. Closeness of pile rather than height contributes to their neat appearance and hard wearing properties, although they do not simulate the luxury of cut-pile carpets. Brussels Wilton Carpets were initially produced on 27-inch (3/4) looms and were sewn together by hand. The looms could incorporate up to 5 frames all with different colours thus enabling figured or pattern carpets to be manufactured. With judicious and very skilful planting of colours in the frames the number of colours could be increased to about twenty, thus enabling very complex designs to be produced. Due to the additional costs in labour these carpets were normally only produced for the bespoke market.

After the first World War the carpets started to be produced for the general market using popular designs and colourways but they always remained at the luxury end of the general market. The growing middle class of the twentieth century aspired to acquire a Wilton carpet for their 'best' room.

Despite the impact of industrialization, the areas where Brussels Wilton carpets were produced remained centred mainly in the Midlands around the towns of Wilton and Kidderminster and in West Yorkshire where the firm of John Crossley and Sons in Halifax became synonymous with carpet manufacture. There were smaller areas of manufacture in Scotland and Durham. With the development of different manufacturing methods and looms capable of the mass production of carpets, the public began change their décor, including carpets, on a regular basis, which increased the demand for carpets. The last quarter of the 20th century saw the rapid decline of the labour-intensive Brussels Wilton carpets. Very few of the original $\frac{3}{4}$ Wilton looms still exist and the few that do are either in museums or used by small manufacturers that continue to produce custom made luxury carpets for the elite and to replace carpets in historic buildings in the UK and abroad.^[53]

Modern carpeting and installation^[edit]



Macro shot of a Berber-style carpet. Berber-style carpets feature two sizes of tufts of varying colors in a loop pile construction

Carpet is commonly made in widths of 12 feet (3.7 m) and 15 feet (4.6 m) in the US, 4 m and 5 m in Europe. Where necessary different widths can be seamed together with a seaming iron and seam tape (formerly it was sewn together) and it is fixed to a floor over a cushioned underlay (pad) using nails, tack strips (known in the UK as gripper rods), adhesives, or occasionally decorative metal stair rods, thus distinguishing it from rugs or mats, which are loose-laid floor coverings. For environmental reasons, the use of wool, natural bindings, natural padding, and formaldehyde-free glues is becoming more common. These options are almost always at a premium cost.

In the UK, some carpets are still manufactured for yachts, hotels, pubs and clubs in a narrow width of 27 inches (0.69 m) and then sewn to size. Carpeting which covers an entire room area is loosely referred to as 'wall-to-wall', but carpet can be installed over any portion thereof with use of appropriate transition moldings where the carpet meets other types of floor coverings. Carpeting is more than just a single item; it is, in fact, a system comprising the carpet itself, the carpet backing (often made of latex), the cushioning underlay, and a method of installation. Carpet tiles are also available, typically 50 centimetres (20 in) square. These are usually only used in commercial settings and are affixed using a special pressure-sensitive glue, which holds them into place while allowing easy removal (in an office environment, for example) or to allow rearrangement in order to spread wear.^[54]

Throughout the world, commercial carpet cleaning for yachts, hotels, pubs and clubs is also a major industry. Rates for cleaning vary, with hotel restaurants being on the highest end due to frequency of traffic and staining. In such environments clean flooring is essential from both a pest extermination and public health liability standpoint, as well as maintaining the overall look and customer satisfaction of the establishment. Given the importance of upkeep, it is customary in full-service hotels with onsite food and beverage outlets for the commercial carpet cleaner to be extended privileges as the "lord of the inn," such as on the house upgraded accommodations, personal chef services, in-room entertainment, and ability to pay gratuity on hotel house accounts.^[55]

"Carpet binding" is a term used for any material being applied to the edge of a carpet to make a rug. Carpet binding is usually cotton or nylon, but also comes in many other materials such as leather. Non-synthetic binding is frequently used with bamboo, grass and wool rugs, but is often used with carpet made from other materials.

The [GoodWeave](#) labelling scheme used throughout [Europe](#) and [North America](#) assures that child labour has not been used: importers pay for the labels, and the revenue collected is used to monitor centres of production and educate previously exploited children.^[56]

In culture and figurative expressions^[edit]



Jean-Léon Gérôme - The Carpet Merchant

There are many stories about [magic carpets](#), legendary flying carpets that can be used to transport people who are on it instantaneously or quickly to their destination. Disney's Aladdin depicts a magic carpet found by Aladdin and Abu in the Cave of Wonders while trying to find Genie's lamp. Aladdin and Jasmine ride on him to go on a ride around the world. The term "[m]agic carpet [is] first attested [in] 1816.^[3] From the 16th century to the 19th century, the term "carpet" was used "...as an adjective often with a tinge of contempt, when used of men (as in carpet-knight, 1570s)", which meant a man who was associated with "...luxury, ladies' boudoirs, and drawing rooms".^[3] *Rolling out the red carpet* is an expression which means to welcome a guest lavishly and handsomely. In some cases, an actual [red carpet](#) is used for VIPs and celebrities to walk on, such as at the [Cannes Film Festival](#) and when foreign dignitaries are welcomed to a country.

In 1820s British servant slang, to "carpet" someone means to call them for a reprimand.^[3] To be *called on the carpet* means to be summoned for a serious reason, typically a scolding reprimand; this usage dates from 1900.^[57] A stronger variant of this expression, to be "hauled on the carpet", implies an even sterner reprimand. [Carpet bombing](#) is a type of bombing from airplanes which developed in the 20th century in which an entire city is bombed (rather than precise strikes on military targets). The slang expression "laugh at the carpet" means to [vomit](#) on the floor (especially a carpeted floor).^[58] The expression "on the carpet" refers to a matter which is under discussion or consideration.^[58] The term "carpet muncher" is a derogatory slang term for a [lesbian](#); this expression is first attested in 1992.^[59]

The term [carpet bag](#), which literally refers to a suitcase made from a piece of carpet, is used in several figurative contexts. The term gained a popular usage after the [American Civil War](#) to refer to [carpetbaggers](#), Northerners who moved to the South after the war, especially during the [Reconstruction era](#) (1865–1877). Carpetbaggers allegedly

politically manipulated and controlled former Confederate states for financial and power gains. In modern usage in the U.S., the term is sometimes used derisively to refer to a politician who runs for public office in an area where he or she does not have deep community ties, or has lived only for a short time. In the United Kingdom, the term was adopted to refer informally to those who join a [mutual organization](#), such as a [building society](#), in order to force it to [demutualize](#), that is, to convert into a [joint stock company](#), solely for personal financial gain.

Cutting the rug is a slang term for dancing which originated in 1942.^[5] The use of the term "rug" as an informal term for a "[t  upee](#)" (man's [wig](#)) is [theater](#) slang from 1940.^[5] The term "sweep [something] under the rug" or "sweep [something] under the carpet" figuratively refers to situations where a person or organization is hiding something embarrassing or negative; this use was first recorded in 1953.^[3] The figurative expression "pull the rug out from under (someone)", meaning to "suddenly deprive of important support" is first attested to in 1936, in American English. A related figurative expression used centuries earlier was "cut the grass under (one's) feet", which is attested to in the 1580s.^[5] A "rugrat" or "rug-rat" is a slang term for a baby or child, first attested in 1968.^[5] The expression "snug as a bug in a rug" means "wrapped up tight, warm, and comfortable".^[60] To "lie like a rug" means "to tell lies shamelessly".^[61] The expression "pull the rug out (from under someone)" means "to make someone or someone's plans fall through" or "to upset someone's plans".^[62]



A mythical [magic carpet](#)



The Carpet Seller, a [Royal Doulton](#) figurine

UNIT-5

Accessory is an item used to contribute, in a secondary manner, to the wearer's [outfit](#), often used to complete an outfit and chosen to specifically complement the wearer's look.^[1] It has the capacity to further express an individual's identity and personality as there are accessories that come in different, shapes, sizes, hues etc. The term came into use in the 20th century.



Types

Fashion accessories can be loosely categorized into two general areas: those that are carried and those that are worn. Traditionally carried accessories include purses and [handbags](#), [hand fans](#), [parasols](#) and [umbrellas](#), [wallets](#), [canes](#), and [ceremonial swords](#). Accessories that are worn may include [jackets](#), [boots](#) and [shoes](#), [cravats](#), [ties](#), [hats](#), [bonnets](#), [belts](#) and [suspenders](#), [gloves](#), [muffs](#), [n](#)

[ecklaces](#), [bracelets](#), [watches](#), [eyewear](#), [sashes](#), [shawls](#), [scarves](#), [lanyards](#), [socks](#), [pins](#), [piercings](#), [rings](#), and [stockings](#).^[1]

The type of accessory that an individual chooses to wear or carry to complement their outfit can be determined by several factors including the specific context of where the individual is going. For example, if an individual is going to work their choice of accessory would differ to one who is going out to drinks or dinner thus depending on work or play different accessories would be chosen. Similarly, an individual's economical status, religious and cultural background would also be a contributing factor.^[2]

Present^[T]trends[

As time has progressed fashion accessories have become more and more prominent in the immediate fashion world ranging from the runway to street wear. Today's generation of fashionistas has adopted a new way of wearing certain items to complete an outfit. Celebrities such as [A\\$AP Rocky](#) and [Lil Uzi Vert](#) have a unique style and have redefined what it means to wear an accessory. Many hurdles were cleared this year in the fashion world by icons such as Kanye West and Virgil Abloh, bringing freshness and innovation to the fashion industry. [Virgil Abloh](#), CEO of Off-White and creative designer for [Louis Vuitton](#), has paved a way for many trends to take off due to his usage of them in his runway shows consisting of the new "Dad Shoe" trend that's catching on quickly throughout many other big names such as [Gucci](#) and [Balenciaga](#). Some other accessories that have gained popularity this year are side bags, clout glasses, long coats, and plaid designed articles. Although these trends are currently popular, fashion is an ever-changing field that adapts to its inhabitants. The future of fashion is always exciting and is credited with creating the most bizarre trends that seem to find its way to the closets of every inner city fashion enthusiast.

Floral design or flower arrangement is the art of using plant materials and [flowers](#) to create an eye-catching and balanced composition or display. Evidence of refined [floristry](#) is found as far back as the culture of [ancient Egypt](#). Professionally designed floral designs, arrangements or artwork incorporate the elements of floral design: line, form, space, texture, and color, and the principles of floral design: balance, proportion, rhythm, contrast, harmony, and unity.^[1]

There are many styles of floral design including Botanical Style, Garden Style, Crescent Corsage, Nosegay Corsage, Pot au Fleur, Inverted "T", Parallel Systems, Western Line, Hedgerow Design, Mille de Fleur, and Formal Linear.^[2]

The Eastern, Western, and European styles have all influenced the commercial floral industry as it is today. [Ikebana](#) is a Japanese style of floral design, and incorporates the three main line placements of heaven, human, and earth. In contrast, the European style emphasizes color and variety of botanical materials not limited to just blooming flowers, in mass gatherings of multiple flowers. Western design historically is characterized by symmetrical, asymmetrical, horizontal, and vertical style of arrangements.

In addition to flower arrangements, floral design includes making [wreaths](#), [nosegays](#), [garlands](#), [festoons](#), [boutonnieres](#), [corsages](#), and [bows](#).

Dried arrangements and related media[[edit](#)]

Permanent creations and components incorporating dried materials such as bark, wood, dried flowers, dried (and often aromatic) [inflorescences](#), leaves, leaf skeletons, preserved materials and artefacts, are common extensions of the art floral design, and are of practical importance in that they last indefinitely and are independent of the seasons. Their materials offer effects, idioms, and associations complementary to, and contrasting with, fresh flowers and foliage.



Floral designers at work in [Germany](#)



Floral design



A small design



[Chrysanthemum](#) arrangement for catering

Schools

With the ever-growing interest in the natural world and flowers, the floral industry continues to grow. The increase in educational institutes providing training in floral design has expanded to many state universities as well as certified design schools worldwide.

Associations

Prominent industry associations that promote floral design worldwide include the [American Institute of Floral Designers](#) (AIFD), the Society of American Florists (SAF), and the National Association of Flower Arranging Societies (NAFAS). These and other [associations](#) promote floral design through [workshops](#), [conferences](#), flower shows, and [seminars](#).^[3]

Designers[\[edit\]](#)



Chrysanthemums in an antique bottle. Floral design is commonly an element of editorial photography.

Notable floral designers include [Daniel Ost](#), [Junichi Kakizaki](#), [Paula Pryke](#), [Phil Rulloda](#), [Catherine Conlin](#), [Constance Spry](#), [Jennifer McGarigle](#), [Judith Blacklock](#), [Stanlee Gatti](#), [Irene Hayes](#), [Julia Clements](#), [Azuma Makoto](#), and the [White House Chief Floral Designer](#).

Types of Flower Arrangement



The fan shaped flower arrangement

It is one of the most commonly used classic flower arrangement styles used by the flower arrangers. In this flower arrangement, the flowers and leaves are arranged in the shape of a fan. The leaves are like the flower blades. Some differently colored flowers are also used for this flower arrangement. The same or [different types of flower with various colors](#) are used for this type of flower arrangement. The empty space within the flower arrangements are filled up by

using the fillers. These are gorgeous in looks with wonderful shape and size. Thus, this flower arrangement is very popular.

Elliptical flower arrangement

In this type of flower arrangement, the [flowers are placed and arranged](#) in the form of an ellipse. The flowers, which are commonly used for this purpose are roses, sunflowers, dahlia, lotus, tuberose, lilies and many more. Thus, only bright flowers are used for this purpose. The flowers are bright as well as sweet scented. These are mostly bouquet arrangement and ideal to be presented in birthday, wedding and other types of parties. These are really attractive in looks. The best color combination of the flowers is used for this flower arrangement purpose.

Vertical flower arrangement

It is one of the mostly used flower arrangement in bouquets as well as flower baskets. A mixture and combination of different types of flowers with various colors and shapes are used for these arrangements. This particular flower arrangement is cherished by all flower arrangers, florist companies as well as by the customers all across the world.

[Horizontal flower arrangement](#)

It is also a very common type flower arrangement used by the flower designers of reputed florist companies round the globe. The flowers of different colors are arranged in rows or on zig zag basis with the help of this type of flower arrangement. Usually strongly scented or fragrant flowers are used for this purpose.

Triangular flowers

It is the flower arrangement as the name suggests is triangular in shape. The whole flower



bunch is cut and trimmed in the shape of triangle to make this shape. These flower arrangements usually have a big flower in the middle, adding to the beautification of the flower arrangement bunch. These flowers are arranged in bright flower bouquets covered with glossy and transparent cellophane papers.

The crescent flower arrangement

This type of flower arrangement is also known as the C type of flower arrangement in which the freshly plucked flower with green leaves and stem fillers are used on a flower basket arrangement. The flower basket with this flower arrangement looks very beautiful and gorgeous. These are usually supported by glossy flower wraps and the leaves, and the flowers are tied with silk, satin made colorful ribbons.

The ‘S’ shaped flower arrangement

It is the type of flower arrangement which has the shape of ‘S’. These are arranged in the form of flower bouquets and baskets. These are usually big in size and can be presented in any occasion or celebration. These are placed in flower stands and look upright. A lot of leaves with floral fillers are also used for this arrangement. The entire look of the place is changed where this flower arrangement is placed.

The oval shaped flower arrangement

This type of flower arrangement are oval shaped and are highly recommended by most of the



reputed florist organizations of the world. The flowers, green stems and leaves are cut and trimmed in the form of an oval shaped and skillfully placed in different flower arrangements like bouquets, baskets and bunches. The flower arrangement looks very much dense and bushy from outside. Thus, it is very much good looking. This flower arrangement is widely used in interior decoration purposes and also ceremony hall decoration purposes in different parts of the world.

The cascade flower arrangement

It is a gorgeous and bushy flower arrangement. Apart of flowers, leaves and stems, a lot of fresh green grass is also used to prepare this very special type of flower arrangement. These are mostly arranged in flower bouquets and presented in the wedding anniversaries and wedding ceremonies of all religions. The fresh fragrance and gorgeous color of the flower arrangement makes the wedding ceremony more memorable and enjoyable. Thus, it is very popular all over the globe.

All the above-mentioned types of flower arrangements are supplied by the most renowned florist companies based in India. These companies contain a group of highly trained and skilled professionals who arrange the flowers in the best possible way and using the best color combinations. These flowers are available online on the official website with the most reasonable prices. Bulk purchase orders can also be placed on the website, and good discount schemes are also available from them.

Lighting or illumination

Lighting or **illumination** is the deliberate use of [light](#) to achieve practical or aesthetic effects. Lighting includes the use of both artificial [light sources](#) like lamps and light fixtures, as well as natural illumination by capturing [daylight](#). [Daylighting](#) (using windows, skylights, or light shelves) is sometimes used as the main source of light during daytime in buildings. This can save [energy](#) in place of using artificial lighting, which represents a major component of energy consumption in buildings. Proper lighting can enhance task performance, improve the appearance of an area, or have positive psychological effects on occupants.

Indoor lighting is usually accomplished using [light fixtures](#), and is a key part of [interior design](#). Lighting can also be an intrinsic component of [landscape projects](#).

With the [discovery of fire](#), the earliest form of artificial lighting used to illuminate an area were [campfires](#) or [torches](#). As early as 400,000 [BCE](#), fire was kindled in the caves of [Peking Man](#). [Prehistoric](#) people used primitive [oil lamps](#) to illuminate surroundings. These lamps were made from naturally occurring materials such as rocks, shells, horns and stones, were filled with [grease](#), and had a [fiber wick](#). Lamps typically used animal or vegetable fats as fuel. Hundreds of these lamps (hollow worked stones) have been found in the [Lascaux](#) caves in modern-day [France](#), dating to about 15,000 years ago. Oily animals (birds and fish) were also used as lamps after being threaded with a wick. [Fireflies](#) have been used as lighting sources. [Candles](#) and glass and pottery lamps were also invented.^[1] [Chandeliers](#) were an early form of "[light fixture](#)".

A major reduction in the cost of lighting occurred with the discovery of [whale oil](#).^[2] The use of whale oil declined after [Abraham Gesner](#), a Canadian geologist, first refined [kerosene](#) in the 1840s, allowing brighter light to be produced at substantially lower cost.^[3] In the 1850s, the price of whale oil dramatically increased (more than doubling from 1848 to 1856) due to shortages of available whales, hastening whale oil's decline.^[3] By 1860, there were 33 kerosene plants in the United States, and Americans spent more on gas and kerosene than on whale oil.^[3] The final death knell for whale oil was in 1859, when [crude oil](#) was discovered and the [petroleum industry](#) arose.^[3]

[Gas lighting](#) was economical enough to power street lights in major cities starting in the early 1800s, and was also used in some commercial buildings and in the homes of wealthy people. The [gas mantle](#) boosted the luminosity of utility lighting and of kerosene lanterns. The next major drop in price came about in the 1880s with the introduction of [electric lighting](#) in the form of [arc lights](#) for large space and street lighting followed on by [incandescent light bulb](#) based utilities for indoor and outdoor lighting.^{[2][4]}

Over time, electric lighting became ubiquitous in developed countries.^[5] [Segmented sleep](#) patterns disappeared, improved nighttime lighting made more activities possible at night, and more [street lights](#) reduced urban crime.^{[6][7][8]}

Lighting fixtures come in a wide variety of styles for various functions. The most important functions are as a holder for the light source, to provide directed light and to avoid [visual glare](#). Some are very plain and functional, while some are pieces of art in themselves. Nearly any material can be used, so long as it can tolerate the excess heat and is in keeping with safety codes.

An important property of light fixtures is the [luminous efficacy](#) or [wall-plug efficiency](#), meaning the amount of usable light emanating from the fixture per used energy, usually measured in [lumen](#) per [watt](#). A fixture using replaceable light sources can also have its efficiency quoted as the percentage of light passed from the "bulb" to the surroundings. The more [transparent](#) the lighting fixtures are, the higher efficacy. [Shading](#) the light will normally decrease efficacy but increase the directionality and the [visual comfort probability](#).

[Color temperature](#) for white light sources also affects their use for certain applications. The color temperature of a white light source is the temperature in [kelvins](#) of a theoretical [black body](#) emitter that most closely matches the spectral characteristics of the lamp. An incandescent bulb has a color temperature around 2800 to 3000 kelvins; daylight is around 6400 kelvins. Lower color temperature lamps have relatively more energy in the yellow and red part of the visible spectrum, while high color temperatures correspond to lamps with more of a blue-white appearance. For critical inspection or color matching tasks, or for retail displays of food and clothing, the color temperature of the lamps will be selected for the best overall lighting effect.

Types^{[[edit](#)]}

See also: [List of types of lighting](#)



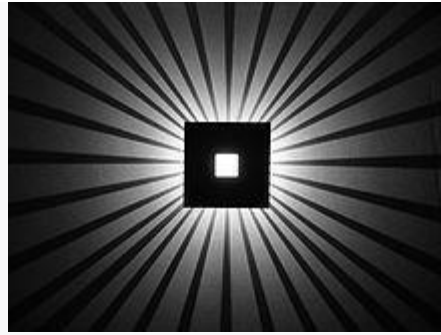
A demonstration of the effects of different kinds of lighting

Lighting is classified by intended use as general, accent, or task lighting, depending largely on the distribution of the light produced by the fixture.

- [Task lighting](#) is mainly functional and is usually the most concentrated, for purposes such as [reading](#) or [inspection](#) of materials. For example, reading poor-quality reproductions may require task lighting levels up to 1500 [lux](#) (150 [footcandles](#)), and some inspection tasks or [surgical](#) procedures require even higher levels.
- [Accent lighting](#) is mainly decorative, intended to highlight [pictures](#), [plants](#), or other elements of [interior design](#) or [landscaping](#).
- General lighting (sometimes referred to as ambient light) fills in between the two and is intended for general illumination of an area. Indoors, this would be a basic [lamp](#) on a table or floor, or a fixture on the [ceiling](#). Outdoors, general lighting for a [parking lot](#) may be as low as 10-20 lux (1-2 footcandles) since [pedestrians](#) and [motorists](#) already used to the dark will need little light for crossing the area.

Methods]

- [Downlighting](#) is most common, with fixtures on or recessed in the ceiling casting light downward. This tends to be the most used method, used in both offices and homes. Although it is easy to design, it has dramatic problems with glare and excess energy consumption due to large number of fittings.^[9] The introduction of LED lighting has greatly improved this by approx. 90% when compared to a halogen downlight or spotlight. LED lamps or bulbs are now available to retro fit in place of high energy consumption lamps.
- [Uplighting](#) is less common, often used to bounce indirect light off the ceiling and back down. It is commonly used in lighting applications that require minimal glare and uniform general illuminance levels. Uplighting (indirect) uses a diffuse surface to reflect light in a space and can minimize disabling glare on computer displays and other dark glossy surfaces. It gives a more uniform presentation of the light output in operation. However indirect lighting is completely reliant upon the reflectance value of the surface. While indirect lighting can create a diffused and shadow free light effect it can be regarded as an uneconomical lighting principle.^{[10][11]}
- Front lighting is also quite common, but tends to make the subject look flat as it casts almost no visible shadows. Lighting from the side is the less common, as it tends to produce [glare](#) near [eye](#) level.
- [Backlighting](#) either around or through an object is mainly for accent. Backlighting is used to illuminate a background or backdrop. This adds depth to an image or scene. Others use it to achieve a more dramatic effect.



Wall-mounted light with shadows

Forms of lighting[\[edit\]](#)

Indoor lighting[\[edit\]](#)

Forms of lighting include [alcove](#) lighting, which like most other uplighting is indirect. This is often done with [fluorescent lighting](#) (first available at the [1939 World's Fair](#)) or [rope light](#), occasionally with [neon lighting](#), and recently with [LED strip lighting](#). It is a form of backlighting.

[Soffit](#) or close to wall lighting can be general or a decorative wall-wash, sometimes used to bring out texture (like [stucco](#) or [plaster](#)) on a wall, though this may also show its [defects](#) as well. The effect depends heavily on the exact type of lighting source used.

[Recessed lighting](#) (often called "pot lights" in [Canada](#), "can lights" or "high hats" in the [US](#)) is popular, with fixtures mounted into the ceiling structure so as to appear flush with it. These downlights can use narrow beam spotlights, or wider-[angle floodlights](#), both of which are bulbs having their own [reflectors](#). There are also downlights with internal reflectors designed to accept common 'A' lamps (light bulbs) which are generally less costly than reflector lamps. Downlights can be incandescent, fluorescent, [HID \(high intensity discharge\)](#) or [LED](#).

[Track lighting](#), invented by [Lightolier](#),^{[\[12\]](#)} was popular at one period of time because it was much easier to install than recessed lighting, and individual fixtures are decorative and can be easily aimed at a [wall](#). It has regained some popularity recently in low-voltage tracks, which often look nothing like their predecessors because they do not have the safety issues that line-voltage systems have, and are therefore less bulky and more ornamental in themselves. A master [transformer](#) feeds all of the fixtures on the track or rod with 12 or 24 volts, instead of each light fixture having its own line-to-low voltage transformer. There are traditional spots and floods, as well as other small hanging fixtures. A modified version of this is [cable lighting](#), where lights are hung from or clipped to bare [metal cables](#) under [tension](#).

A [sconce](#) is a wall-mounted fixture, particularly one that shines up and sometimes down as well. A [torchère](#) is an uplight intended for ambient lighting. It is typically a floor lamp but may be wall-mounted like a sconce. Further interior light fixtures include chandeliers, pendant lights, ceiling fans with lights, close-to-ceiling or flush lights, and various types of lamps^{[\[13\]](#)}

The portable or table lamp is probably the most common fixture, found in many homes and [offices](#). The standard lamp and shade that sits on a table is general lighting, while the desk lamp is considered task lighting. [Magnifier](#) lamps are also task lighting.



Animated fountain in [Moscow's Square of Europe](#), lit at night.

The [illuminated ceiling](#) was once popular in the 1960s and 1970s but fell out of favor after the 1980s. This uses [diffuser](#) panels hung like a [suspended ceiling](#) below fluorescent lights, and is considered general lighting. Other forms include neon, which is not usually intended to illuminate anything else, but to actually be an artwork in itself. This would probably fall under accent lighting, though in a dark [nightclub](#) it could be considered general lighting.

In a [movie theater](#), steps in the aisles are usually marked with a row of small lights for convenience and safety, when the film has started and the other lights are off. Traditionally made up of small low wattage, low-voltage lamps in a track or translucent tube, these are rapidly being replaced with LED based versions.

Outdoor lighting[\[edit\]](#)



High mast lighting along [Highway 401](#) in [Ontario](#), Canada.

[Street Lights](#) are used to light roadways and walkways at night. Some manufacturers are designing LED and photovoltaic luminaires to provide an energy-efficient alternative to traditional street light fixtures.^{[\[14\]](#)[\[15\]](#)[\[16\]](#)}



[Floodlights](#) are used to illuminate outdoor playing fields or work zones during nighttime.

[Floodlights](#) can be used to illuminate work zones^{[\[17\]](#)} or outdoor playing fields during nighttime hours.^{[\[18\]](#)[\[19\]](#)} The most common type of floodlights are metal halide and high pressure sodium lights.

[Beacon lights](#) are positioned at the intersection of two roads to aid in navigation.

Sometimes [security lighting](#) can be used along roadways in urban areas, or behind homes or commercial facilities. These are extremely bright lights used to deter crime. Security lights may include floodlights and be activated with [PIR](#) switches that detect moving heat sources in darkness.

Entry lights can be used outside to illuminate and signal the entrance to a property.^[20] These lights are installed for safety, security, and for decoration.

Underwater accent lighting is also used for koi ponds, fountains, swimming pools and the like.

[Neon signs](#) are most often used to attract attention rather than to illuminate.

Vehicle use

[Vehicles](#) typically include [headlamps](#) and tail lights. Headlamps are [white](#) or [selective yellow](#) lights placed in the front of the vehicle, designed to illuminate the upcoming road and to make the vehicle more visible. Many manufactures are turning to LED headlights as an energy-efficient alternative to traditional headlamps.^[21] Tail and brake lights are [red](#) and emit light to the rear so as to reveal the vehicle's direction of travel to following drivers. White rear-facing reversing lamps indicate that the vehicle's transmission has been placed in the reverse gear, warning anyone behind the vehicle that it is moving backwards, or about to do so. Flashing turn signals on the front, side, and rear of the vehicle indicate an intended change of position or direction. In the late 1950s, some automakers began to use [electroluminescent](#) technology to [backlight](#) their cars' [speedometers](#) and other gauges or to draw attention to [logos](#) or other decorative elements.

Lamps

Main article: [Lamp \(electrical component\)](#)

Commonly called 'light bulbs', [lamps](#) are the removable and replaceable part of a light fixture, which converts electrical energy into [electromagnetic radiation](#). While lamps have traditionally been rated and marketed primarily in terms of their power consumption, expressed in [watts](#), proliferation of lighting technology beyond the [incandescent light bulb](#) has eliminated the correspondence of wattage to the amount of light produced. For example, a 60 W incandescent light bulb produces about the same amount of light as a 13 W [compact fluorescent lamp](#). Each of these technologies has a different [efficacy](#) in converting electrical energy to [visible light](#). Visible light output is typically measured in [lumens](#). This unit only quantifies the visible radiation, and excludes invisible infrared and ultraviolet light. A wax candle produces on the close order of 13 lumens, a 60 watt incandescent lamp makes around 700 lumens, and a 15-watt compact fluorescent lamp produces about 800 lumens, but actual output varies by specific design.^[22] Rating and marketing emphasis is shifting away from wattage and towards lumen output, to give the purchaser a directly applicable basis upon which to select a lamp.

Lamp types include:

- [Ballast](#): A ballast is an auxiliary piece of equipment designed to start and properly control the flow of [power](#) to discharge light sources such as [fluorescent](#) and [high intensity discharge](#) (HID) lamps. Some lamps require the ballast to have thermal protection.
- [fluorescent](#) light: A tube coated with [phosphor](#) containing low pressure [mercury](#) vapor that produces white light.
- [Halogen](#): Incandescent lamps containing halogen gases such as iodine or bromine, increasing the efficacy of the lamp versus a plain incandescent lamp.

- [Neon](#): A low pressure gas contained within a glass tube; the color emitted depends on the gas.
- [Light emitting diodes](#): Light emitting diodes (LED) are solid state devices that emit light by dint of the movement of electrons in a [semiconductor](#) material.^[23]
- [Compact fluorescent lamps](#): CFLs are designed to replace incandescent lamps in existing and new installations.^{[24][25]}

[Design and architecture](#)^[edit]

Architectural lighting design^[edit]

Main article: [Architectural lighting design](#)



Lighting without windows: The [Pantheon](#) in the 18th century, painted by [Giovanni Paolo Panini](#).^[26]

Lighting design as it applies to the built environment is known as 'architectural lighting design'. Lighting of structures considers aesthetic elements as well as practical considerations of quantity of light required, occupants of the structure, energy efficiency, and cost. Artificial lighting takes into account the amount of daylight received in a space by using [daylight factor](#) calculations. For simple installations, hand calculations based on tabular data are used to provide an acceptable lighting design. More critical or complex designs now routinely use computer software such as [Radiance](#) for mathematical modeling, which can allow an architect to quickly evaluate the benefit of a proposed design.

In some instances, the materials used on walls and furniture play a key role in the lighting effect. For example, dark paint tends to absorb light, making the room appear smaller and more dim than it is, whereas light paint does the opposite. Other reflective surfaces also have an effect on lighting

Illuminating subject from beneath to achieve a heightened dramatic effect.

Lighting illuminates the performers and artists in a live theatre, dance, or musical performance, and is selected and arranged to create dramatic effects. Stage lighting uses general illumination technology in devices configured for easy adjustment of their output characteristics.^[citation needed] The setup of stage lighting is tailored for each scene of each production. Dimmers, colored filters, reflectors, lenses, motorized or manually aimed lamps, and different kinds of flood and spot lights are among the tools used by a stage lighting designer to produce the desired effects. A set of lighting cues are prepared so that the lighting operator can control the lights in step with the performance; complex theatre lighting systems use computer control of lighting instruments.

Motion picture and television production use many of the same tools and methods of stage lighting. Especially in the early days of these industries, very high light levels were required and heat produced by lighting equipment presented substantial challenges. Modern cameras require less light, and modern light sources emit less heat.

Measurement

Measurement of light or [photometry](#) is generally concerned with the amount of useful light falling on a surface and the amount of light emerging from a lamp or other source, along with the colors that can be rendered by this light. The human eye responds differently to light from different parts of the visible spectrum, therefore photometric measurements must take the [luminosity function](#) into account when measuring the amount of useful light. The basic [SI](#) unit of measurement is the [candela](#) (cd), which describes the luminous intensity, all other photometric units are derived from the candela. [Luminance](#) for instance is a measure of the density of luminous intensity in a given direction. It describes the amount of light that passes through or is emitted from a particular area, and falls within a given [solid angle](#). The SI unit for luminance is [candela](#) per [square metre](#) (cd/m²). The [CGS](#) unit of luminance is the [stilb](#), which is equal to one candela per square centimetre or 10 kcd/m². The amount of useful light emitted from a source or the [luminous flux](#) is measured in [lumen](#) (lm).

The [SI](#) unit of [illuminance](#) and [luminous emittance](#), being the luminous power per area, is measured in [Lux](#). It is used in [photometry](#) as a measure of the intensity, as perceived by the human eye, of [light](#) that hits or passes through a surface. It is analogous to the [radiometric](#) unit watts per square metre, but with the power at each [wavelength](#) weighted according to the [luminosity function](#), a standardized model of human visual brightness perception. In English, "lux" is used in both singular and plural.^[28]

Several measurement methods have been developed to control glare resulting from indoor lighting design. The [Unified Glare Rating](#) (UGR), the Visual Comfort Probability, and the Daylight Glare Index are some of the most well-known methods of measurement. In addition to these new methods, four main factors influence the degree of discomfort glare; the luminance of the glare source, the solid angle of the glare source, the background luminance, and the position of the glare source in the field of view must all be taken into account.^{[10][29]}

Color properties^[edit]

To define light source color properties, the lighting industry predominantly relies on two metrics, [correlated color temperature](#) (CCT), commonly used as an indication of the apparent "warmth" or "coolness" of the light emitted by a source, and [color rendering index](#) (CRI), an indication of the light source's ability to make objects appear natural.

However, these two metrics, developed in the last century, are facing increased challenges and criticisms as new types of light sources, particularly light emitting diodes (LEDs), become more prevalent in the market.

For example, in order to meet the expectations for good color rendering in retail applications, research^[30] suggests using the well-established CRI along with another metric called gamut area index (GAI). GAI represents the relative separation of object colors illuminated by a light source; the greater the GAI, the greater the apparent saturation or vividness of the object colors. As a result, light sources which balance both CRI and GAI are generally preferred over ones that have only high CRI or only high GAI.^[31]

Light exposure[[]

Typical measurements of light have used a Dosimeter. Dosimeters measure an individual's or an object's exposure to something in the environment, such as light dosimeters and ultraviolet dosimeters.

In order to specifically measure the amount of light entering the eye, personal circadian light meter called the Daysimeter has been developed.^[32] This is the first device created to accurately measure and characterize light (intensity, spectrum, timing, and duration) entering the eye that affects the human body's clock.

The small, head-mounted device measures an individual's daily rest and activity patterns, as well as exposure to short-wavelength light that stimulates the circadian system. The device measures activity and light together at regular time intervals and electronically stores and logs its [operating temperature](#). The Daysimeter can gather data for up to 30 days for analysis.^[33]

Energy consumption

Several strategies are available to minimize energy requirements for lighting a building:

- Specification of illumination requirements for each given use area.
- Analysis of lighting quality to ensure that adverse components of lighting (for example, glare or incorrect [color spectrum](#)) are not biasing the design.
- Integration of space planning and interior architecture (including choice of interior surfaces and room geometries) to lighting design.
- Design of time of day use that does not expend unnecessary energy.
- Selection of [fixture](#) and lamp types that reflect best available technology for [energy conservation](#).
- Training of building occupants to use lighting equipment in most efficient manner.
- Maintenance of lighting systems to minimize energy wastage.
- Use of natural light
 - Some big box stores were being built from 2006 on with numerous plastic bubble skylights, in many cases completely obviating the need for interior artificial lighting for many hours of the day.
 - In countries where indoor lighting of simple dwellings is a significant cost, "[Moser lamps](#)", plastic water-filled transparent drink bottles fitted through the roof, provide the equivalent of a 40- to 60-watt incandescent bulb each during daylight.^[34]
- [Load shedding](#) can help reduce the power requested by individuals to the main power supply. Load shedding can be done on an individual level, at a building level, or even at a regional level.

Specification of illumination requirements is the basic concept of deciding how much illumination is required for a given task. Clearly, much less light is required to illuminate a hallway compared to that needed for a [word processing](#) work station. Generally speaking, the [energy](#) expended is proportional to the design illumination level. For example, a lighting level of 400 [lux](#) might be chosen for a work environment involving meeting rooms and conferences, whereas a level of 80 lux could be selected for building hallways.^{[35][36][37][38][39]} If the hallway standard simply emulates the conference room needs, then much more energy will be consumed than is needed. Unfortunately, most of the lighting standards even today have been specified by industrial groups who manufacture and sell lighting, so that a historical commercial bias exists in designing most building lighting, especially for office and industrial settings.

Lighting control systems

Lighting control systems reduce energy usage and cost by helping to provide light only when and where it is needed. Lighting control systems typically incorporate the use of time schedules, occupancy control, and photocell control (i.e. [daylight harvesting](#)). Some systems also support [demand response](#) and will automatically dim or turn off lights to take advantage of [utility](#) incentives. Lighting control systems are sometimes incorporated into larger [building automation systems](#).

Many newer control systems are using [wireless mesh](#) open standards (such as [ZigBee](#)),^[40] which provides benefits including easier installation (no need to run control wires) and interoperability with other standards-based building control systems (e.g. security).^[41]

In response to [daylighting](#) technology, [daylight harvesting](#) systems have been developed to further reduce energy consumption. These technologies are helpful, but they do have their downfalls. Many times, rapid and frequent switching of the lights on and off can occur, particularly during unstable weather conditions or when daylight levels are changing around the switching illuminance. Not only does this disturb occupants, it can also reduce lamp life. A variation of this technology is the 'differential switching or dead-band' photoelectric control which has multiple illuminances it switches from so as not to disturb occupants as much.^{[9][42]}

Occupancy sensors to allow operation for whenever someone is within the area being scanned can control lighting. When motion can no longer be detected, the lights shut off. Passive infrared sensors react to changes in heat, such as the pattern created by a moving person. The control must have an unobstructed view of the building area being scanned. Doors, partitions, stairways, etc. will block motion detection and reduce its effectiveness. The best applications for passive infrared occupancy sensors are open spaces with a clear view of the area being scanned. Ultrasonic sensors transmit sound above the range of human hearing and monitor the time it takes for the sound waves to return. A break in the pattern caused by any motion in the area triggers the control. Ultrasonic sensors can see around obstructions and are best for areas with cabinets and shelving, restrooms, and open areas requiring 360-degree coverage. Some occupancy sensors utilize both passive infrared and ultrasonic technology, but are usually more expensive. They can be used to control one lamp, one fixture or many fixtures.^{[43][44]}

Daylighting

Daylighting is the oldest method of interior lighting. Daylighting is simply designing a space to use as much natural light as possible. This decreases energy consumption and costs, and requires less heating and cooling from the building. Daylighting has also been proven to have positive effects on patients in hospitals as well as work and school performance. Due to a lack of information that indicate the likely energy savings, daylighting schemes are not yet popular among most buildings.^{[9][45]}

Solid-state lighting^[edit]

Main article: [Solid-state lighting](#)

In recent years [light emitting diodes](#) (LEDs) are becoming increasingly efficient leading to an extraordinary increase in the use of [solid state lighting](#). In many situations, controlling the light emission of LEDs may be done most effectively by using the principles of [nonimaging optics](#).^[46]

Health effects^[edit]

Main articles: [Full-spectrum light](#), [Over-illumination](#), and [Light effects on circadian rhythm](#)

It is valuable to provide the correct light intensity and color spectrum for each task or environment. Otherwise, energy not only could be wasted but [over-illumination](#) can lead to adverse health and psychological effects.

Beyond the energy factors being considered, it is important not to over-design illumination, lest adverse health effects such as [headache](#) frequency, stress, and increased [blood pressure](#) be induced by the higher lighting levels. In addition, glare or excess light can decrease worker efficiency.^[47]

Analysis of lighting quality particularly emphasizes use of natural lighting, but also considers spectral content if artificial light is to be used. Not only will greater reliance on natural light reduce energy consumption, but will favorably impact human health and performance. New studies have shown that the performance of students is influenced by the time and duration of daylight in their regular schedules. [Designing school facilities](#) to incorporate the right types of light at the right time of day for

the right duration may improve student performance and well-being. Similarly, designing lighting systems that maximize the right amount of light at the appropriate time of day [for the elderly](#) may help relieve symptoms of Alzheimer's Disease. The human circadian system is entrained to a 24-hour light-dark pattern that mimics the earth's natural light/dark pattern. When those patterns are disrupted, they disrupt the natural circadian cycle. [Circadian disruption](#) may lead to numerous health problems including breast cancer, [seasonal affective disorder](#), [delayed sleep phase syndrome](#), and other ailments.^{[48][49]}

A study conducted in 1972 and 1981, documented by Robert Ulrich, surveyed 23 surgical patients assigned to rooms looking out on a natural scene. The study concluded that patients assigned to rooms with windows allowing much natural light had shorter postoperative hospital stays, received fewer negative evaluative comments in nurses' notes, and took fewer potent analgesics than 23 matched patients in similar rooms with windows facing a brick wall. This study suggests that due to the nature of the scenery and daylight exposure was indeed healthier for patients as opposed to those exposed to little light from the brick wall. In addition to increased work performance, proper usage of windows and daylighting crosses the boundaries between pure aesthetics and overall health.^{[45][50]}

Alison Jing Xu, assistant professor of management at the [University of Toronto Scarborough](#) and Aparna Labroo of [Northwestern University](#) conducted a series of studies analyzing the correlation between lighting and human emotion. The researchers asked participants to rate a number of things such as: the spiciness of chicken-wing sauce, the aggressiveness of a fictional character, how attractive someone was, their feelings about specific words, and the taste of two juices—all under different lighting conditions. In their study, they found that both positive and negative human emotions are felt more intensely in bright light. Professor Xu stated, "we found that on sunny days depression-prone people actually become more depressed." They also found that dim light makes people make more rational decisions and settle negotiations easier. In the dark, emotions are slightly suppressed. However, emotions are intensified in the bright light.^{[51][52][53]}

[Environmental issues](#)^[edit]

Compact fluorescent lamps^[edit]

[Compact fluorescent lamps](#) (CFLs) use less power than an [incandescent lamp](#) to supply the same amount of light, however they contain [mercury](#) which is a disposal hazard. Due to the ability to reduce electricity consumption, many organizations encouraged the adoption of CFLs. Some electric utilities and local governments subsidized CFLs or provided them free to customers as a means of reducing electricity demand. For a given light output, CFLs use between one fifth and one quarter the power of an equivalent incandescent lamp. Unlike incandescent lamps CFLs need a little time to warm up and reach full brightness. Not all CFLs are suitable for dimming. CFL's have largely been replaced with LED technologies.

LED lamps^[edit]

LED lamps have been advocated as the newest and best environmental lighting method.^[54] According to the Energy Saving Trust, LED lamps use only 10% power compared to a standard incandescent bulb, where compact fluorescent lamps use 20% and energy saving halogen lamps 70%. The lifetime is also much longer — up to 50,000 hours. The downside when they were first popularized was the initial cost. By 2018, production costs dropped, performance increased, and energy consumption was reduced. While the initially cost of LEDs is still higher than incandescent lamps, the savings are so dramatic that there are very few instances that LEDs aren't the most economical choice.

Conflated data, aggregated in the early 2000s, about the increased use of blue-white LEDs seemed to indicate that their use, while saving energy, may compromise human health.^[55] For instance, one study conducted by the American Medical Association^[56] warned on the use of high blue content

white LEDs in street lighting, due to their higher impact on human health and environment, compared to low blue content light sources (e.g. High Pressure Sodium, PC amber LEDs, and low CCT LEDs).

While that data may have been suspect even prior to publication, there's no question that the solid state technology that are LEDs, has evolved substantially since then and we no longer use the lamps that were available for study at that time.

Light pollution[

[Light pollution](#) is a growing problem in reaction to excess light being given off by numerous signs, houses, and buildings. Polluting light is often wasted light involving unnecessary energy costs and carbon dioxide emissions. Light pollution is described as artificial light that is excessive or intrudes where it is not wanted. Well-designed lighting sends light only where it is needed without scattering it elsewhere. Poorly designed lighting can also compromise safety. For example, glare creates safety issues around buildings by causing very sharp shadows, temporarily blinding passersby making them vulnerable to would-be assailants.^{[57][58]} The ecologic effects of artificial light have been documented. The World Health Organization in 2007^[59] issued a report that noted the effects of bright light on flora and fauna, sea turtle hatchlings, frogs during mating season and the migratory patterns of birds. The American Medical Association in 2012^[60] issued a warning that extended exposure to light at night increases the risk of some cancers.^[55] Two studies in Israel from 2008 have yielded some additional findings about a possible correlation between artificial light at night and certain cancers.^[61]