B.Ed. Second Year

Paper- XVIII

Vocational and Work Education

Units: 1 to 14

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Paper XVIII
VOCATIONAL AND WORK EDUCATION

Course objectives: **Marks: 50 (40 + 10)**

To enable the pupil-teachers to:

- Understand the need and importance of work experience in education.
- Illustrate the concept of work experience and understand the objectives of introducing • • work experience as an integral part of education.
- Compare the views of Indian and philosophers on work experience.
- Understand the criteria for selecting work experience for school and organizing work experience programmes.

UNIT- I:

- Fundamentals of Vocational Education and Work Education Meaning, Need, Scope and Importance of Vocational Education in Secondary Schools, Current scenario of Vocational Education in India.
- Quality of Vocational Education in Secondary Schools, Efforts to improve the Quality of Vocational Education.
- Concept, Need and Importance of Work Experience: Objectives of introducing work experience in school curriculum; Views of Gandhi and Dewey on Work Experience and Work Education, Recommendations of Indian Education Commission (1964-66), National Policy on Education (1986) and Programme of Action (1992) towards Work Experience.
- Methods of Teaching Work Experience: Lecture - Demonstration Method, Assignment Method, Excursion Method and Exhibition Method.

UNIT- II : Components of Work Education Preparation of Teaching Aids – Meaning ,concept, need and significance of Teaching Aids; Classification of Teaching Aids, Material required for preparing Teaching Aids.

Campus Beautification - Identification of the campus , Maintenance of campus Fence , Raising of lawns and playgrounds, Raising of flower beds, Maintenance of potted plants, Cleaning of classrooms /corridors and identification of places for display of slogans and posters.

Library organization – organization and administration of school library, Classification and cataloguing; Readers services: Issue work, Reference work, Periodicals and their selection and use

Medical first Aid – Definition of first aid and its types, Components of First Aid Box, Providing first aid in case of drowning, burning, vomiting, diarrhea, bites and wounds.

Activity (Any one of the following):

1. Preparation of pickles / jam Jellies and other yield with regard to locality available fruits and vegetables.
2. Performance of basic asanas
3. Organization of literacy drive, Environmental awareness

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Paper XVIII
VOCATIONAL AND WORK EDUCATION

Unit-1

Meaning and Need of Vocational Education, Importance & Principles of Vocational Education

Structure:

1.1-Introduction:

For reasons that are primarily economic, the years since the early 1970s have witnessed a major resurgence of interest in the vocational role of education and training in the personal and social processes of formation which are governed by such purposes as preparation for working life and occupational choice, and the matching of human capabilities to labor market needs and opportunities. This interest is part of close attention being given to the conditions necessary to sustain growth in the modern economy. In the face of massive challenges to reorient and restructure, to achieve

greater efficiency, to find new economic opportunities and more recently, to alleviate or forestall youth unemployment, countries have increasingly turned to education and training as an investment in the future. This has given a strong functional or instrumental tone to a great deal of the contemporary debate about education, whose purposes and procedures have always included vocational preparation, albeit often indirectly usually in conjunction with other values both personal and social, and seldom in sufficient degree.

1.2-Learning Objectives: After reading this chapter, the students will be able to know about:

Meaning, Need, Importance, and Scope of Vocational Education in Secondary Schools
Current Scenario of Vocational Education in India

1.3 - Meaning and Need of Vocational Education:
Vocational education refers to training designed to prepare individuals to perform specific tasks and duties efficiently within a given occupation. Effective vocational education focuses on imparting practical knowledge, skills, and competencies directly related to the occupation. There are varying perspectives on the relationship between general education and vocational education, often stemming from differences in educational philosophies. Some educators and administrators argue that a solid foundation in general education provides the best preparation for a career. They propose that subjects like general agriculture, domestic science, and business studies offer a balanced education that meets both general and vocational needs, and should be integrated into the broader curriculum.

However vocational educators differ on the point that courses designed this way do not provide education for the specific competencies needed in preparing for a vocation. These educators contend that courses of a specific nature as well as those of a general nature are needed for the workers. In a democratic system of education, they believe, every citizen should have the opportunity, as part of his training, for both types of education.

Vocational education is designed to equip individuals with the skills and knowledge needed to work in trades, crafts, technical fields, or support roles within professions such as engineering, accounting, nursing, medicine, architecture, or law. Craft vocations typically involve manual or hands-on work and are traditionally non-academic, focusing on specific trades or occupations. This type of education is sometimes called career education or technical education. Vocational education can be pursued at the secondary, post-secondary, further education, or higher education levels, and it often

integrates with apprenticeship programs. At the post-secondary level, it is commonly offered by specialized trade and technical schools.

Vocational training historically has been a subject handled by the Ministry of Labor, other central ministries and various state-level organizations. To harmonize the variations and multiplicity in terms of standards and costs, the National Skills Qualification Framework was launched in December 2013.

The National Skills Qualifications Framework (NSQF) is a competency-based framework that organizes all qualifications according to a series of levels of knowledge, skills and aptitude. These levels, graded from one to ten, are defined in terms of learning outcomes which the learner must possess regardless of whether they are obtained through formal, non-formal or informal learning. NSQF in India was notified on 27 December 2013. All other frameworks, including the NVEQF (National Vocational Educational Qualification Framework) released by the Ministry of HRD, stand superseded by the NSQF.

During British rule, technical centers were established in India to meet the demand for skilled labor required for constructing roads, buildings, and other infrastructure projects. There was also a need for skilled artisans and craftsmen to support the British army. While superintending engineers, foremen, and artificers were brought in from Britain, local craftsmen were employed for lower-level jobs. To enhance their skills, these workers were provided with basic instruction in reading, writing, geometry, and mechanics.

The Industrial Revolution further highlighted the importance of technical education, as it created a need for operating machinery and completing tasks efficiently within shorter time frames. This shift led to a change in the approach to education. In India, education, which had previously focused more on personality development, began to prioritize skill development. Vocational education, therefore, refers to the educational processes and functions aimed at preparing individuals and groups for work, whether or not in the form of paid employmentThere are several different concepts and meaning of vocational education and training. Most of these have arisen from traditional practices and the meaning of terms used and their implications. An examination of these will reveal the basic differences for certain practices and relationships in vocational or occupational education, which are fundamental in nature and programs.

> . One concept of vocational education is that it is education or training specifically for workers, which can be traced back to early apprenticeship practices. This perspective suggests that any type of education or training in which a worker participates is considered vocational education. It also proposes that individuals have different abilities, and those who lack the capacity or desire to follow the traditional curriculum should be encouraged to pursue vocational trades that better match their skills and interests. Implicit in this view is the belief that working-class children should be trained for factory work, as it is seen as their

inevitable future. This mindset, however, contradicts the principle of equal educational opportunity.

Another concept defines vocational education as education for manual labor. This view focuses on the ability to work with one's hands rather than the mind, with a curriculum that includes manual activities such as leatherwork, woodworking, metalworking, and drawing. The knowledge and skills gained from such training are considered relevant to the curriculum but are not directly tied to specific occupational competencies. This approach has led to the current practice of placing dropouts, physically disabled, and socially disadvantaged young people into vocational courses without considering their interests or abilities.

In summary, vocational education can be seen in various ways:

- As education for manual work.
- As education in specific subjects.
- As education that is craft-oriented.
- As education or training for workers.
- As education aimed at productive or socially useful work.

Self-Check Exercise-1

Q-1: Discuss efficient vocational education.

1.4-NEEDS FOR VOCATIONALISATION OF EDUCATION:

The people of the United States by means of continuous and purposeful work have converted the resources of this nation in to a quantity and variety of goods and services. The products of this conversion have enabled the people of the nation to maintain a standard of living far beyond the most fantastic dreams of their forefathers. Scientists are continuously discovering new products and processes, and from these discoveries will come new plastics and chemicals, improved transportation devices, new sources of power, and many other devices and services for the improvement of standards of living.

The scientific discoveries of today will develop in to the standard goods and services of the immediate future as a result of the dynamics of present- day civilization.

The amazing expansion of the economic system in the United States is due to many factors. Among these are the American system of inventions and patents, the techniques of mass production and increased productivity per worker, efficient business management and the methods of distributing profits. The successful use of most of these factors and techniques is conditioned by

educational programs and procedures. Workers and prospective workers who are responsible for, or responsive to, these success factors are in The need for education and training that enables American industry and business to meet the growing demands for consumer goods is essential. It prepares individuals for life, providing them with better economic opportunities and civic benefits. Vocational education makes learning practical and relevant, addressing life's needs in a more effective way.

It contributes to the economic growth of the country, enhancing Gross National Productivity (GNP) both in agriculture and industry. It aids in the optimal use of the nation's human and natural resources. It improves an individual's competence and efficiency in a specific vocation.

Vocational education helps produce a skilled workforce or technical personnel at the grassroots level, benefiting society by increasing the availability of middle-grade technical leadership. It ensures a fair distribution of the benefits of economic development and promotes social justice.

It also enhances the general educational achievements of students, preparing them to earn a decent livelihood. Psychologically, vocational education is beneficial because it aligns with the principles of diversifying human energy and talent. It offers students the opportunity to choose an educational path that fits their interests, abilities, and aptitudes. Moreover, it opens up more possibilities for self-employment

Self-Check Exercise-2

Q-1: Write one need for vocationalization of education.

1.5 Importance of Vocational Education:

1. **Solution to Economic Problems:** India currently faces significant challenges such as unemployment, poverty, and famine. These economic issues are among the country's greatest struggles. Therefore, vocational education is crucial as it is the key to solving these problems. As Mahatma Gandhi rightly said, "True education ought to be a form of insurance against unemployment."
2. **Attainment of Happiness:** The true purpose of education is to foster happiness. Happiness is often seen as the ultimate reward of life, and a person is happiest when they are well-suited to their occupation. A happy and content individual is able to contribute more effectively to society. Vocational education helps align an individual's skills with social needs, creating a balance between personal fulfillment and societal service.
3. **Achieving Social Efficiency:** Vocational education contributes to both economic independence and social efficiency. Social efficiency arises from individuals who

are self-sufficient and do not depend on others, making positive contributions to society.

4. **Reducing Social Misfits:** Vocational education helps place individuals in suitable roles, minimizing the occurrence of social misfits and preventing the waste of human talent and potential. For children with lower cognitive abilities, vocational education offers hope. These children should receive vocational training as early as possible, as they may struggle with academic subjects when taught alongside more capable peers.
5. **Providing Purpose to Education:** Vocational education gives purpose to the educational process, making it more engaging and relevant. It involves children as active participants in their learning, tapping into their interests, habits, and natural tendencies. This approach stimulates their minds and eliminates boredom and inactivity.
6. **Moral, Intellectual, and Cultural Development:** The vocational aspect of education is tied to financial independence. For this reason, educated individuals are expected to maintain high moral, intellectual, and cultural standards. If a person fails to gain economic independence, they may become morally compromised, intellectually stagnant, and indifferent to cultural pursuits.

Self-Check Exercise-3

Q-1: Write one importance of vocational education.

1.6 - General Principles of Vocational Education:

The principles of vocational education play a crucial role in shaping policies, processes, and procedures related to it. These principles are based on past experiences, thoughtful deliberations, and general agreements among those involved in vocational education, which have been found to be both satisfactory and effective. Some key principles of vocational education include:

- Vocational education will be most effective when learners are trained in an environment that closely resembles the one in which they will eventually work.
- Effective vocational education can only occur when training is conducted using the same tasks, operations, tools, and machines found in the actual occupation.
- Vocational education is most effective when it directly and specifically teaches the thinking and practical skills needed for the occupation.
- Vocational education will be more effective if it allows each individual to fully utilize their interests, attitudes, aptitude, and intrinsic intelligence to their fullest potential.
- Effective vocational education for any profession, trade, or occupation can only be provided to a select group of individuals who need it and will benefit from it.

- Every occupation has a minimum level of productive ability that an individual must possess to secure or retain employment. If vocational education does not reach this level, it will not be personally or socially effective.
- The administration of vocational education will be more efficient if it is flexible and adaptable, rather than rigid and standardized.
- Vocational education must acknowledge existing conditions and prepare individuals to meet the current demands of the labor market, even if more efficient methods or better working conditions may be possible in the future.

Self-Check Exercise-4

Q-1: Vocationalization means-

1. Efforts by school
2. Efforts by teacher
3. Both of these
4. None of these

Q-2: Vocationalization of education promotes …….. education among the students.

1.7- Summary:

Vocational training historically has been a subject handled by the Ministry of Labour, other central ministries and various state-level organizations. To harmonize the variations and multiplicity in terms of standards and costs, the National Skills Qualification Framework was launched in December 2013. The involvement of the private sector in various aspects of skill development has improved access, quality, and introduced innovative financing models, leading to the establishment of sustainable skill development organizations at the grassroots level. While it is true that our education system has its shortcomings, it is not without merit. India has a rich educational heritage and a robust primary education system. Subject knowledge is extensively imparted, and Indians possess a vast amount of theoretical knowledge. Compared to developed nations, India boasts a considerable number of higher education institutions. However, the system is hindered by an outdated curriculum and the lack of specialized technical education. Teachers, too, have limited roles beyond teaching. Once these challenges are addressed, significant growth in technical education can be achieved in India.

1.8 - Glossary:

Vocationalization: The term "vocationalization" refers to efforts by schools to integrate practical subjects into their curriculum that help students acquire basic

knowledge, skills, and attitudes, ultimately preparing them to pursue skilled work or manual labor.

Sustainable Skills: Connects governments, industry, international development aid agencies, education providers and communities to build effective TVET and education systems, skilled workforces and participants who grow as they learn.

Flaws: A mark or crack in an object that means that it is not perfect

1.9-Answers to Self-Check Exercise:

Self-Check Exercise-1

Ans-1: Efficient vocational education refers to focused education and training that equips individuals with the practical knowledge, skills, and competencies required for a specific occupation.

Self-Check Exercise-2
Ans-1: It makes education more practical and relevant, addressing life's needs more effectively.

Self-Check Exercise-3
Ans-1: The vocationalization of education will help place the right person in the right role, thereby reducing social misfits and preventing the waste of human talent, initiative, and resources. This is particularly beneficial for children with lower cognitive abilities.

Self-Check Exercise-4

Ans-1: Both of these

Ans-2: Vocational

1.10- References and suggested readings:

1. *ASTE.* "Career and Technical Education - ASTE - aste.usu.edu"*. aste.usu.edu*. Retrieved 2016-02-27*.*
2. **^** *Construct-Ed.* "Construction training: Complete Guide"*.* https://www.construct-ed.com. Retrieved 2016-08-11*.* External link in |website= (help)
3. **^** "Learning for Jobs OECD review of Australian vocational education" *(PDF). Oecd.org*. Retrieved 2016-02-06*.*

1.11- Terminal Questions:

1. What is vocational education? Explain the need for vocational education.

2. **What are the principles of vocational education? Discuss the objectives of vocational education**

Unit-2

Scope of Vocational or Technical Education in India, Current scenario of vocational education in India and Advantages of Vocational education

Structure:

2.1-Introduction:

Vocational education, also known as career and technical education is a type of education that focuses on preparing individuals for specific trades, crafts, or careers. This form of education typically involves a combination of classroom instruction and hands-on training in a particular field, such as welding, automotive repair, or cosmetology. In the face of massive challenges to reorient and restructure, to achieve greater efficiency, to find new economic opportunities and more recently, to alleviate or forestall youth unemployment, countries have increasingly turned to education and training as an investment in the future. The objective of vocational education is to equip

students with the skills and knowledge necessary to enter the workforce directly after graduation, instead of pursuing further education. Vocational education is commonly provided at the high school level, as well as through specialized vocational schools and community colleges. Agricultural and Environmental Programs prepare students for careers in agriculture or environmental science, such as farming, forestry, or wildlife management. Service Programs focus on preparing students for careers in service-oriented fields like cosmetology, culinary arts, or hospitality management. Public Safety Programs aim to prepare students for careers in public safety, including law enforcement, firefighting, or emergency medical services. The scope of vocational education encompasses a wide range of fields and industries

and occupations that it covers, as well as the various levels of education and training that it encompasses. Vocational education covers a wide range of fields and industries, such as construction, healthcare, technology, finance, agriculture, environmental science, service, and public safety. It provides training and education for a variety of occupations, such as electricians, plumbers, nurses, dental hygienists, web designers, farmers, foresters, cosmetologists, and many more. Vocational education can be offered at different levels of education, including high school, vocational schools, and community colleges. Some vocational education programs can lead to certifications or associate degrees, while others may lead to apprenticeships or on-the-job training. Vocational education typically includes a combination of classroom instruction and hands-on training, providing students with the opportunity to learn the theory behind a particular field or occupation and then apply that knowledge through practical, real-world experience.

2.2-Learning Objectives: After reading this chapter, The students will gain insight into:

- The scope of vocational or technical education in India
- The current state of vocational education in India
- The quality of vocational education in schools
- Efforts to enhance the quality of vocational education

2.3 - Scope of Vocational or Technical Education in India:

Technology is influencing every facet of life and society, creating an urgent need to complement traditional education with technical training. This integration will not only contribute to the country's development but also benefit individuals by providing them with essential skills. A person with strong technical expertise is always in demand in the job market. Therefore, technical education, aligned with the current market needs, plays a crucial role in uplifting society. Technical education is specifically designed to impart the knowledge and skills required in the manufacturing and service industries.

In India, education can be broadly categorized into social, spiritual, and vocational education. Social education addresses societal concerns, spiritual education focuses on

personality development, and vocational education encompasses technical education, which is further divided into fields such as agriculture, medicine, engineering, and commerce. Technical education is skill-based and directly focused on improving job prospects, providing specialized training in specific fields.

In India, technical education is delivered through two main streams: formal and informal. Formal sources include polytechnics, Industrial Training Institutes (ITIs), Industrial Training Centers (ITCs), and the centrally sponsored Vocationalisation of Secondary Education scheme by the Ministry of Human Resource Development. Informal sources include self-learning and small private institutions offering short-term technical courses.

Over the past few decades, India has witnessed a rise in small and medium technology-based enterprises due to the availability of labor. However, despite students enrolling in formal technical institutes, interest in these programs remains low. Additionally, the enrollment rate in vocational institutes is quite low, with high dropout rates at the secondary level.

Vocational training is typically provided in classes 11 and 12, but students at this stage often prioritize higher education over technical training. Employers tend to seek candidates with strong academic records rather than those with vocational training alone. Furthermore, many training institutes suffer from a lack of qualified staff, as most instructors in technical fields are underqualified. Additionally, India lacks quality institutions for technical education, and the absence of active industry engagement poses a significant challenge to the growth of technical education. Skill upgradation during employment also receives insufficient emphasis.

To address these issues, it is necessary to update the outdated curriculum with modern and advanced content. New institutes should be established to provide up-to-date information in the field. Classes must become more interactive and engaging, with greater industry participation. Additionally, students should be made aware of the potential career paths within their chosen fields.

Self-Check Exercise-1

Q-1: Students require vocational education because:

1. It helps in their vocational selection
2. It is futile for them
3. It helps in joining interesting vocations.

2.4- Current scenario of vocational education in India:

Skills in India are largely acquired through two main sources: formal training centres and the informal or hereditary mode of passing on cascading skill sets from one generation to the next. Nowadays, vocational courses are becoming quite popular among youth because it is believed that taking these courses would provide more and better employment opportunities than those provided by conventional academic courses.

The analysis of various recommendations made by various commissions and committees and the steps taken by different governments for over a period of 160 years reveals that the present system of education contains both the approaches of vocationalising the general education by incorporating a minor component of vocational element and establishing exclusive institutions of vocational education such as Industrial Training Institutions and Polytechnic Institutions. But these changes in the system are not in line with the requirements of our economies and the success rate in the vocationalisations of general education is almost zero, although , there is perceptible progress in the form i.e. , among the exclusive vocational educational institutions. What could be the reasons for our failure in vocationalising the stream of general education? While answering the above question we have to think of two major domains (1) the ideological and the practical, with regard to the ideological domain one has to analyse the gap between the ideologies of the educationists and the ideologies of the parents whose children are in the process of acquiring education. The theoretical framework and the objective to be realized by vocationalising the stream of general education are well known to us, but the aspirations of parents in sending their children to schools are in conflict with the ideologies of educationists who intended to incorporate vocational element in general education.

Every parent is ambitious to see that his/her ward should come up well in education and occupy a socially prestigious position, i.e. the job of a doctor, an engineer, an IAS officer, any decent white-collar job. The parents do not want to divert their children's attention to this lower level, skilled oriented education. Only when the child cannot compete with others in studies and was unsuccessful in formal schooling, then the p0arents think of sending him/her for an alternative program of education. As long as children are able to come up well in general education, the parents, in general are not inclined to train their children in any vocational course at the school level.

The second reason is that by formalizing the vocational education, we lose the central thread of practical orientation in these vocations. The vocational courses introduced in our schools and junior colleges are making the children get only theoretical knowledge but not practical training. The children are not capable of undertaking any job independently after completion of their courses in these schools and colleges.

While there remains a requirement for skilled professionals in the industry, the supply for the same is hampered by:

1. High dropout rate at Secondary level: Vocational Education is presently offered at senior secondary level but the students at this level aspire for higher education

2. At present, the vocational system doesn't put much emphasis on the academic skills, resulting in lower incidences of vertical mobility

3. There is a lack of participation by private players in the field of vocational education

4. Vocationalisation of education is not in line with industry needs

5. There is a lack of opportunities for continuous skill up-gradation

6. There is no clear provision of certifications and degrees for the unorganised/informal sector

Self-Check Exercise-2:

Q-1: TVET stands for-

1. Technical and vocational education and training
2. Technical and vocational training and education
3. Both of these

2.5- Advantages of Vocational Education:

Most high schools offer some form of vocational education program. Vocational education is training for a specific career or trade, excluding the professions. Vocational education focuses on practical applications of skills learned, and is generally unconcerned with theory or traditional academic skills. Students at vocational educational typically receive more hands-on, career-minded education than students at traditional schools. Individuals are given the opportunity to explore and identify potential career goals, and are provided with the resources needed to achieve them. Most vocational education recognizes the importance of general academic studies as well as career preparation, and offer fully accredited high school diplomas. Depending on a student's abilities and interests, a vocational high school can provide several advantages. Vocational training thus provides a link between education and the working world. It is usually provided either at the high school level or in a two year colleges. In my view, high school and two-year colleges should offer vocational education because it will be benefit for students' future.

First of all, vocational education in high school focuses on specific training for a career or field. This hands-on training can be helpful in high school as students make decisions that will affect the rest of their lives. Many vocational high schools provide students with career preparation in health care, computer science, education, business, and any number of highly specialized trades. Individuals have the opportunity to gain the knowledge and experience necessary to become carpenters, electricians, machinists, painters, plumbers, or other professionals. Some programs administer licensing or certification examinations in such programs that allow students to become eligible for employment immediately after graduation. Many high school juniors and seniors have yet to choose a definite career field and path to pursue. Though a student may be most

certain that the college path is definitely not the one she wants to follow, a career still must be chosen for the sake of finding a place in the workforce. For students who have not chosen a career yet, technical training is a good way to get hands-on experience in areas that may interest that student. There are students who are certain as to what career they would like to join as a high school graduate. For this group, high school vocational education becomes a preparatory tool for those students who already know they want to work in the nursing profession, for instance.

Also a wide variety of vocational education programs for high school students can provide hands-on experience in a real work environment. These skills can provide long-term benefits, as high school students can learn to adapt to new situations and develop necessary problem solving skills. Success in vocational-education programs can develop work ethic, feelings of self-worth, communication skills and the ability to relate to others, as well as life skills that are important in the transition to post-high school life. Vocational-education programs can provide a positive learning environment in which students have first-hand knowledge of managing their time, finances and other aspects of their lives. The focus of vocational-education programs is for high school students to develop tools, so they can succeed. Many high school students have no work experience by the time they reach the junior or senior year. High school technical education provides work experience to all students, including those who had none previous to the attendance in vocational education situations. Most health occupation technical education classes, for example, prepare students for the field of nursing and take place in an actual hospital or nursing facility. In these instances, students are required not only to perform in a professional manner the tasks assigned to them.

Self-Check Exercise-3:

Q-1: Vocational education in high school focuses on specific training for a career or field. True/False

2.6 - Efforts to Enhance the Quality of Vocational Education in Secondary Schools:

To achieve the broader goal of universal access to education at the secondary level and improve its quality, a centrally sponsored scheme, similar to the SSA (Sarva Shiksha Abhiyan), needs to be launched for secondary and higher secondary education. This approach was recommended by the CABE Committee on the Universalisation of Secondary Education (June 2005) and also highlighted in the mid-term review of the Tenth Plan by the Planning Commission. The efforts to improve the quality of vocational education focus on the following key areas:

- Integrating academic studies with vocational and technical education
- Adopting rigorous academic, vocational, and technical standards

promoting understanding of “all aspects” of an industry; encouraging parent and employer involvement;
building linkages to postsecondary education;
expanding use of technology; and providing for professional development of teachers, counselors and administrators.

The State Context for Efforts to Improve Quality of Vocational Education:
It is stressed on the three aspects of state context that can shape efforts to reform vocational education:
Education philosophy or vision, the structure and delivery system for vocational education, and the current and ongoing state education reforms, including those that affect vocational education. vocational education that expanded the content to include academic and industry standards to a level that would prepare students for postsecondary education or for high skill, high-wage careers. It also expanded the audience for vocational education to include students who might otherwise only follow a general or college-prep program of study. State structures that are characterized by having fewer agencies to authorize and deliver services and a more centralized or uniform decision-making system tended to mandate policy changes that resulted in more coherent and uniform vocational programs. Negative, even in states where testing was voluntary. Respondents acknowledged that the tests had helped raise academic standards in vocational and technical programs but often at the cost of vocational learning.

State and Local Efforts to Improve the Quality of Vocational Education
States made progress in implementing some structural changes to support vocational and academic integration, but these did not always influence local practice. Local sites had few examples of high-quality integrated curriculum. States and local districts and schools have made some improvements in implementing some of the structural features that support integration — for example, in adopting coherent sequences of courses in vertically aligned pathways or clusters. Many state-level activities to support integration, such as curriculum development, professional development or adoption of whole-school reform models — for example, High Schools that Work — had not significantly or consistently influenced local practice in the sample of sites visited. The case studies provide little evidence of widespread adoption of integrated curriculum although each local site could point to one or two programs that appeared to contain elements indicative of integration. Survey data indicated that vocational teachers’ classes incorporated more elements associated with integration than academic teachers’ classes. Vocational and academic teachers had few supports to accomplish integration. Few teachers engaged in team teaching or had common planning time to meet with other teachers activities associated with more successful implementation of an integrated curriculum. State academic standards and assessments reportedly had widespread influence over vocational courses and programs at the local level. In particular, teachers reported reduced
vocational enrollments stemming from pressure to meet higher academic standards and increased course requirements; reduced time on vocational tasks arising from increased time on academic requirements and test preparation; and possible reduced quality of

instruction, given the emphasis of some tests on simplistic understanding and answers. The case studies revealed several examples of state and local efforts to enhance the academic content of vocational courses so that these can receive academic credit. A fairly high proportion of vocational teachers — 41 percent — reported on the survey that at least one of their vocational classes received academic credit.

Some of the suggested programmes given by various commissions for quality improvement and execution of vocationalisation of education.

1. Diversification of Courses:
Secondary schools should offer a variety of educational programs to cater to diverse interests, aptitudes, and talents. These schools should provide a broad range of courses that include both general and vocational subjects, allowing students to choose according to their needs. It should be understood that integrating practical subjects alongside common core subjects of general value and utility can enhance students' overall education, making them more productive, cooperative, well-rounded, and valuable members of society.

2. Agricultural Education in Secondary Schools:
Agriculture is a vital component of the national economy. Given its importance, the Secondary Education Commission recommends that all states offer expanded opportunities for agricultural education, particularly in rural areas. Agricultural instruction should not be limited to theory; students must also be given opportunities to work in real-life conditions.

3. Reducing the Age of Admission:
In industrial training institutes, certain courses are available to those who have completed primary school. By lowering the minimum age for admission to these courses to 14 (previously 16 and now reduced to 15), more students who have completed primary school would be able to enroll in industrial training courses.

4. A Wide Range of Part-Time Courses:
The Kothari Commission (1964-66) recommended offering a wide range of part-time courses for students who drop out after the 7th or 8th grade to enter family businesses or pursue small-scale industries or trades. The education department should create special sections to support such individuals by providing suitable training opportunities, either full-time or part-time, alongside some general education.

5. Development of a Wide Range of Other Courses:
In addition to the courses mentioned, a broad selection of courses in areas such as health, commerce, administration, small-scale industries, and services should be developed. These courses could range in duration from six months to three years, leading to a certificate or diploma. They should be available on a part-time basis or through correspondence for those already employed.

6. Establishment of Vocational Institutions:
The establishment of vocational courses and institutions should be a shared responsibility between the government and employers in both public and private sectors. The government will take special steps to meet the needs of women, rural and urban students, and disadvantaged sections of society. Programs will also be launched to support the disabled.

7. Structural Changes in Secondary Education:
To ensure the success of vocational education, significant structural changes should be implemented in secondary education, following the principles of modular courses and credit accumulation. Flexibility should be provided for multiple entry and exit points. In other words, students pursuing vocational courses should be able to earn credits for specific course modules, enter the workforce, and later return at their convenience to earn additional credits by completing further modules.

Self-Check Exercise-4:
Q-1:
Survey data indicated that vocational teachers' classes incorporated more elements associated with integration than……...

2.7- Summary:

There are several different types of vocational education, each with its own unique focus and goals. Trade and Industry Programs focus on preparing students for careers in specific trades, such as welding, plumbing, or construction. Technical and Vocational Programs focus on preparing students for careers in technology-related fields, such as computer repair, network administration, or web design. Health and Medical Programs focus on preparing students for careers in the healthcare field, such as nursing, dental hygiene, or medical assisting. Business and Finance Programs focus on preparing students for careers in business or finance, such as accounting, marketing, or business management. The involvement of the private sector in various aspects of skill development has enhanced access, quality, and innovative financing models leading to sustainable skill development organizations on the ground. As compared to developed countries, India has a good number of higher educational institutions. But on the other hand, lack of an updated curriculum and specialized technical education are the flaws in our education system.

2.8- Glossary

Multiple Exit- When there is a gene existing in more than two allelic forms, this condition is referred to as multiple allelism.

Universalization -is an incipient concept describing the next phase of human development, marking the transition from trans-national to interplanetary relations and

much more aggressive exploitation of opportunities that lie beyond the confines of Earth.

2.9- Answers to Self-Check Exercise:

Self-Check Exercise-1

Ans-1: It helps in joining interesting vocations

Self-Check Exercise-2

Ans-1: Both of these

Self check Exercise-3

Ans-1: True

Self-Check Exercise-4

Ans-1: Academic teachers' classes

2.10- References and suggested readings:

1. **^** "OECD review of vocational education and training in Hungary" *(PDF). Oecd.org*. Retrieved 2016-02-06.

2. ^ **a** **b** **c** "OECD Policy Reviews of Vocational Education and Training (VET) - Learning for Jobs". *Oecd.org*. Retrieved 5 February 2016.

2.11- Terminal Questions:

1. Write the importance and principles of vocationalisation of education.

2. How will you improve the quality of vocational education?

Unit-3

Meaning & Concept of Work Experience, Need of work experience

Structure:

3.1-Introduction:

The National Policy on Education 1986 defines Work Education as purposeful and meaningful manual work that produces goods or services beneficial to society. It includes activities related to services, food, and community development, addressing various human needs such as health and hygiene, food, clothing, recreation, and social service. These activities are tailored to the mental abilities and manual skills of children at different stages of education, while considering the availability of local resources. The policy envisions active participation in production and service-oriented projects at the middle and lower-secondary levels, with an optional "Earn while you learn" component for students in need.

3.2-Learning Objectives: After studying this unit the students will be able to know about:

Meaning & Concept of Work Experience

Purposes of Work Experiences

Need& Importance of work experience

3.3 Meaning and Concept of Work Experience:

Work experience in education is not a novel idea. In fact, professional practice has long been associated with fields such as the clergy, medicine and law formed the foundations for the higher education, and throughout its history there has been recognition of work experience in term of its benefits for students, employers and the nation's economic success.

What is Work Experience?

This seems to be a very simple question but if not handled pragmatically it can result in thwarting the starting of this program.

Concept:

The concept of work experience is a relatively recent development in the field of education.If analyzed literally, the term consists of two prominent words: "Work" and "Experience". In dictionary sense, the term work has been defined as application of effort to some purpose. This denotes creation of a situation wherein one has to apply energy or efforts to a cause. There can be numerous types of situations wherein human effort or energy can be involved. But in order to be purposeful it has to be productive, as emphasized by the Indian Education Commission, which has not only personal but social significance as well. It therefore implies that any productive/creative work should be socially significant and desirable besides being useful and satisfying to the individual.

Taking a broad view of work experience, productive work has been defined as- "The participation of pupils in productive work either in school, in home, in workshop, in farm, in factory or any other productive situation." -EDUCATION COMMISSION

Work experience has re-emerged as a significance issue in higher education and the research reported here attempts to identify strategies to increase work-experience opportunities and to ensure that these opportunities offer a meaningful experience-which they are learning from opportunities. There is a difference, therefore, between 'working' and undertaking a period of work experience. 'Work Experience' is defined as a period of work that is designed to encourage reflection on the experience and to identify the learning that comes from working.

The experience to be provided need not be confined only to a factory or a farm in its rigid sense but it can also include such experience which has relevance to school and

home. The work experience may therefore not be constructed simply as an attempt train highly skilled or professional workers to suit a particular vocation but may be interpreted as an experience to enhance general skill-manual and artistic, through a selected medium, so as to make him creative/productive in action and scientific in his outlook to manage or execute the tasks properly.

The productive work is, therefore a very inclusive term. The outcome of the productive work can be in the form of a product, a service or an artistic creation which may help the individual in making a happy living besides providing him the channels for self-expression. In its broader sense this may also include items or activities which have both economic and aesthetic value.

Purposes of Work Experiences:

The programs of work experience in these areas can be utilized for the following broad purposes:

1. **Provides Exposure**: Providing first exposure to various fields of work in order to help students discover their aptitudes and capabilities by exploring occupations, experiences professionals, demands and testing their own endurance for making right choice when they finally take to productive/creative work.
2. **Self-supportive**: Engaging the students in production process to make them self-supporting in living and productive in functioning.
3. **Makes self-dependent**: Gaining experience in maintenance of items useful to him, his house, his family, his school, his community etc. This may bring him or his institution savings by doing. This kind of work by himself or by supervising the work effectively.
4. **Development of Scientific Attitude**: Orientating the mind for scientific and technological outlook for executing various jobs whether in farm, factory or home.
5. **Creativity**: Encouraging creativity (both technological and artistic) through his medium by engaging in such activities which have economic or aesthetic significance.

   With this end in view a wide range of work experience is being provided in the curriculum, which relates to the following important areas:

   1. Science and technology
   2. Agriculture
   3. Handicrafts and cottage industries
   4. Fine arts

5. Household Activities
6. Commerce and trade

TYPES:

Work experience for students takes a wide variety of forms. Most of these are opportunities taken by full-time as well as many part-time students. Some part-time students use their paid work as reflective experience opportunities and others also avail themselves of new work experience opportunities to widen their experience. The discussion of work experience should thus not just be seen to refer to young full-time students. Indeed, the work experience is relevant for:

- Traditional school leavers.
- Full-time, mature students who may have had experience of work but not reflected on it.
- Part-time students in work who may need some guidance on reflection and evaluation of work experience in order to add value.
- Part-time unemployed students.

SIGNIFICANCE OF WORK EXPERIENCE

In modern times many educationists, philosophers and thinkers in India and abroad have underlined the significance and relevance of the experiences based on work not only as one of the means to impart education but also to see it as one of the aims of education.

In western thought of education, the concept of Kindergarten forwarded by Froebel has primary emphasis on learning by doing. Formation of social service centers, hobby clubs based on the doctrines of sense training and motor training manifests the necessity of the work experience in education as stressed by Montessori. Rousseau advocated the spontaneous unfolding of child's capacities with the specific stress on physical education and sense training.

Work experience encourages competence in vocational field by inculcating love of labor among the students. Most of the Chinese products available in the market to complete with highly sophisticated capitalists producers are assembled in the schools as a part of work experience in their curriculum. Japan is another example in this regard.

Work experience along with the study is very useful for the students to achieve bread and butter aim during their course. These experiences are three types:

- An organized, planned work setting, usually during the long vacation designed to provide students with development of employability skills and an introduction to a world of work.
- Courses that help develop employability skills.
- Work shadowing to provide students with an insight into particular types of jobs.

Self-Check Exercise-1:

Work Experience is a way of developing personal, social and work skills. True/False

3.4-Need of work experience:

With the introduction of the formal system of education which was bookish and theoretical and was meant for preparing its students for white caller job. There was no provision for manual activity in the general education. Even Dr. Rabinder Nath tagore had deplored the effectiveness of bookish education and emphasized the role of manual work in imparting all-around education. Mahatma Gandhi had also stressed upon the need of integrating work with education. The education commission (1964-66) concluded that one of the means of achieving education transformation leading to national development was by linking education to productivity. This link could be forged by introducing work experience as an integral part of general education, (learning by doing NCERT, 1991)

Rapid advancements in technology and the ongoing pace of economic growth demand a qualitative transformation in the workforce. In this context, introducing work ethics, good work habits, and cultivating a strong work culture at the school level is considered essential. The role of work experience in primary and upper-primary education holds fundamental importance in this regard.

Additionally, the world of work is undergoing swift and profound changes, driven by several factors. Key factors influencing these changes include:
a. Increasing globalization and competition
b. The evolving profile of learners
c. The widespread integration of technology
d. Changing expectations from employers

These factors have significant educational implications as we prepare youth for the workforce.

Work experience is an essential component of general education. The following points highlight the importance of work experience:

1. **Organizing Exhibitions and Rallies:** Work experience programs help bring students closer to their community and society. For instance, while engaging in work experience activities, students may produce items such as handicrafts,

pickles, squash, baskets, or mats. Schools should organize exhibitions to showcase and sell these products, encouraging the local community to visit and view the students' work. School should also organize rallies with the help of students for awakening or creating awareness or spreading messages, such as eradication of polio, literacy program etc. will bring school and members of society closer to each other.

Similarly, whenever community organizes social or national functions, the organizer request the school authority to send the group of students for participation in the functions performing cultural and national songs. By this way school and community comes closer.

1. **Work Experience Eases the Burden of Academic Pressure:** Work experience helps alleviate the pressure of academic work by incorporating productive manual tasks, giving students a break from purely theoretical learning. Engaging in manual work fosters personal and social qualities in students that are beneficial for a secular democratic society, providing them with valuable hands-on experiences.
2. **Self-Education:**
   Work experience offers opportunities for self-education beyond traditional textbooks. It emphasizes that literacy alone does not constitute true education

3. Bookish knowledge alone does not make a person complete. Bookish knowledge does not remain last for long. The things done practically and self-learnt are remembered for a long period of time. Moreover, an educated person must accept the challenge of life and be able to fulfill demands of life through these tasks.
4. **Self-dependent (earn while you learn):** Work experience makes boys and girls self-dependent. They are able to earn their living. Earn while learn is a slogan which lays emphasis upon the pupils earning to meet their expenses while they pursue their further studies. This is very popular now a day particularly in western society where the pupils are pursuing for higher education, without any financial help from their parents.
5. **Work experience develops good habits while doing work experience activity:** The learner will develop good social habits such as punctuality, regularity, self discipline, responsibility, cooperation and dignity of labor. Hence it makes the child self sufficient, self-dependent and self-supporting.

6. **Development of skills:** Skill cannot be developed without work experience. Every child is born with some or the other talent, but the need is to bring out his talent and to make him creative and develop his skills. This can only be possible

when he is taking part in some work experience activity. Work experience should be selected according to the need of individual and community.

7. **Development of personality**
8. **Reducing gap between intelligentsia and labor class:** Dignity of work alone can bridge the gap between the intelligentsia type and the labor class. In western countries due to paucity of the domestic servants, most of the men and women themselves perform all domestic work in the family. This is possible only, if a person had been provided work experience during his school life. This provided work experience during his school life. This will develop a sense of respect in student for manual labor. Thus it will bridge the gap between the labor and the intellectual class.
9. **Adopting useful hobbies:** work experience provides the students opportunities for adopting useful hobbies such as gardening, growing vegetables, clay work, painting etc. In this way the students can make best use of their leisure time.
10 **Creating work awareness**: Progress in any field of life requires awareness among pupils. Provision of work experience in early education creates such work awareness. As children learn to make a thing they become aware of raw materials required, process or steps involved in doing an activity.
11 **Knowing productivity**: Knowing productivity is concerned with production, consumption and sales of goods. Through work experience, pupils learn the significance of being a productive citizen. They get the knowledge of how to produce the goods, why there are needed, how to consume and how to sale the products.
12 **Help to develop productivity:** Work experience will help to produce more when all citizen work. This will help the increase in productivity of the nation.
13 **Coordinating between theories and practices:** Theoretical knowledge in any field is of no use without its actual practice in daily life. Work experience is needed for coordinating the theory into practice. As the children do the activity practically, they perform it and produce the goods. It makes to understand the theory in a better way.
14 **Integral Part of Education:**
The current education system, separated from work experience, is a legacy of British rule in India. Work experience is considered a crucial component of our educational system, as recommended by the Education Commission and various educationists. Their aim is to encourage people in the country to work more effectively and enable them to make significant contributions to the nation's development.

Self-Check Exercise-2:

Q-1- Work experience can help you to earn money in future. Yes/No
Q-2- If the group have both ability and willingness to work the suitable leadership style is-

1. Telling

2. Selling

3. Participating

4. Delegation.

Q-3- Which of the following aspects of career planning includes the attitudinal characteristics that guide people throughout their career?

1. Career path
2. Career anchors.
3. Career goal
4. Career management

3.5- Summary:

Work experience and its associated benefits are a relatively new focus in higher education. It has gained particular significance today due to the rapidly evolving nature of organizations and the changing demands placed on students. A range of stakeholders are involved in work experience and in order to successfully expand there must be recognition of the parties involved. Clear links between the parties and clarification of how each group benefits in the short and long term.

3.6-Glossary:

Stakeholder: A person with an interest or concern in something, especially a business.

Subsequent: Coming after something in time; following

Intelligentsia: Intellectuals or highly educated people as a group, especially when regarded as possessing culture and political influence

3.7- Answers to Self-Check Exercise:

Self-Check Exercise-1

Ans-1: True

Self-Check exercise-2

Ans-1: Yes

Ans-2: Delegation

Ans-3: Career management

3.8-References and Suggested Readings:

^ Scott, Rebecca. "TAFE gears up to offer degrees" The Age July 24, 2002. Accessed August 3, 2008

^ "OECD review of vocational education and training in Hungary" *(PDF). Oecd.org*. Retrieved 2016-02-06.

3.9-Terminal Questions:

1. Define the term work experience and work education.

2. What is the need to include work experience in school curriculum?

Unit-4

Importance work experience

Structure:

4.1-Introduction:

Work experience makes the child more competent and leads to all-round development. It develops their mental and physical faculties and makes them self-sufficient and self-supportive. Work Education is regarded as equally important as community work or social service, as it fosters social awareness and encourages concern for the welfare and development of the local community or society as a whole. A key characteristic of Work Education is its manual nature, meaning that children engage in hands-on tasks, which helps them develop purposeful or educative skills. These activities aim to cultivate knowledge, understanding, attitudes, and personal-social qualities relevant to the world of work. Additionally, Work Education should be meaningful, helping to fulfill children's basic life needs such as food, clothing, shelter, health, hygiene, and recreation, through the production of goods or provision of services. Social or community service aimed at the welfare and development of society should also be an essential part of Work Education.

4.2-Learning Objectives: After studying this unit the students will be able to know about:

Importance of work experience

4.3- Importance of work experience:

1. **Work experience help to bring in social change:** Work experience is important in bringing about change. Its integration in the educational system will change the attitude of the people towards manual work. It will play a very important role in the development of an individual and the nation at large.

   It is psychologically desirable: Explaining the importance of work experience, Dr. Zakir Hussain said, that “work is about devotion, work is worship, +and work is disciplined and perseverance for the realization of a worthy ideal.” Thus, work experience is psychologically beneficial as it helps alleviate the burden of purely academic and theoretical instruction, which often clashes with a child's natural inclination for active, hands-on learning.

3. **Socially Useful:** Work experience is an effective way to instill a genuine sense of the dignity of labor and human solidarity. In the long run, it enables students to develop moral and ethical values that are significant and impactful.
4. **Educationally Useful:** When education is integrated with productive work, it becomes a more meaningful and practical learning experience it will give greater concreteness and reality to the knowledge. Thus knowledge will become more related to the life of an individual and its various aspects will be correlated with one another.
5. **It makes a child more competent:** Work experience make the child more competent and leads to all-round development. It develops their mental and physical faculties and makes them self-sufficient and self-supportive.
6. **It is important choosing vocation**: Work experience prepares students for the later life. For economic development of the country we need more and more of vocationally trained persons. It gives students a chance of choosing a vocation.
7. **It provides knowledge of different trades to the students:** The program of the experience provides hands-on–experience and information about different trades and also of the limitations in those trades.
8. **It is important to become a responsible citizen:** The direct experience of doing some work develops a sense of responsibility and widens the outlook of the children. It also helps them in becoming economically viable and independent. This helps them to solve various problems faced in their everyday life.
9. **It helps the children to develop social qualities:** Work experience helps them to learn good social qualities such as sympathy for the poor, respect for labor and the laborers and dignity of labor. This helps in developing social and personal qualities.
10. **Improves economics condition**: Work experience contributes to improving the country’s economic condition by increasing the number of productive citizens, which in turn raises the standard of living for individuals.

11. **Guidance for Various Vocations:** Work experience is crucial for providing guidance to students, as teachers can assess the interests of children and assist them in developing their abilities in specific area

12 The students learn by doing: In work experience student learn by self-experience. It is based on three H, and utilizes them all. They are: Head (to think, plan and act), Heart (to think), and Hand (to do the work).

13. It inculcates sense of dignity of labor: Work experience develops a sense of respect in students for manual labor as each has to do some labor. This may bridge the gap between the labor and the intellectual class.

` **14. Developing community consciousness:** Work experience develops unity within community. The school imparts education according to the needs of the community. This develops close relations between the school and community. Thus the schools become a community center.

15. Solving problems of unemployment: Education based on work experience may resolve the problem of unemployment, as the students is able to learn some trade business which makes a person dependent once he completes his education.

16. Utilizing natural resources: Education based on work experience teaches us to utilize natural resources intelligently**.**

17. Contributing to national personality: The student become more skillful and may contribute more to the growth of national prosperity through work experience.

18. Development of skills: Work experience should not be related only with productivity; rather it should aim at developing a skill of productivity. It also develops manuals skills.

Holistic Development of the Child: Work experience plays a vital role in the curriculum, contributing to the all-round development of the child, encompassing physical, social, intellectual, and aesthetic growth

Self-Check Exercise-1

Q-1: Write two importance of work experience that is useful for the human being.

Q-2: What do you mean by the term experience?

Q-3: How do you ensure quality and accuracy in your work?

4.4-SUMMARY:

There is a wide range of work experience and these are relevant to most types of students including:

1. Traditional school leavers.
2. Full-time, mature students who may have had work experience but not reflected on it.
3. Part-time students in work who may need some guidance on reflection and evaluation of work experience in order to add value.
4. Part-time unemployed students.

4.5-Glossary:

Prominence: The state of being important, famous, or noticeable

Hands on experience: It is knowledge or skill that someone gets from doing something rather than just reading about it or seeing it being done. Learn more about this phrase, its pronunciation

Concreteness: Concreteness is the quality of being concrete, or real, or specific.

4.6: Answers to Self-Check Exercise:

Self-Check Exercise-1

Ans-1: Solving problems of unemployment

Contributing to national personality

Ans-2: Experience transcends the mere accumulation of years spent in a profession or activity. It embodies the depth of understanding, the wealth of insights gained, and the refinement of abilities that come from actively engaging in and reflecting upon real-world situations.

Ans-3: Ensuring quality and accuracy involves meticulous attention to detail and following established procedures. I double-check my work, use tools like checklists, and seek feedback from peers or supervisors. Continuous learning and staying updated on best practices also help maintain high standards. Additionally, I review my work against benchmarks and standards to ensure it meets the required quality.

4.7-References and Suggested Readings:

^ **a** **b** **c** "OECD Policy Reviews of Vocational Education and Training (VET) - Learning for Jobs". *Oecd.org*. Retrieved 5 February 2016.

4.8-Terminal Questions:

1. Discuss the importance of work experience.

Unit-5

Objectives of work Experience

Structure:

5.1-Introduction: Work experience is among those essential eligibility criteria that you must comply with while applying for any job. Most of the companies these days seek experienced candidates to join the organization. You are required to hold a certain amount of experience in the relevant field to be eligible for the applied post. Experience requirements differ depending on the various roles within an organization. A more prominent position in the company typically demands greater experience in that specific role. Experience is a crucial factor that significantly influences your chances during the selection process.

Many people use the terms **'**work experience' and 'working experience**'** interchangeably without giving it much thought. But, did you know there's a subtle difference that can change how your resume or job application is perceived? It's easy to overlook these small details when you're eager to impress potential employers. In today's competitive job market, every little advantage helps. Understanding the nuance between **'**work experience' and 'working experience' might just be the edge you need. So, what sets these two terms apart? Stick around, because we're about to slice through the confusion and shine a light on this overlooked distinction.

5.2-Learning Objectives: After studying this unit the students will be able to know about:

Objectives of Work Education

Recommendations of Indian Education Commission (1964-66) towards work Experience
Recommendations of National Policy of Education (1986) towards work Experience

Recommendations of Janardhan Reddy Committee Report (JRC)-1992 towards work Experience

5.3 Objectives of Work Education:

To guide Work Education activities effectively, it is important to clarify its objectives. Below are the overall objectives of Work Education:

A. COGNITIVE DOMAIN (Knowledge and Understanding)
Work Education helps students to:

1. Recognize their own needs and those of their family and community in areas such as food, health, hygiene, clothing, shelter, recreation, and social service.
2. Familiarize themselves with productive activities in the community.
3. Learn about the sources of raw materials and the use of tools and equipment in the production of goods and services.
4. Understand the scientific facts and principles involved in various forms of work.
5. Grasp the process of planning and organizing productive work.
6. Understand their role in productive situations.
7. Comprehend the needs of a technologically advancing society in terms of productive processes and skills.

B. AFFECTIVE DOMAIN (Attitude and Values)
It helps the student to:

1. Develop respect for manual labor and the workers who perform it.
2. Cultivate socially desirable values like self-reliance, helpfulness, cooperativeness, teamwork, perseverance, tolerance, etc.
3. Establish positive work habits and values such as regularity, punctuality, discipline, honesty, efficiency, love of excellence, and dedication to duty.
4. Build self-esteem and confidence through achievements in productive work and services.
5. Foster a deeper concern for the environment and a sense of belonging, responsibility, and commitment to society.
6. Become aware of socio-economic issues in society.
7. Appreciate the contribution of productive work and services to the community.

C. PSYCHOMOTOR DOMAIN (Skills)
It helps the student to:

1. Develop skills in selecting, acquiring, arranging, and using tools and materials for various forms of productive work.
2. Learn to apply problem-solving methods in productive work and social service situations.
3. Enhance skills for greater productive efficiency.
4. Use creativity to devise innovative methods and materials.

Views of Mahatma Gandhi on Work Experience and Work Education:
Mahatma Gandhi believed that manual and productive work should be central to education, not merely an auxiliary activity. At the Wardha National Education Conference in October 1937, Gandhi proposed that education should center around some form of manual and productive work, and other skills and training should relate directly to this work, considering the child's environment. His educational ideas led to the adoption of Basic Education as the national model for elementary education in 1938.

Recommendations of the Indian Education Commission (1964-66) Regarding Work Experience:
The commission emphasized the need for work experience as an integral part of all education, whether general or vocational. They defined work experience as participation in productive activities in schools, homes, workshops, farms, factories, or other settings. It was recommended that education include four key components:

- Literacy (study of languages, humanities, and social sciences)
- Numeracy (study of mathematics and natural sciences)
- Work experience
- Social service

It was noted that work experience integrates education with productivity, bridging the gap between academic learning and real-world work. The commission stressed that work experience was essential for modern societies, especially those driven by science-based technologies.

Recommendations of the National Policy of Education (1986) on Work Experience:
The NPE (1986) emphasized the importance of work experience, now termed SUPW (Socially Useful Productive Work), as an integral part of the education system. The policy highlighted that work experience should be a purposive and meaningful manual activity, contributing to either goods or services useful to the community. It should be organized through well-structured programs that align with students' interests, abilities, and needs, evolving as students progress through their educational stages. This

experience would support their transition into the workforce, especially with prevocational programs offered at the lower secondary stage to aid in choosing vocational courses at the higher secondary stage.

Recommendations of the Janardhan Reddy Committee Report (JRC-1992) on Work Experience:

The JRC (1992) recommended that work experience (WE/SUPW) be enhanced in alignment with the NPE-1986 and the National Policy on Education Review Committee (NPERC) 1990 guidelines. It suggested allocating 12.5% to 20% of school time for these practical activities, ensuring they have a strong orientation towards real-world applications. The revised 1992 policy recognized work experience as a fundamental component of the school curriculum, reinstating the term "Work Experience" as used by the Kothari Commission.

The program of action 1992 has stated, “it has been observed in actual practice that work experience has degenerated in to trivial activities in the school arid in many states the time allocation rarely exceeds 10%”. It further stated that the “State Government/Union Territory’s should ensure that work experience is actually included as an integral part of the curriculum. Those teachers are trained to impart the instruction and that necessary financial provision I made. Work experience program are aimed at developing in learner’s confidence and sufficient psychomotor skills to facilitate their entry into world of the work at a subsequent stage. In school where work experience already forms a part of the curriculum, these courses need to be toned up in keeping with the perceptions reflected in the NPE”.

Self-Check Exercise-1:

Q-1: The program of action 1992 has stated, “it has been observed in actual practice that work experience has degenerated in to trivial activities in the school arid in many states the time allocation rarely exceeds 10%”. True/False

Q-2: The programme of action came in to existence in the year-

1. 1990
2. 1991
3. 1993
4. 1992

Q-3: NPERC stands for-

1. National Policy on Education Review Committee
2. National Policy on Education Revise Committee
3. Both of the above
4. None of the above

5.4-SUMMARY: This might not be a difficult thing to understand – if you hold a work-experience in any domain that means you are familiar with its functioning and various factors. Being aware of the functioning is always advantageous when you work for a similar organization. This directly impacts the efficiency of the organization. Internships are also a type of work experience; this is why students are advised to go for internships before they sit in a job interview. In professional contexts, 'work experience' holds a significant place as it presents a chronological summary of one's career, detailing roles, accomplishments, and the diversification of capabilities through different organizations. It is a core component of a resume that employers scrutinize to gauge the applicant's suitability for the job. Meanwhile, 'working experience' could be utilized to underscore specific hands-on skills or proficiencies gained through direct involvement or operation within a certain domain. Correctly articulating these experiences can play a pivotal role in job interviews, career advancement, and in making a compelling case for one's candidacy when seeking new employment opportunities.

5.5- Glossary:

Articulate: Having or showing the ability to speak fluently and coherently

Meanwhile: In the intervening period of time

Internship: The position of a student or trainee who works in an organization, sometimes without pay, in order to gain work experience or satisfy requirements for a qualification

5.6-Answers to Self-Check Exercise:

Self-Check Exercise-1:

Ans-1: True

Ans-2: 1992

Ans-3: National Policy on Education Review Committee

5.7-References and Suggested Readings:

Andrew J. Dubrin, (2009), Leadership: Research Findings, Practice and Skills, 5 Ed, Houghton Mufiilin co., Boston, USA.

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5.8-Terminal Questions:

1. Recommendations of National Policy of Education (1986) towards work Experience
2. Recommendations of Janardhan Reddy Committee Report (JRC)-1992 towards work Experience
3. Discuss the objectives of work experience.

Unit-6

Methods of teaching work experience

Structure:

1.1-Introduction: Effective teaching methods are strategies and techniques used by educators to engage students, promote learning, and create a positive classroom environment. These methods include online learning, experiential learning, differentiation, blended learning, game-based learning, and student-centered learning. Teaching can be confusing because of all the different words we use. Here, we have tried to make things clearer by explaining the differences between teaching approaches, methods, procedures, techniques, styles, and strategies. Teachers often come across terms like teaching approaches, methods, procedures, techniques, styles, and strategies. But here's the thing: not everyone understands these words in the same way. Some teachers use them interchangeably, mixing up what they mean. Others are very careful to use each word correctly to talk about different aspects of teaching. An approach can be described as how a teacher addresses the process of teaching and learning. It essentially comprises a broad, theoretical framework that sets the general direction of an entire learning journey. A strategy, on the other hand, is a more specific means through which the teaching approach can be executed. As advised, the strategy acts as a general rule or principle to guide the whole teaching process. Once a teaching approach is chosen, subsequent strategies should align with the approach to ensure a consistent plan of action. For example, if an approach prioritizes active learning, strategies could encompass group work, peer teaching, and case studies. A well-chosen

strategy lays the groundwork for designing learning situations and aids developers in creating effective materials. Progressing down to more explicit procedures, a teaching method serves as the concrete mechanism by which learning is facilitated, concentrating on how to deliver instructions effectively.

1.2-Learning Objectives: After studying this unit the students will be able to know about:

Methods of teaching work experience

6.3- Methodology of Teaching Work Experience

Today's school education has become burden to children and teacher. Teaching learning process for the teacher and child has lost interest in the teaching subject. Work Experience is a subject which can provide learning as interesting, jovial and useful in their daily life. Work Experience activities will make them learn positive habits inculcate creative thinking and respect for the manual workers. For this we require methods, techniques and strategies to provide experience. There are some of following methods that which can be used by the teacher for teaching different activities:

1. Observation
2. Demonstration
3. Exploration and Experimentation
4. Projects Work
5. Integrated approach
6. Visits

1. **Observation Method**: observation method is used for all the subsequent method. Students are encouraged and motivated to observe the particular activity by the teacher. The role of teacher is to act as a facilitator and provide careful guidance which proves very effective in the process of learning facts and skills, which can be retained for longer period. Observation or direct experience or visits to actual places, for example craft- mela, museum, monuments, working o markets, tailoring, etc. Students are provided ample opportunity to visit many other places such as hospitals, post offices and zoo. Students learn by seeing, hearing, examining, gathering data asking questions. Students are asked to observe many phenomenon, any activities nearby or in social gathering etc.

Students are asked to make following observations:

- To observe activities at home and child can perform them on its own to inculcate good habits.

- In the morning observing the correct way of brushing teeth with tooth paste/tooth products and then washing the mouth.
- Washing of hands before eating breakfast, lunch, and dinner.
- Observing preparation of tea/breakfast etc. by the mother/father/sister/brother etc.
- Observing polishing of shoes, dusting of room etc.

There are many incidents where child can observe and may be asked to do the same or collect the data etc.

Outside the home he may be asked to observe the incidents occurring e.g.:

- Observing different type of transport and nothing them.
- Observing activities in the transport and nothing them.
- Observing activities in garden how gardener meandering field, watering the plants, weeding etc. observing use of equipments tools for gardening etc.
- Students are asked to observe the cobbler, mason, worker, making of different craft work tailoring, barber shop etc.
  Observation is very useful method to enhance the knowledge. Child is able to know as how to interact with them.

2. **Demonstration Method**: A demonstration implies to show. But in the work experience it is most versatile and useful method and serves various purposes. It can be used to motivate the students in reparation of many products from raw material. The method provides display of objects, apparatus, equipments, model, tools etc. to the class. It also provides a means for classifying steps while preparing a product and sequence of events/precautions to be taken care of. This method is useful to reach large group of students/class.
   The following points may be considered as criteria for demonstration:

- You must do that activity beforehand must try out in advance.
- The purpose of demonstration should be known before hand.
- You must know proper raw material and tools to be used.
- All the steps to be illustrated in sequence are to be shown on the black board or roller board or on chart etc.
- While demonstrating precautions are to be observed and taken care off.
- After the demonstration, students are asked to to activities or prepare that product individually so that students are able to understand it better.
- After demonstration the remaining raw material should be kept in safe place for further use.
- Tools used are to be kept in safe place.

- In the end teacher must always remember is the fact that judicious amount of questioning must be followed for effective learning in the demonstration.
  In work experience following are some of examples where demonstration may be effective.
- Making of chalk
- Making of candles
- Book binding
- Preparation of soap/detergents
- Weaving of chair
- Stitching of a button
- Preparation of bed for planting of plants
- Preparation of fruit juice/lemon juice
- Preparation of sandwiches
- Polishing of furniture/black board
- Weaving of carpet

There may be many more activities which can be added to the list as per requirement and trained in a particular skill by the teacher.

3. Exploration and Experimentation Method

- **Exploration:** Exploration is word implies to find i.e. objects, identifying different production and service oriented activities going in the neighborhood of school, home etc. Students may be asked to observe and enquire about the availability of raw material, its source and use of different kinds of tools required for making products. This exploration is use in science for exploration of space in astronomy, archaeology etc. The psychomotor activities concerned with work experience start from observation. Students should be free to make oral enquiries and allow examining the material, tools and equipments.

- **Experimentation Method:** This method involves maximum pupil activity. The experiments on their own make them understand the principle behind the activity. Pupil experiment with materials, tools and techniques and exploration of the work situations by directly doing work i.e. this is based on learning by doing. In science experiments are performed and observations are noted and accordingly results are interpreted. But in work experience he/she can further explore the possibilities in the materials, tools and techniques with a view to solve problems according to the needs. For examples:
  - Child is provided with waste material and asked to prepare different useful items for daily life. Paper making, collage etc. can be a good example.

- Making of different types of greeting cards e.g. by marble printing, with color threads, use of plants and vegetables printing or collage work etc.
- Making of different items with paper, cardboard etc.
- Macramé work
- Tie and Dye work
- Making of soak pit

  In the experimentation, list of activities can be added from the local environment.

  Main advantage of exploration and experimentation is that child learn doing it on his own and practicing it. Knowledge gained by the child is concrete and motivate him to explore and experiment with material, tools and techniques and thus acquire skills.

4. Project work

Project work method is the outcome of the pragmatic educational philosophy of Dewey (American Philosopher-cum-Educationist). Many educationists have given definition of project work. Some are:

According to Burton: "A project is a project which results in doing. The motor element is not what makes the activity a project but the problem solving of practical nature if accompanying the activity."

According to J.A. Stevenson: "A project is a problematic act carried to completion in its natural setting."

According to Snedden: "Project is a unit of educative work in which the most prominent feature is some form of positive and concrete achievement."

All the above definitions point out that:

A project is a purposeful and meaningful activity that involves solving problems in a real-world setting, leading to tangible and positive outcomes. In this approach, students learn through collaboration, hands-on activities, and active participation, making it a psychologically effective method. The teacher plays a crucial role, acting as a guide who prompts students with timely questions, helping them discover facts and principles on their own. Teacher provides situations make them local environment, science and social science etc.

The project work is a suitable method for teaching work experience at elementary class. Teacher has to well informed and alert and must provide constant encouragement and motivation from time to time. He has to be more vigilant and not only cooperate with students in their investigation, but also pupils must cooperate among themselves and work in tandem in groups.

In work experience, project work may be completed in the following steps:

- Choosing of situation/problem
- Planning of the activity
- Framing objectives associated to the activity
- Execution
- Problem faced while execution and finding solutions
- Evaluation

In project work following activities may be given:

- Survey of adjoining market to school. What kind of production and service oriented activity are there.
- Pulse Polio campaign and arranging booth for it
- Cleanliness of neighborhood
- Celebration of National festival
- Preparation of Pit for composed fertilizer
- Making of decoration of earthen wares etc. for Diwali festivals etc.
- Upkeep of planted saplings
- Making of lari (bulbs connected in series or parallel)

In pursuing a project, the students realize the importance of theoretical knowledge needed for practical work The role of the teacher in a project is crucial. The teacher not only serves as a facilitator but also as a true guide and friend to the student.

Integrated Method

In work experience, the integrated method is highly effective in the teaching and learning process. This method involves combining two or more approaches to teach a particular topic.

Work experience activities can be taught by taking application of different subject while doing an activity. For example:

- While preparing a bed of size of length 3m by 2m for plantation of plants:
  We use the concept of mathematics i.e. for measurement of length and breadth.
  We use which type of plantation can be done in which season, concept of botany or agriculture is being used.

In the same way we use the following methods while preparing bed:

- Observation method
- Demonstration method
- Project method
- Experimentation method

Teachers are advised to help students where integrated method can be used by giving them more examples.

5. Visits or Field trip or Excursion

A field trip or excursion is a planned visit to a point/place outside the regular classroom. Usually in field trips to places like visit to a factory, garden, museum, observatory, poultry farms, craft mela, national science centre etc. where we see other people doing things. As spectators we are not involved but we directly watch it, ask questions to seek firsthand knowledge. Field trip is an excellent method which bridges the classroom teaching and world of work outside. The students get their direct experiences in the field and not in the classroom. Following are the merits of the excursion:

1. **Clarification of many concept and process:** In work experience pupil get firsthand knowledge of many production and service oriented activities going in his neighborhood, e.g. industries, complicated machines, marine objects and events concerning natural and physical surrounding etc. This study is more effective and purposeful.
2. **Creates interest:** Interest can be created among students by organizing study trip, when he observes the world of work and actual working situation.
3. **Joyful learning:** Field trip removes the boredom and monotony of the classroom and it refreshes the child.
4. **Collection of useful material:** students are asked to collect information by asking questions from artisan, craft worker or collection of different kinds of leaves, specimen etc.
5. Execution also helps in the development of spirit of the cooperation among students, spirit of enquiry leadership qualities, interaction with different people and sense of responsibility.

Organization of field trip:

For effective execution of field trip it is desirable that outcome need to be planned systematically and economically, following points may be taken care of by the organizer:

1. **Choice of field trip**: Teacher must be clear about the objective to be achieved and accordingly choice of place to be visited. It depends upon the subject or topics currently being covered in the classroom. Teacher must know the place of visit or himself visit that place before planning i.e. feasibility of expenses, season, time available and convenience in arranging excursion.
2. **Planning of Excursion**: After making choice of the place and objectives to be achieved, teacher must take care of following points:
    - Estimated cost of expenses per student and over all miscellaneous expenses
    - Obtain the due permission of the competent authorities of the situation and willingness of the students and consent of parents/guardian before proceeding for excursion.
    - Proper arrangement of transport if place of visit is far away e.g. hiring of buses or reservation of railway train etc. must be made in advance.
    - Permission from competent higher authorities to visit the desired places.
    - Aims and objective of visit should be made clear to the student.
    - Planned schedule of concern place to be visited
    - Expected departure and arrival time of visit to be circulated to the students, parents and authorities.
    - List of the students with complete address phone number of each student be prepared and one list should be with the authorities in case of emergency.
    - Students must be instructed to carry all necessary articles for individual needs.
    - Each student must have his/her identity card, diary to note down the information.
    - Teacher must take the full cooperation of student, assigning them responsibilities of different task during visit.
    - Proper arrangements for food, first aid etc. teacher can form various committee:
        - Food committee
        - Traveling committee
        - Property care committee
        - Finance committee
        - Discipline committee
        - First aid committee
- Teacher must appraise the purpose of visit and give full instructions for maintaining proper discipline.
- After the visit, students should prepare a report based on their observations. The teacher should facilitate a classroom discussion, encouraging students to share their personal firsthand experiences. At the end of the trip, the teacher

should engage the students in a discussion to reflect on the insights they gained from the experience.

Self-Check Exercise-1:

Q-1: What does the play-way Method develop in the students-

1. Cognitive development

2. Physical development

3. Emotional development

4. All of the above

Q-2: What is SWAYAM?

1. Non-Government Organization
2. Digital Programme to achieve the principles of education.
3. On Line Platform
4. Name of a Website

Q-3: The pragmatic educational philosophy is given by:

1. Dewey

2. Byron

3. Kohler

4. Kapil

6.4-SUMMARY: Education is an enriching experience that involves several facets, of which the teaching approach, strategy, method, and technique are fundamental components. These aspects serve as a roadmap to guide the teaching-learning process, each having its unique attributes, while harmoniously operating in integration with others. As an overarching principle, the approach defines the educator's beliefs and values relating to teaching, creating a foundation for instructional decision-making approaches could focus on the development of learners' capabilities, enactment of effective learning experiences, or fostering critical thinking, and may include elements such as student-centered learning, thematic teaching, or problem-based learning. The strategy

determines which method to employ, ensuring that it supports the corresponding teaching approach. Methods may involve direct instruction, where the teacher introduces the content in a well-organized way, or project-based learning, which enables learners to gain knowledge and skills by conducting extensive research over a specified period. In work experience pupil get first hand knowledge of many production and service oriented activities going in his neighborhood, e.g. industries, complicated machines, marine objects and events concerning natural and physical surrounding etc. This study is more effective and purposeful.

6.5-Glossary:

Problem-based learning: Problem-based learning (PBL) is a teaching method in which students learn about a subject through the experience of solving an open-ended problem found in trigger material.

Harmoniously: With harmony of sound; tunefully

Monotony: Lack of variety and interest; tedious repetition and routine

6.6-Answers to self-check Exercise:

Self-check Exercise-1

Ans-1: All of the above

Ans-2: Digital Programme to achieve the principles of education

Ans-3: Dewey

6.7-References and Suggested Readings:

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6.8-Terminal Questions:

1. Discuss in detail the methods of teaching work experience.

2. How will you organize a field trip? Discuss.

3. Write a short note on experimental method of teaching.

Unit-7

TEACHING AIDS`

Characteristics, Need and Objectives, Advantages of Teaching Aids

Structure*:*

7.1 LEARNING OBJECTIVES

At the end of this lesson, you will be able to;

- Understand the meaning of teaching aids, TLM and teaching resources.
- Enlist the characteristics of effective teaching aids.
- Explain the need and objectives of teaching aids.
- List down the advantages of teaching aids.
- Differentiate between projected and non-projected teaching aids.

7.2 INTRODUCTION

The primary goal of education is to provide knowledge and enhance children's understanding. The quality of education in our schools is measured by the learning achievements of students. To improve student learning outcomes, teachers employ various strategies and utilize different materials and resources. These tools, strategies, and ideas used by teachers are collectively known as teaching aids. In this lesson, we will explore the meaning, characteristics, and necessity of teaching aids, as well as the materials needed to create them. Additionally, you will learn about the benefits of incorporating teaching aids into the curriculum delivery process. We will also cover both projected and non-projected aids. In the final section, we will discuss the principles for selecting and using teaching aids, as well as the key considerations when incorporating them into classroom instruction.

7.3 TEACHING AIDS, TEACHING-LEARNING MATERIALS AND TEACHING RESOURCES

"We remember 20% of what we HEAR, We remember 30% of what we SEE, We remember 50% of what we SEE & HEAR, We remember 90% of what we SAY & DO."

"I hear, I forget; I see, I remember; and I do, I understand.

As we know, we are living in an era dominated by science and technology, and this has also influenced teaching and learning programs. The effectiveness of the teaching-learning process relies heavily on the various types of equipment available in the classroom.

A teaching aid is a tool that teachers use to enhance students' learning by improving reading skills, reinforcing facts or concepts, and helping to alleviate anxiety, fears, or boredom—especially since many teaching aids resemble games. Teaching aids can include items like flashcards, maps, cassette players, and blackboards. These aids are essential in today's educational environment for facilitating effective teaching. They offer numerous advantages, possess distinct characteristics, and come with specific criteria for their use.

The term "teaching materials" refers to the resources that teachers use to deliver lessons. These materials are designed to support student learning and promote academic success. Ideally, teaching materials should be aligned with the content being taught, the specific needs of the students, and the teaching style of the instructor. These materials come in various forms, but they all share the common goal of enhancing student learning. Another commonly used term is Teaching-Learning Materials (TLM). TLM can refer to specialized, sophisticated equipment, but it's not limited to demonstration purposes in the classroom. TLM should be created and used by both the teacher and the students to foster engagement and understanding. When learners are involved in the process of creating TLM, it nurtures a sense of ownership and enhances their comprehension.

Instead of purchasing materials, teachers can encourage students to use everyday objects from their environment to create TLM. This approach allows students to take ownership of their learning and gives them the opportunity to be creative. Teaching materials are typically tangible objects, like worksheets or manipulatives (interactive learning tools or games that help students practice new knowledge, such as counting blocks). These differ from "teaching resources," which can include theoretical content like essays, support from other educators, or information about where to find teaching materials.

Teaching aids are essential tools that enhance the learning process in the classroom.

1) When the subject is far remove in time.
2) Where the subject is too far, distance to be actually seen.
3) Where the subject is too small to be seen by the whole class.
4) Where the subject is too big to be brought in the class.
5) Where the growth of the process is slow.

7.3.1 Characteristics of Effective Teaching Aids

1. Teaching aids should be large enough for all students to see clearly.
2. Teaching aids must be meaningful and serve a practical purpose.
3. Teaching aids should be up-to-date and of high quality in all aspects.
4. Teaching aids should be simple, affordable, and, if necessary, improvised.
5. Teaching aids should be accurate and realistic.
6. Teaching aids should match the cognitive level of the learners.
7. While their purpose may be informative, teaching aids should not be used solely for entertainment.
8. Teaching aids should help achieve the desired learning objectives.
9. Teaching aids should be versatile and applicable across various lessons and grade levels.
10. While teaching aids are valuable in enhancing the teaching process, they cannot replace the teacher.

Self-CheckExercise-1

Q-1:

Write two characteristics of teaching aids.

7.4 Need and Objectives of Teaching Aids

1. **Memory retention**: Teaching aids assist in helping students retain concepts more effectively, addressing the natural tendency to forget.
2. **Motivation**: When used properly, teaching aids can motivate students and enhance their learning experience.
3. **Engagement**: Teaching aids stimulate the senses (sight, hearing, taste, and smell), helping students form a clear and accurate mental image.
4. **Conceptual thinking**: Teaching aids provide concrete examples that promote critical thinking and conceptual understanding.
5. **Interest creation**: They help create a learning environment filled with interest, fostering student engagement.
6. **Vocabulary development**: Teaching aids contribute to the expansion of students' vocabulary.
7. **Time management**: Teaching aids give teachers more time to focus on the learning process, helping to make learning more permanent.
8. **Direct experience**: They offer students direct hands-on experiences, which reinforce the lessons being taught.

Advantages of Teaching Aids

1. **Permanent learning**: Teaching aids help make learning more permanent by clarifying subject matter and reducing rote memorization.
2. **Variety**: They provide a variety of methods to deliver content, keeping lessons dynamic and interesting.
3. **Attention-grabbing**: Teaching aids effectively attract and maintain the attention of students.
4. **Efficiency**: They save both time and energy during the teaching process.
5. **Enhanced classroom interaction**: Teaching aids encourage active participation and healthy interaction in the classroom.
6. **Beginner support**: They help teachers create conducive learning environments for beginners.
7. **Discipline**: Teaching aids contribute to maintaining discipline by making lessons engaging.
8. **Addressing individual differences**: They are useful in catering to the diverse learning needs of students.
9. **Speech training**: Teaching aids assist in providing speech and language training to students.
10. **Long-term retention**: They help students retain information, especially language items, for a longer period.

11. **Vivid learning**: Teaching aids bring vividness to the learning experience, making abstract ideas more tangible.
12. **Concrete learning**: They help transform abstract concepts into concrete forms, enhancing learning effectiveness.
13. **Lesson planning**: Teaching aids structure lessons and support teachers in delivering clear, well-organized instruction. They also allow for differentiation of instruction, catering to the diverse learning styles and capacities within the classroom.
14. **Substitution for real objects**: Teaching aids can effectively replace real objects, ensuring that the learning process remains meaningful.
15. **Skill development**: Teaching aids help in developing various student skills, such as drawing diagrams or understanding complex concepts.

Classification of Teaching Aids

There are several types of teaching aids, which can be classified as follows:

1. **Visual Aids**: These aids engage the sense of sight. Examples include actual objects, models, pictures, charts, maps, flashcards, bulletin boards, chalkboards, overhead projectors, slides, etc.
2. **Audio Aids**: These aids engage the sense of hearing. Examples include radios, tape recorders, and gramophones.
3. **Audio-Visual Aids**: These aids engage both sight and hearing. Examples include televisions, film projectors, and film strips. These can further be categorized as **projected aids** and **non-projected aids**.

Projected Aids include:

- Overhead Projectors
- Slide Projectors
- LCD Projectors
- DLP Projectors
- Interactive Whiteboards

Non-Projected Aids include:

- Charts
- Maps
- Models
- Flashcards
- Flannel Boards

Common Teaching Aids and Their Descriptions:

1. **Charts**: Charts are visual symbols used to summarize, compare, or explain subject matter. Examples include picture charts, time charts, graphic charts, and flow charts.
2. **Flashcards**: Flashcards are cards used to help students quickly recall information. They are commonly used for drilling new words, concepts, or facts.
3. **Flip Charts**: A flip chart is a set of large pages bound at the top. These charts can be flipped to show new content, making them useful in group learning.
4. **Flannel Boards**: Flannel boards consist of a piece of felt or flannel used to attach pictures or other materials, making them interactive learning tools.
5. **Models**: Models are simplified or scaled-down replicas of real objects. Examples include globes (models of Earth), working models, and cross-sectional models.
6. **Graphs**: Graphs visually display statistical data and relationships through dots, lines, or pictures, making them useful for comparisons.
7. **Cartoons**: Cartoons are interpretive drawings that convey a message or point of view, often using exaggeration or symbolism.
8. **Interactive Whiteboards**: Interactive whiteboards connect to a computer and projector, displaying graphics, visuals, and recorded lessons, facilitating interactive learning.

Self-Check Exercise-3

Q-1: Teacher use teaching aids for-

1. Making teaching interactive

2. Making teaching with understanding level of the students.

3. Both of the above

4. None of the above

Q-2: Television is-

1. Audio aid
2. Video aid
3. Audio-visual aid
4. None of the above

7.6 SUMMARY

After studying this lesson, you have understood about the meaning of teaching aids, TLM and teaching resources. For improving academic achievement of the students, the use of teaching aids is very essential. We also learned the principles of selecting teaching aids and what type of teaching aids can be used in the classroom. The importance of teaching aids was also explained and how teaching aids can be effectively prepared and used for improved learning was also elaborated to you. It is expected that you must have realized the objectives of this lesson.

7.7 GLOSSARY

Interactive whiteboard: is a large display that connects to a computer and a projector to represent information through the use of graphics and other visuals.

Flashed: Shown quickly

Positive work environment: Positive" work environments can be defined as those workplaces where there is trust, cooperation, safety, risk-taking support, accountability, and equity.

7.8 ANSWERS TO SELF CHECK EXERCISE

SELF CHECK EXERCISE-1

ANS-1: Teaching aids are accurate and realistic.
Teaching aids are according to the mental level of the learners.

SELF CHECK EXERCISE-2

ANS-1: Teaching aids provide variety.
Teaching aids are helpful in attracting attention of the students.

SELF CHECK ExERCISE-3

ANS-1: Making teaching with understanding level of the students.

ANS-2: Audio-visual aid

7.9 REFERENCES AND SUGGESTED READINGS

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7.10 TERMINAL QUESTIONS

1. Differentiate between teaching aids, teaching-learning materials and teaching resources.
2. Explain the characteristics of effective teaching aids.
3. What are different types of teaching aids? Explain any two non-projected teaching aids that you would use in the classroom.
4. Write down any two advantages of teaching aids.
5. Discuss the principles of selecting teaching aids in detail.
6. As a teacher, what things will you keep in mind while using teaching aids in the classroom?

Unit-8

TEACHING AIDS

TLM, Selecting and Using Teaching Aids

Structure:

8.1 LEARNING OBJECTIVES

At the end of this lesson, you will be able to;

- List down different materials required for preparing teaching aids and TLM.
- Discuss the principles of selecting teaching aids.
- Explain the principles of using teaching aids.

8.2 INTRODUCTION

Teaching aids come in all shapes and sizes. Some show us colorful pictures to understand new ideas. Others play sweet music or interesting sounds to make learning joyful. And there are even some teaching aids you can touch and feel – like holding a dinosaur model to learn about these fascinating creatures. In this blog, we'll explore different types of teaching aids, from cool pictures and fun videos to amazing hands-on activities. We'll also see how these aids can help us understand tough subjects, remember important information, and become super learners.

Imagine being in a classroom where the teacher only speaks, and there are no pictures, no videos, and no exciting activities. Boring, right? Well, that's where teaching aids come to the rescue! Teaching aids are special helpers that teachers use to explain things better. They are like superheroes that make learning more exciting and understandable for all of us. These aids include simple things like pictures, drawings, or even cool videos and audio. They create a delightful atmosphere for learning, just like how your favorite song lifts your mood and makes you happy. And there are tactile aids too! We can touch and feel these objects, like models, tangible objects, or even interactive learning materials. Remember how touching and feeling things make you curious and excited? Tactile aids do just that – they make learning a hands-on experience. These aids are like magic wands that make learning more exciting and memorable. They help us understand tricky topics, remember important facts, and enjoy gaining knowledge.

8.3 MATERIAL REQUIRED FOR PREPARING TEACHING AIDS AND TLM

Materials are ingredients or tools that are required by a creator to create a work of art. By using different art materials like pencil, colour, brush, adhesive as a means of expression children should be encouraged to develop a sense of proportion, depth, light, shade and tactile feeling. They can use different sizes of paper in a better way. Each material possesses its unique characteristics and qualities. Materials are available around us. Like leaves, twigs, dried flower, cloth pieces, bits of paper etc. We just need to look around to explore & pick up the material of our choice from the surroundings to produce the work of art. Early man explored the natural materials from nature to express their feelings & thoughts. E.g. a piece of stone or the juice from leaves, fruits, flowers, stones etc was used to draw figures of animals & humans of the walls of caves which have survived several ages. Early man used the stone as you use pencil now.

1. **Pencils:** Children from early age scribble as soon as a pencil is given to them. It is the most easily available medium and a tool to express their inner desire of writing on paper. Different types of pencils are briefly described below:

Graphite Pencils – These are most common type of pencil, encased in wood. They are made of mixture of clay and graphite. There darkness varies from grey to black. Pencils range from very hard (H) to the very soft and black (B). The various degree of blackness achieved by pencil: H, 2H, B, HB, 3B, 2B, 5B, 6B.

Pencil available for sketching:

HB – Hard Black, used in writing

2B – 2 Black, used for giving light shade

4B – 4 Black, used for giving medium shade

6B – 6 Black, used for giving dark shades

Coloured Pencils – These have Wax like cores with pigment and other fillers. Multiple colours are blended together. Following techniques are used with colour pencils:

Feathering: Colour an area and draw softly over it with a lighter colour so the original area shows through.

Blending: Lay different colours on top of each other to achieve a large range of colours and shades.

Burnishing: To polish colours, use a white colour pencil across the colours that have already been laid down. Further layers of this technique allow you to blend as well as lighten up the colours.

Emboss: Lay a scrap piece of paper over your drawing paper. Use a ballpoint pen and press to draw your design. Remove the scrap paper and rub the side of the pencil point over the embossed area.

Charcoal Pencils – They are made of Charcoal and tend to smudge easily than graphite pencil. Thus they can be used to create tones easily in drawing.

Water Colour Pencils - They are designed for use with water colour techniques. Strokes made by these pencils can be saturated with water and can spread with brushes. Children who cannot manage brush at painting level and wish to give water colour effect can use such pencils. After colouring with them, a layer of water can be applied which gives a smooth effect that in water colours?

2. Drawing and Painting Colours:

a. Direct Colours: - These include Dry pastels, Crayon, Colour pencils come under this category of colours. These can be used by small children easily and so should be introduced to a child at the primary level for colouring as they do not require any strict paraphernalia.

Pastel medium was 1st mentioned by Leonardo-da-Vinci. Medium became popular because of broad range of bright colours. Pastel Colour is in the form of a stick, which consists of powdered pigment combined with a binder. Pastels are of different type's viz. oil pastels and dry pastels. Oil pastels have soft consistency and bright colours. They are difficult to blend, but can be blended by using piece of cloth or cotton to create tonal effect in drawings. They do not require fixative. A good quality cartridge sheet (with grains) is used or even Pastel sheet can be used as they hold colours in a proper manner. Dry pastel is of two types:

Hard Pastel

- Higher binder, less pigment

- Used to draw outlines
- The colour are less brilliant
- No fixative required

Soft Pastel

- Higher pigment, less binder
- The drawing can be smudged and blended
- The colours are bright
- The finished drawing requires fixative to prevent from smudging.

b. Oil Colours: - They are available in tubes. These are to be diluted with turpentine oil for painting. The painting is generally done on canvas or a board. These colours are used by elder children as they require lot of paraphernalia and are little difficult to manage.

c. Water Colours / Poster Colours: - Water colour painting is older than oil painting. Normally the only medium needed is water. Water colours are transparent, so one can paint one or more layers of colour. Painting in water colour offers an immense scope for everyone. As they can be used through coloured pencils, pastels, pen and ink, anything which is compatible with water. A Poster colour is water paint with gum binder, which is opaque and dries fast, such as glue. They are usually sold in glass jars and also called Show-Card colour or Tempera colours. These are used for writing posters, making cards etc.

They are widely used in Scenery, Painting, and Commercial art, Illustration, Display and in Educational work. Teachers can guide students to keep in mind the technique to use poster colour, as little amount of colour is to be taken out in a pallet and very little water to dilute it. They remain thick and smooth. Keeping in mind the texture of the object e.g. sand is rough and sky is smooth, such a texture can be achieved by using brush in a rough manner to give rough effect and move the brush smoothly to give sky / water effect. Children should be encouraged to prepare posters on Republic Day, any festival, any other social topic e.g. pollution, a forestation or global warming etc. The students should keep 0, 2, 4, no. round *sable hair brushes* for thin lines or small areas .The 5, 6, 8, no. should be used to colour larger areas. Flat brushes should be used for writing on the poster. It also helps the child to hold the brush properly. It should be remembered that while using poster colours, rag should be kept clean the bristles properly and one colour does not gets mixed with other colour as it spoils the colour .A water container is essential to clean the brushes regularly after applying one colour and before taking another colour.

3. Pen and Ink

The use of pen and ink is similar to that of a pencil drawing. There are many types of pens that come in the market like felt tip markers, fountain pens etc. We can also create pens from the nature. E.g. sticks, bamboos, reeds, crow quill ,nib-pens etc. Each pen forms a unique type of line on paper which needs to be explored and experimented. Children should be encouraged to do drawings, write in a calligraphy style using ink pens to create interest in drawing. E.g. they can write Vande Mataram, or Jai Hind, in an interesting manner using pens of different thicknesses. Some examples of different pens include; Fine line Pens (Gel Pens), Marker Pens (Aquarelle Markers, Brush Markers, Glass and Craft Markers, Graphic Markers etc.) and, Felt Pens (Aquarelle Pens, Berol Felt Pens, Crayola Felt Pens, Specialist Crafts Felt Pens etc.).

Ink is a mixture of water, carbon, lampblack and a binder of shellac and other binding material. Ink is water soluble but difficult to remove from surface. The right choice of paper for use of ink effectively is essential. Different types of inks include; Acrylic Inks, Drawing Inks and Indian Inks.

4. Mixed Materials

Low cost mixed materials readily available are –

i. Paper – cartridge sheet, pastel, crepe paper, kite paper, glaze paper, magazine paper, tissue paper, packing paper, etc.

ii. Colour – pencil colour, wax crayon, dry pastel, water colour, poster colour, natural and dye colour, mineral colour, etc.

iii. Brush – round, hog hair, flat, sable hair.

iv. Pencil – 2 HB, 2B, 4B, 6B, 8B, HH, Charcoal.

v. Adhesive – fevicol, fevibound, glue, fevistick.

5. Craft Material

Within the confinement of the four walls of our house, plenty of materials are available which are discarded. From this trash we can explore and find craft materials which can produce fantastic craft pieces. Reusing waste material or trash is an amazing experience. A little bit of imagination, creativity, skill and ability to see objects not as they are, but what they can become, can be a memorable and rewarding experience. It also cuts down on the budget. Such exploration can bring unexpected results. Craft materials available can be as follows:

1. Plastic jars and bottles
2. Empty cans
3. Empty cardboard boxes and cartons
4. Old tooth brushes

5. Different plastic caps of old bottles
6. Magazines and newspapers
7. Old cloth and torn clothes
8. Strings, threads, beads, golden ribbon(gota), sutli, bindi, cotton
9. Bangles, tiles, switches
10. Straws, pipes, ice-cream tubs and spoons
11. Bulbs, tube lights, wires, etc.
12. Coconut shells, pistachio shells, walnut shells, etc.

Self-Check Exercise-1

Q-1: Which of the following concepts cannot be taught using Dienes block?

1. Numbers and place value
2. Probability.
3. Addition
4. All of the above

8.4 PRINCIPLES OF SELECTING TEACHING AIDS

Following principles should be kept in mind while selecting teaching aids by the teachers:

1) Educational value
2) Realization of objectives
3) Pupil-centeredness
4) Interest and motivation
5) Simplicity
6) Relevance and suitability
7) Accuracy
8) Encouragement
9) Well-preparedness
10) Avoiding too many aids
11) Means to an end
12) Integration

13) Availability of resources- size of classroom, finance, facilities, experienced teachers.

While selecting teaching aids, the teacher should keep in mind that;

1) Teaching aids should be simple and brief.
2) Teaching aids should be related to the objectives of teaching.
3) Teaching aids should be big door to be seen by all the students.
4) Teacher must use proper teaching aids according to the interest of the student.
5) Teaching aids should be prepared and planned in advance.
6) Teaching aids should be properly selected according to the physical and mental level of the student.
7) Teaching aids should be colourful and should have direct impact on the lesson.
8) Teaching aids should be meaningful and interesting.

8.5 PRINCIPLES OF USING TEACHING AIDS

While using teaching aids in the classroom, the teacher should keep in mind the following principles:

1) Principle of Preparation - Awareness, teacher's preparation, students' participation
2) Proper Presentation - Handling, checking, timely presentation, avoiding distraction
3) Protection and Preservation
4) Follow up
5) Evaluation

Self-Check Exercise-2:

Q-1: Identify media resources that may be helpful in teaching –learning process**.**

1. **1.** Newspaper
2. **2.** Exhibitions
3. **3.** Picture
4. **4.** All of the above

Q-2: Which of the following is not considered as the project aid?

1. Slide projector

2. Epidiascope
3. O.H.P.
4. Blackboard

8.6 SUMMARY

Teaching aids are special tools that teachers use to make learning exciting and understandable for all of us. They are like friendly guides that show us things visually, through sounds, or even by letting us touch and feel objects. Imagine you're learning about animals, and your teacher shows you a big, colorful poster with pictures of different animals. You can see how they look, their names, and where they live. That's a teaching aid in action – helping you understand and remember information better. These aids come in various forms. Some are visual aids, like colorful charts, diagrams, and photographs. They help us see and understand complex concepts better, just like looking at a treasure map helps us find our way in an adventure. We have audio aids, like music or interesting recordings.

8.7 GLOSSARY

Educational objectives: Indicate the nature of the education system. They serve as guides for teaching and learning.

Confinement: the action of confining or state of being confined.

Paraphernalia: Miscellaneous articles, especially the equipment needed for a particular activity:

8.8 ANSWERS TO SELF CHECK EXERCISE

Self-Check Exercise-1

Ans-1: All of the above

Self-Check exercise-2

Ans-1: All of the above

Ans-2: Blackboard

8.9 REFERENCES AND SUGGESTED READINGS

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8.10 TERMINAL QUESTIONS

1. Discuss the principles of selecting teaching aids in detail.

2. As a teacher, what things will you keep in mind while using teaching aids in the classroom?

Unit-9

CAMPUS BEAUTIFICATION

Meaning of Campus, Purpose and Importance of Gardening

Structure:

9.1 LEARNING OBJECTIVES

At the end of this lesson, you will be able to;

- Explain the meaning of campus.
- Discuss the purpose of gardening in school.
- Explain the importance of gardens and gardening.
- List down various theme gardens.

- Explain different theme gardens with their characteristics.
- Describe the steps for establishing gardens in school and home

9.2 INTRODUCTION

The historical development of campus beautification in colleges and other educational institutions can be traced to the very beginning of formal education. Some colleges and universities considered it a very important part of the total plan, others did not. According to William Yeager, “nothing in the whole educational programme is more conductive to cooperative attitude among the pupils and love of school than an attractive and wholesome environment’. The school campus includes the buildings, the lawns, the school garden, playgrounds, the hostels etc. The establishment of gardens in educational institutions and homes can play a very effective role. This lesson is an attempt in this regard in which we will learn about purpose and importance of establishing gardens and how the hobby of gardening can help us in creating a better physical environment. You will also be acquainted with the steps that can be followed for establishing gardens in schools or in our homes. In this lesson, we will also learn about different aspects of beautifying school campus and ways of doing the same by the teacher, students and the school administration.

9.3 Meaning of Campus

A campus traditionally refers to the land where a college or university, along with its associated buildings, is located. Typically, a college campus includes facilities such as libraries, lecture halls, dormitories, student centers or dining halls, and landscaped areas. In modern terms, a campus is a collection of buildings and grounds owned by an institution, which can be either academic or non-academic.

Single-Campus School: A single-campus school operates a distinct grade range with a single school leader responsible for the academic program for the entire grade span of the campus. A single-campus school has distinct goals to measure progress and attainment. Students matriculate from one grade to the next in a clear progression that does not require internal lotteries. A single-campus may have a distinct grade-span, such as early childhood, elementary, middle, high school, adult education, or it may include a combination of the above (e.g. prekindergarten through 8th). A single-campus school may operate in multiple facilities, especially during times of transition and growth.

Multi-Campus School:- A multi-campus school operates two or more campuses under one establishment. A multi-campus school may operate multiple campuses that each offers the same grade span. It may also operate multiple campuses each with different grade spans, whether in the same or different facilities.

Self-Check Exercise-1

Q-1: A multi-campus school operates two or more campuses under one establishment. True/False

9.4 Garden and Purpose of Gardening in School Campus

A positive and supportive environment at home and school is crucial for raising children in a healthy manner and ensuring their proper personality development. In this context, gardens play an essential role.

A garden is a designated area, typically outdoors, intended for the display, cultivation, and enjoyment of plants and other elements of nature. It can include both natural and man-made materials. While the most common type today is a residential garden, the term "garden" has traditionally referred to a broader concept.

Gardening involves the practice of growing and cultivating plants as part of horticulture. In gardens, ornamental plants are often grown for their flowers, foliage, or aesthetic value, while useful plants such as root vegetables, leafy greens, fruits, and herbs are cultivated for consumption, medicinal purposes, or use as dyes or cosmetics.

Gardening is considered to be a relaxing activity for many people.

The main purposes of gardening in school campus are described below:

1) Educational benefits

Gardening offers hands-on, experiential learning opportunities in a wide array of disciplines, including the natural and social sciences, math, language arts (e.g., through garden journaling), visual arts (e.g., through garden design and decoration), and nutrition. With recent concern over relatively weak science and math skills among American children, the need for innovation in science and math teaching is apparent. There is mounting evidence that students who participate in school gardening score significantly higher on achievement tests, particularly in science.

2) Environmental stewardship and connection with nature

By deepening children’s sense of connection with nature, school gardening can inspire environmental stewardship. When children learn about water and energy cycles, the food chain, and the peculiar needs of individual species, and when they feel a sense of connection to a certain species or individual plant, they have a reason to care about all the forces that impact that plant’s future. A garden offers many occasions for achieving insight into the long-term human impact on the natural environment. From the water shortage to the over-use of pesticides, children who engage in gardening have

first-hand opportunities to observe the importance of conservation and intelligent allocation of resources.

3) Active learning and student engagement

Gardening activities can help to engage students in learning in a way that is more difficult in the classroom. Gardening allows surprises to arise when insects land in the vicinity, when plants are afflicted with mites or fungus, or when the weather surprises everyone and disrupts the plan for the day, for example. These surprises show that nature is in control and they give students immediate and personal reasons for wanting to know the answers to pressing questions.

4) Student attention and class management

Because of the engaging nature of garden learning, students with attention deficit and other disorders often find it more suitable for their learning styles. Teachers report fewer discipline problems when science is taught in this sort of experiential manner, for example. Teachers develop useful concepts, such as “invisible walls,” to create a sense of boundaries when learning in the garden.

5) Teachers as gardeners

Teachers themselves also learn useful gardening skills when they incorporate gardening into their lesson plans. These skills can be transferred into their own homes and social networks, thereby benefiting their own health and the health of their families.

6) Connection to history and the community

Gardening ties students to the social and material history of the land. Gardeners from the community can be brought in to demonstrate local, traditional gardening techniques and the traditional uses of particular plants. Gardening offers many opportunities for connecting with local history by incorporating native plants and plants grown during specific historical eras.

7) School pride

Like a team sport or mascot, gardening can offer a symbolic locus of school pride and spirit. Gardening offers schools a way of helping children to identify with their school and to feel proud of their own individual contribution. Children know which plants they helped to grow, and they feel proud of them. This can improve school spirit and children’s attitudes toward the school.

Today, we observe that in many urban areas, children are surrounded by cement, brick and asphalt. The natural environment is behind fences and not available for hands-on exploration. This often means that children do not have a clear

understanding of their environmental heritage. A garden can bring nature and children together. A garden is generally considered to be something that enhances the appearance of a school or a house. However, there are two perspectives i.e. either to have a house with a nice garden, or to have a nice garden that has a house in it. In either case, the house and garden need to work together harmoniously, but the emphasis and point of view are somewhat different.

1. To provide children an opportunity to better understand their relationship with nature, creates a dynamic environment for learning core subjects and promotes cooperation through group activities.
2. To acquaint children with the ways to conserve natural resources and preserve the environment.
3. To provide children with learning experiences in science, math and nutrition through gardening experiences.
4. To develop creative skills and physical fitness among children through gardening.
5. To create enthusiasm for learning, encourage nutrition and foster team-building among children.
6. To promote among children the feeling of self-confidence and a sense of responsibility and belongingness to one's community.
7. To improve school-community relationships.

Self-Check Exercisre-2

Q-1: Grasshoppers can destroy crops. **True/False**

Q-2: The soil is one of the most important parts of gardening. **True/False**

9.5 Importance of Gardens and Gardening

Gardening is not merely a hobby or a leisure time activity. It has enormous importance from many perspectives not only for children but also for adults. Choosing and planting seeds involves important lessons. Students can read seed package labels and discuss what grows in warm and cool seasons. Students can also research spacing, height and other needs of plants. Scientific experiments can be done to study what helps plants grow. They can observe the sun to determine which plants will be in the shade and which in the sun. Seedlings need careful watering until the first true leaves appear. Newly planted seeds should not dry out or be kept soggy, so a monitoring system will be required for the first 10-20 days. Once plants are established, drip irrigation or soaker hoses can take over, if desired. Plants need water when the soil is dry about 1" below the surface (usually 2-3 times a week, depending on type of soil,

time of year, weather and location). Labels, signs, art projects, scarecrows, and garden gates can all be made from found or recycled materials to add whimsy and a sense of invention and fun to a garden. As plants grow, fertilizing and adding mulch become lessons. Students can also learn to identify helpful bugs and how to control harmful insects in an environmentally helpful way. Keeping an ecological balance produces a naturally healthy garden. Healthy soil and the right amount of water for each plant help eliminate most pest and disease problems. Releasing beneficial insects into the garden can be a fun project. Watching the life cycle of butterflies and silkworms in the classroom can tie in with the life cycle in the garden. Composting is an important part of a garden. The teacher can have a bin near the garden or a vermiculture (worm) box in the classroom. The breaking down or decomposition of materials into rich compost is an exciting learning experience. Measuring, counting, analyzing costs and receipts are all great hands-on lessons in math. Nutrition can be taught simply by growing and eating own fruits and vegetables in the gardens. In this way students can learn about the larger community and how they can make it a better place to live.

9.6 Theme Gardens

1. History Gardens: Such gardens can be established in schools. The teacher can use the garden to make history come alive for the students. The schools can choose an area and time and investigate what kinds of gardens were grown there at that time. If the garden space is large enough, one group might study Medieval times gardens; another might investigate gardens in Colonial India; while another might explore European gardens.

2. Butterfly Gardens: The teacher can use school garden to investigate native plants and animals. Research what butterflies live in that area and the plants that they depend on. Then plant a butterfly habitat in the school campus.

3. Ecosystem Gardens: The teacher can use the school garden as a vehicle to investigate what that specific area looked like before buildings were placed there. Students can research the history of the local landscape and then re-create what the area once looked like. Try growing a chaparral garden, perhaps a woodland or a meadow.

4. **Heritage Gardens:** The teacher can utilize the school garden to educate students on the importance of preserving biodiversity. This type of garden offers students the opportunity to research traditional plant varieties, flowers, and vegetables, along with their specific growing needs.

5. **Nutrition Gardens:** The teacher can use the school garden to teach children about the origins of their food. Students can learn how to make healthy food choices, the benefits of eating locally grown, seasonal foods, and connect the garden to geography and history by understanding where food comes from.

6. Kitchen Gardens: These gardens are established by housewives in their homes to have fresh vegetables, fruits and other produces. These gardens are very popular these days in houses and are effective in terms of their production of organic products. These may help in inculcating many values among the children. This is an effective way to conserve our natural environment.

9.7 Steps for Establishing Gardens in School and Home

While starting establishing garden in the school, here are some important issues that must be addressed beforehand:

- How many children/classrooms will participate?
- Do you want an in-ground or container garden?
- Who will be responsible for maintenance?
- How will you fund the startup and long-term process?
- What is the role of parent and community members?

Desire and Commitment: Desire is the most important component. Just remember that any new skill takes time to learn and includes making mistakes along the way. Since this is a school project, it is very important to have the support of the Principal as well as teachers and parents. Students should also be involved from the beginning, but you probably won't have difficulty finding kids who like to play in the soil. Also try to identify the people who can help. Some volunteers may be experienced local persons. There are plenty of tasks for all kinds of different people, from digging in the soil to maintenance of plants. Obtain the support and official approval for a garden programme from the principal before starting. Find out who is interested in being involved by sending out a flyer announcing a meeting.

With support secured, you can get specific about the garden design. Every garden has certain minimum requirements that must be present in order for it to grow:

Constituting Garden Committee: Begin with a discussion of the garden plan, which includes interested teachers, parents and students. You can constitute a garden committee in the school. When you've organized volunteers into a committee, compile a list of tasks with the name of the person responsible for ensuring that each step is completed. This list might include choosing an appropriate garden site.

Selecting Garden Site: If there is no garden in place, you will need to decide where to build the garden on campus. While various areas have their own character, they should all link together – both physically through the use of paths,

and more subtly through such things as common elements. Those elements include one or more of: plants, materials, colours, or a variety of other possible means. The overall layout of the garden with its network of connecting paths and shaped The selection of garden space is crucial to achieving the goal of creating a cohesive, unified garden. Whether large or small, here are some factors to consider when choosing your garden location:

Visibility: Gardens enhance the beauty of school grounds, so it's important to integrate the garden into the existing landscape without hiding it. Gardens located in central, visible areas are more likely to receive attention and care, as the saying “out of sight, out of mind” applies to gardens that aren’t easily seen.

Water Access: Convenient access to a water source is essential for the garden's success. The water should be from a potable source (since reclaimed water isn’t safe for students). It should also be close by because watering the garden will be an ongoing task. Ideally, the water source should be near the garden to avoid dragging hoses across the schoolyard. Consider different watering methods, such as drip irrigation, overhead watering, or watering cans, and incorporate resource conservation in your planning.

Sunlight Exposure: Most flowers and vegetables require at least six hours of full sunlight each day. It’s important to assess how much sun a potential garden site gets at different times of day and in various seasons. Be mindful of areas that remain shaded, which could be ideal for shade gardens—great for observation and teaching on hot, sunny days. Ensure the site has enough direct sunlight to support healthy plant growth, and keep an eye out for obstructions like nearby trees, buildings, or hills that may cast shade.

Drainage: Choose a site that is not the lowest point on the campus. Observe where water collects after rainfall to avoid those areas. Both the slope and the soil type will affect drainage. Avoid areas with steep slopes or low spots where puddles tend to form. If you must use a low area, you can improve it by adding gravel to raise the ground level or by using raised beds. Ideally, create a raised bed for each classroom involved, or find a way to divide the space to prevent interference between different groups' gardens.

Access to the Garden: The garden should be conveniently located near classrooms to ensure accessibility. A garden that is too far away will make it difficult to involve teachers, while a garden closer to the classroom will encourage greater involvement and frequent visits. Having easy access to the garden is crucial for maintaining student interest. If the garden is difficult to get to, student engagement will decline. A nearby garden is easier to incorporate into the curriculum and provides more opportunities for hands-on learning. It’s also easier to monitor, manage, and maintain. However, it’s important to ensure that the space is safe and secure for students to enjoy and learn in to note that an unfenced garden requires more community involvement to avoid vandalism. For

the early grades, garden beds or planter boxes right outside the classroom work especially well.

Healthy Soil: If you plan an in-ground garden, find out what was previously located on the area you're considering, and beware of potential toxins from prior dumping, asphalt, and herbicides. Also look for signs of life in the soil. Weeds and bugs are good! To confirm that the soil is safe, conduct a soil test (home versions are available at many nurseries or online). You will also need adequate drainage—you don't want flooding or standing water to suffocate your plants. Likewise, if you're planning a container garden, you'll need to purchase or prepare a well-amended potting soil. Have your local nursery or landscape professional advise you on a good soil mix for your area, and avoid all soil and amendments that contain potentially toxic byproducts, such as sewage sludge.

Safe Materials: If you build planter boxes, be sure you use sturdy products that will hold up (recycled plastic lumber or redwood or cedar) and beware of products that leach toxins (no pressure-treated wood or old railroad ties). For containers, there are many great options to consider—be creative and try to reuse or recycle. Old barrels or nursery tree boxes can be great and cheap. But beware of leaching containers (containers lined with tar or treated woods are toxic to plants and people). Avoid areas that have been sprayed with herbicides (sprays that kill weeds). Choose a spot that has a good growth of weeds—this is a good sign that desirable plants will also grow in this soil.

Sufficient Space: Does the site fit your garden plan? Do you have plenty of room for students to work, to walk between plantings, and to sit for group discussions? Do you have space for composting and tool storage? Children need plenty of room to use tools safely, to walk among the plants, and to sit and talk. Gardens are wonderful environments for group discussions. Choose a location to store and secure tools that is close to the garden.

Security: Ensure the garden is situated in a location that deters vandalism and minimizes potential damage from playground activities, dogs, and foot traffic. A fence can help establish a sense of boundaries and security. If possible, position the garden within view of classrooms and neighboring areas. Fences and natural plant borders, as long as they don't obstruct visibility or conceal intruders, can enhance security. When selecting the site, take advantage of existing fences, trees, and hedges to create a more secure environment

Permanence: Will the site remain available for the foreseeable future? Or is your garden design easy to relocate if a permanent site is not available?

Designing and Mapping the Garden: Once the garden site is selected, it's time to design and map the garden itself. This is a great opportunity to heighten students' interest in the project. To design a garden, invite students in each class to participate. Even the youngest children can place cut-out shapes on a piece of paper representing the garden. Students can work as individuals or in teams. Each class should choose a

design or elements that they like best and these should be presented at the garden committee meeting. The final design is a synthesis of all major themes from the different classes. Many ideas may be too outlandish, but a garden is supposed to be fun, so find ways to incorporate as many ideas as possible. This not only creates ownership, but also provides lots of learning opportunities. Mapping the garden provides hands-on opportunities to integrate and apply geography and mathematical skills. Have students accurately measure and record the dimensions of the garden area. Then have them draw a map of the garden to scale. Lay out the main paths in the garden. Establish the boundaries of gardens. Take careful measurements and draw the paths and beds on the garden map. Locate the source of water for the garden. Be sure to include the water source on the map. Use a compass to figure out which direction is north, and show that on the map.

After making all above decisions, the work of establishing garden gets started which involves following steps:

Planting and Maintenance of Garden: Following considerations should be kept in mind while making plantation in the garden. First and foremost thing for plantation is the soil. Soil acts as a support for plants. It also holds nutrients, water, air and helpful organisms (we call these “beneficial microorganisms” because they are so small.) In order to grow the healthiest plants possible, it is important to identify what type of soil you are working with so that you can add the necessary amendments (things like compost that make soil healthy) and fertilizers (vitamins for plants). Soil has four basic ingredients: decomposed rock, organic matter, air and water. Soil particles range in size from big particles (sand) to finer particles (silt) to very fine particles (clay). The amount of each of these determines the texture of the soil. Soil also contains many living microscopic (such as fungi, protozoa and bacteria) and macroscopic plants and animals (such as insects and earthworms). These living organisms contribute organic matter and nutrients to the soil. Another property of soil is called the pH factor. Soil pH describes the amount of soil acidity or alkalinity. You can test soil pH with kits from garden supply stores. Organic compost will always help improve the soil, no matter what the pH level or proportions of sand, silt and clay. However, if your soil is high in salt, stay away from manures.

The single most work-minimizing change is to stop clearing all the dead foliage out of the garden. The dead material ‘composts in place’ and feeds the soil and subsequent years’ plants.

Weeds are worse if you leave the soil bare since that allows light to reach the weed seeds and assist in their germination. Many weed seeds need light to germinate. Shading the soil with plants helps reduce weed problems. In addition to adding more color and interest to the garden, the ‘filler’ plants thus help control

weeds. By keeping plantings dense, the plants also have to compete for light, nutrients and water. Weaker plants will fade away and vigorous ones may be slowed down a bit and/or need dividing less often.

The contrast between the smoother surfaces of the paths and lawn areas and the uneven surfaces of the garden beds in their slumber state is surprisingly interesting and attractive. Ornamental grasses may be grown to give a beautiful look to the garden.

Don't disturb the soil by digging, other than to dig planting holes for new plants. Digging can damage the beneficial fungi in the soil and plants can be unhappy with digging in their root zone. **U**se a mycorrhizal fungus supplement to try to give plants a boost to get them off to a good start.

Go for pruning to control size of plants and/or promote flowering while still allowing the plant to retain its natural shape. An over-riding purpose of pruning is to allow clear passage on all paths.

Watering, weeding, pruning, cutting and using organic fertilizers at appropriate time intervals is the key to success of a garden.

Self-Check Exercise-3:

Q-1: In which country can you find the Villa d'este gardens?

1. France
2. Spain
3. Italy.
4. Greece

Q-2: Where is the world's largest botanical garden?

1. New York City, USA
2. Kew, England
3. Sydney, Australia
4. Colorado, USA.

9.8 Summary

In this lesson, we learned about the campus and campus beautification. Campus beautification is major part of our education because campus is main part of our schools, colleges and other institutions. Only a good campus can attract the attention of fresher student. At the early stages, every one compares the school with his home. A

place better than home or as better as home can captivate the attention of children. In this lesson, we studied about the purpose of establishing gardens in educational institutions and homes. The importance of gardens and gardening in present scenario was also discussed. You were acquainted with various types of themes on the basis of which gardens can be established. Apart from this, we learned about fencing, its types and purposes in this lesson. The steps of establishing gardens were also explained to you in detail in the end of the lesson.

9.9 Glossary

Captivate- Attract and hold the interest and attention of; charm

Mycorrihiza:
Refers to the role of the fungus in the plant's rhizosphere, the plant root system and its s urroundings

Vermiculture: The cultivation of earthworms, especially in order to use them to convert organic waste into fertilizer.

9.10 Answers to Self-Check Exercise

Self-Check exercise-1

Ans-1: True

Self-Check Exercise-2

Ans-1: True

Self-Check exercise-3

Ans-1: Italy

Ans-2: Colorado, USA

9.11 Suggested Readings

American Association of School Administrators. (1951). School Plant Maintenance. Washington, D.C.: American Association of School Administrators.
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9.12 Terminal Questions

- What do mean by campus and campus beautification?
- Prepare a team in your school for the beautification of campus and prepare a report on this work?
- What is fencing? Why there is need of fencing of school lawns?
- Discuss the steps to establish the garden in a school?

Unit-10

CAMPUS BEAUTIFICATION

Types of Flower Beds, Lawn, Playground

Structure:

10.1 LEARNING OBJECTIVES

At the end of this lesson, you will be able to;

- Explain type of flower beds, Lawn and Playgrounds
- Explain the meaning and types of fencing.
- Discuss the ways of beautifying school campus.

10.2 INTRODUCTION

The backbone of the garden is the flower bed. Whether full of annuals or perennials, all in shades of blue and white or a glorious rainbow of colors, flowers delight the senses and add beauty to any yard, big or small. We've gathered a lot of different flower bed ideas to inspire you in creating or sprucing up your own garden, along with a few tips for easy design, planting, and maintenance. Planting and maintaining beautiful flower beds is fairly straightforward, but knowing a handful of valuable tips and tricks will take them to the next level. Here are a handful of helpful things to know: Make sure you start with healthy soil in your flower beds before you begin planting. Add some fertilizer, compost, or other organic matter to bump up the nutrient content in the spring ahead of planting. Keep bloom times in mind when you plant your flower bed—and carefully balance perennials and annuals—to have consistent color all season. Use natural mulch to give the flower bed a finished look and reduce weed growth. It will also help preserve moisture, so you can spend less time and effort watering. Deadhead and trim plants according to their needs to keep the bed looking fresh and promote new growth.

10.3 Type of Flower Beds:

A raised flower bed is a raised mound of soil. This bed is the simplest and cheapest to build but is the least secure and stable when you have kids running around in the garden and is also the most difficult to maintain. To build it, dig out paths between beds (4”-8″ deep) and mound that soil into the bed area. Mix in your soil amendments.

A planter box creates a physical barrier between your garden and the rest of the environment. These beds minimize weeds, keep plants in and kids out of the planting area are easier to work in and maintain, and require minimal ongoing maintenance after construction. You can build the boxes yourself (using recycled plastic lumber or a wood that holds up well to moisture, such as redwood or cedar) or purchase pre-made boxes made of recycled plastic.

Construction of Raised Flower Beds

A well prepared flower bed not only looks good but promotes good drainage, has plenty of nutrients, makes watering and weeding a snap and discourages disease and pests.

1. Plan your beds by drawing them out within the context of a diagram of your yard. How many do you want? How large do you want them to be. How high will the walls be?
2. Calculate how much wood you will need for the beds you want to build.

3. Use a tape measure and flour sprinkled on the ground to mark your beds, making sure to leave adequate room between the beds for a path. Beds should be narrow enough that you can reach the middle from both sides.
4. Rid the beds of plant matter by stripping turf, weeding and moving plant and flowers if necessary.

Size of Flower Beds: Raised beds are generally 18”-20″ wide and 4”-8” high. They can be any length. *Planter boxes* should be no more than 4 feet wide if you want children to be able to work from both sides and 2 feet wide if the box will be accessible on only one side. To preserve the structural integrity, they should be no longer than 8-10 feet. If they are sunk into soil, they should be built at least 10”-12″ high. This allows you to sink the bottom 4”-6″ into the ground to minimize weed encroachment and still have at least 6″ of the box off the ground. Wheelchair-accessible height is 28″. If your beds are placed on pavement, they should be at least 30″ deep in order to prevent the heat of the pavement from overheating the roots and to minimize the loss of moisture.

Prepare the Soil: The better your soil, the better your garden will grow! The gardening saying is that you plant a 25¢ plant in a 75¢ hole. Your soil will sustain your plants, so you want to give them a good start. The dirt should be cleared of weeds, rocks, and debris before you begin and you will want to add soil amendments to improve the soil structure, which will in turn improve water retention and absorption, provide good drainage, and supply important plant nutrients. When choosing what you need, you can use a soil test or consult with a local nursery or landscape professional for recommendations specific to your site geology. Cover the entire bed or box with at least 3-4 inches of amendment and work it down into the soil for about a foot. Soil amendments may be purchased in bags or delivered in bulk by the yard. Another note on preparing your soil: If you use a fertilizer, be careful not to use too much or you can damage tender young plants.

Set up an Irrigation System: Your goal is to make watering easy so it gets done! Providing enough water at the right times is crucial to a successful growing season. Irrigation can be as simple as moving a hose or as complex (and costly) as installing a drip system on an automatic timer that keeps the garden watered during school breaks and weekends. Here are some of your options:

Hose and Nozzle: This system is the most time-consuming and least dependable. It works fine with a container garden but is not the best option for a large in-ground garden. Adult supervision will be needed for younger students to ensure that the plants get enough water. Teaching tip: Dig a small hole in the soil after a watering session to

show students that having water on the surface does not necessarily mean there is enough to feed the roots.

Hose with Sprinkler: A sprinkler attachment on a hose can make it easier to ensure that the water gets to all the plants. Proper location of the sprinkler will be vital.

Soaker Hose: A soaker hose lets water percolate through it into the garden. Unlike sprinklers, which waste significant water due to evaporation, a soaker hose delivers the water directly to the soil. Test the radius of the water seep to be sure the water is going where you need it to go.

Drip Irrigation System: This is the most efficient way to water your plants. Drip tubing brings the water wherever it's needed, and thoughtfully selected heads deliver the water in the proper quantity and location. Local professionals can help you design and install the system. When choosing a timer system, you have several choices. If you have access to electricity in the garden, an electric timer is the most reliable. In places where you do not have electricity, you can use a battery-operated timer or an "egg timer" that is manually turned on for a set time and turns off automatically.

Mulch your Flower Beds: You can minimize water evaporation and weed growth by providing a significant amount (3"-4″) of mulch over your beds. Straw, leaf mulch, or clippings are all good choices. Check with local gardeners to find out what they recommend that is inexpensive and readily available. The walkways between your beds can also be covered with shredded tree mulch, straw, gravel—anything to help keep down weeds and minimize muddy shoes.

After completing all this, the time for planting has arrived. What you plant will depend on the local climate, time of year, and desired growing time to harvest. Your local nursery or an experienced gardener can help you make a plan. Whatever you choose to plant, follow the directions on the seed package or transplant for planting depth and plant spacing.

Self-Check Exercise-1

Q-1: Flowers with both androecium and gynoecium are called

1. Bisexual flowers.
2. Anther
3. Stamens

4. Unisexual flowers

Q2-: The transfer of pollen from the anther to stigma is called

1. Pollination.
2. Fertilization
3. Adoption
4. Diffusion

10.4 Lawns and Playground

The term "lawn", referring to a managed grass space, dates to no earlier than the 16th century. Tied to suburban expansion and the creation of the household aesthetic, The lawn plays a crucial role in the interaction between the natural environment and urban or suburban spaces. It refers to a patch of soil covered with grasses, or occasionally other resilient plants like clover, that are kept at a short height through mowing and are primarily used for aesthetic and recreational purposes. Key characteristics of a lawn include being composed mainly of grass species, undergoing weed and pest control, being maintained for its green color (such as through watering), and being regularly mowed to keep it at a desirable length. Although these features are common, they are not necessarily a strict definition. Lawns are found around homes, apartments, commercial buildings, and offices, and many city parks also feature large lawn areas. In recreational settings, specific terms like turf, pitch, field, or green may be used, depending on the sport and the region.

10.4.1 Essentials of Lawn Making:

1) Surface level: - In the first place, the surface level must be considered and whether irrigation is carried out by means of well, canal, filtered or unfiltered water from a pipe system or if little or no irrigation is possible, it is always advisable to keep the surface about two inches below the general level of garden paths and drives raising the margins by sloping them a few inches to form a neat turf age about 1.5 inches high.
2) Ground level: - Ground level is the first essential thing for the lawn making. It is thorough and adequate ground preparation.
3) Removal of hard substances:- All hard substances, such as old masonry and other refuse which may have been dumped must be entirely removed. Where old and earlier foundations or similar material is encountered it should be removed to a minimum depth of three feet.

4) Trenching: - When trenching is filling of soil is done, then leave the soil to dry for at least a week or more. If possible, then turn the soil again and roughly smooth down the surface and check and see if the mean level is apt and correct throughout the desired area.
5) Soil setting: - The next step is to bring about thorough soil setting by flooding with water. Bank up round the margins to a height of eight inches and, if facilities exists, flood the whole surface to a depth of six inches.
6) Surface building :- After this, proceed very carefully with surface leveling by stretching a string from peg to peg and seeing that the surface is made parallel to it in all directions. This operation needs excessive care and the employment to labour that is trained to this class of work.
7) Trufing: - There are three usual methods of turfing in India. The most commonly used variety of grass is cynodon doctylon. Though there is a large number of the grass but the most of them are unknown to the common people.

10.4.2 Developing Playground

A playground, play park, or play area is a designated space designed for children to engage in play. Although it can be indoors, it is typically located outdoors and may be referred to as a tot lot in certain areas. While playgrounds are primarily designed for children, some are also created for other age.

There are following steps of developing playground:

1. Determining Needs.
2. Selecting the Site: Location with regard to distractions to classrooms, accessibilities, drainage, shade and land contour and consistency need to be considered.
3. Design of the Playground

Self-Check Exercise-2:

Q-1: Common characteristics of lawn are that-

1. It is composed of Grass species only.
2. No Grass species
3. Only soil without grass
4. None of the above

10.5 Fencing of Campus

Fences are designed to clearly define borders and boundaries or to prevent access through or along the fence line, or both. Fences used to control access should be difficult to cut, crawl under or climb. Fencing plays an important part in gardens, either as integrated part of formal layout or as screens to hide unsightly features of garden such as utility plots, out building, even the swimming pool and barren tracts etc. To prevent access by cutting or climbing in a campus environment, it is best to use fence materials that are tubular metal and welded wire. Blunt cut top projections discourage climbing, and mini-mesh chain link (with openings less than 1 inch) can be used effectively in heights over 10 feet. Conventional chain link is the least desirable type of fence material.

10.5.1 Types of Fencing

There are two types of fencing:-

1) Biotic fencing
2) Abiotic fencing

1) Biotic fencing:- means natural and include;

a) Shrubs

b) Climbers

c) Hedges etc.

2) **Abiotic fencing :-** Means man made and include;

a) Concrete

b) Iron bars

c) Bricks, stones etc.

d) Compound walls

10.5.2 Need of Fencing

Fencing is needed for the following purposes:

1) Demarcation
2) Security
3) Partitions
4) Privacy
5) Beautification

Self-Check exercise-3:

Q-1: Mainly the types of fencing are-

1. 3

2. 4
3. 5
4. 2

Q-2: Fences used to control access should be difficult to cut, crawl under or climb.

True/False

10.6 Summary

Flower beds have endless design opportunities, which can be exciting but also overwhelming when you consider how many ways there are to fill them. Whether you're hoping to complete an existing bed or design an empty one, creating a beautiful flower bed starts by considering what you want out of the space. Do you dream of pollinators fluttering around your landscape? Do you want cut flowers for homegrown bouquets? Or maybe you want to plant for four seasons of colors. To help you nail down your vision, we're sharing our favorite flower bed ideas that will inspire your own garden design. A lawn is an area of soil-covered land planted with grasses or (rarely) other durable plants such as clover which are maintained at a short height with a lawnmower and used for aesthetic and recreational purposes. Fences are designed to clearly define borders and boundaries or to prevent access through or along the fence line, or both. Fences used to control access should be difficult to cut, crawl under or climb.

10.7 Glossary

Pollinator: An insect or other agent that conveys pollen to a plant and so allows fertilization.

Overwhelming: Very great in amount

Bouquet: An attractively arranged bunch of flowers, especially one presented as a gift or carried at a ceremony.

10.8 Answers to Self-Check Exercise

Self-Check Exercise-1

Ans-1: Bisexual flowers

Ans-2: Pollination

Self-Check Exercise-2

Ans-1: It is composed of Grass species only.

Self-Check exercise-3

Ans-1: 2

Ans-2: True

10.9 References and Suggested Readings

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10.10 Terminal Questions:

- What is fencing? Why there is need of fencing of school lawns?
- Discuss the steps to establish the garden in a school?
- How will you beautify your school campus?
- In your school, you wish to establish a school garden? Keeping the availability of resources in your school, what steps will you adopt to establish a garden?

Unit-11

LIBRARY ORGANIZATION

Structure:

11.1 Learning Objectives

After going through this lesson, you should be able to:

- Explain the meaning of library.
- Discuss the organization and administration of school library.
- Explain the meaning and functions of classification and cataloguing of library sources.

- Discuss reader or reference services.
- Explain the meaning and advantages of reference work.
- Discuss the selection and use of periodicals.
- Explain library management system.

11.2 Introduction

Library is an important organ of any educational institution. An educational institution without library cannot flourish in a better way. A well-documented and enriched library adds quality to the education being imparted in the institution. In this lesson, we will learn about the concept of school library and how a library can be established in the educational institutions. We will study about various services offered by the library and how different library sources should be selected and used by the readers.

11.3 Meaning of Library

A library is often considered the heart of an institution, as it plays a vital role in the development of both the institution and its users, particularly students. It can be defined as a space, either a room or a building, where books are stored and referenced. Libraries serve as hubs of diverse activities related to book management. They typically offer quiet areas for individual study as well as spaces for group work and collaboration. Many libraries also provide public access to electronic resources and the internet. In modern times, libraries are evolving into places where people can access information in various formats and from multiple sources. A library acts as a repository of knowledge, containing collections of books, both reference and general, technical reports, periodicals, journals, conference proceedings, and other materials. Knowledge and truth can be acquired from these resources. Information within these collections may be recorded on microfilms, audiotapes, microchips, and other media traditionally housed in libraries. Libraries are responsible for acquiring, organizing, maintaining, and circulating books and other materials efficiently for the benefit of their users.

Organization and Administration of School Library

In larger organizations, library management involves organizing tasks, forming logical units of work, establishing hierarchical structures, identifying staffing needs, assigning responsibilities, and coordinating the necessary resources, including human, financial, physical, and informational assets, to achieve the library's goals. Library administration is the process of effectively utilizing these resources to meet objectives within the framework of the organization. While library organization and administration are closely linked, there is a subtle distinction: organization is the initial setup, while administration ensures that the organization’s goals are achieved. In adult education settings, where libraries are typically small and managed on a part-time basis by staff, less emphasis is placed on organization. In these settings, staff members often handle multiple tasks such as administration, technical functions, service support, and library

maintenance. For better efficiency, it may be beneficial for libraries to outsource certain maintenance tasks, including stack maintenance, catalog card upkeep, photocopying services, stock verification, and security.

It may also consider outsourcing classification and cataloguing operations if circumstances so warrant. The libraries in adult education set ups need to undertake planning activities such as strategic planning (i.e. identifying library goals, objectives, methods, resources needed to carry out methods, responsibilities and dates for completion of tasks), budget planning (for document collections, library equipments, library furniture, library stationery, media library equipments, if planning for a multi-media library), and library promotion planning. These are not perennial activities and are required to be undertaken once in year. The extent of budget planning activities would depend upon the size of adult education programmes, network linkages, and staff deployed within the organization, etc. It is a good practice to undertake budget planning exercise in consultation with the Library Advisory Committee for developing collections, library equipments, library furniture, media equipments, etc. It is also a good practice to formulate library plans for promoting and popularizing library services.

Self-Check Exercise-2

Q-2: Fill in the blanks:

Library organization and library administration are closely related to …….

11.5 Classification and Cataloguing

A library classification is a system by which library materials are arranged according to subject. Library classifications use a notational system that represents the order of topics in the classification and allows items to be stored in that order. Library classification systems organize related materials, usually in a hierarchical tree structure. Another type of system, known as the affected classification system, is also commonly used, allowing multiple classifications to be assigned to an item, which enables different organizational arrangements. Library classification numbers serve as identifiers for resources, but they are distinct from the International Standard Book Number (ISBN) or International Standard Serial Number (ISSN), which are unique identifiers for commercial products. Several classification systems are in use today, including the Dewey Decimal Classification (DDC), the Colon Classification (CC), and the Universal Decimal Classification (UDC).

Cataloging (or cataloguing) is the process of creating metadata for information resources such as books, sound recordings, and videos. It involves recording details like creator names, titles, and subject terms that describe these resources, typically through the creation of bibliographic records. Both classification and cataloging serve the purpose of organizing library materials in a way that makes retrieval easy for users.

Without organization, library collections become ineffective and unhelpful. Cataloging and classification are essential for ensuring materials are easy to locate.

According to Harrods (1990), cataloging is defined as the process of compiling a list of documents or materials, following a set of rules, to help users know which collections are available and where to find them. Classification, on the other hand, groups all books on the same subject in one location. Together, cataloging and classification serve as indexes for all library collections, facilitating easy access and retrieval of materials.

Adedibu et al. (2009) outlined several goals for organizing library materials, including:

- Making it easy to locate materials
- Saving time and space
- Ensuring materials are easily accessible
- Enhancing the effective use of materials
- Making the library more attractive to users

In the past, cataloging and classification were done manually, which was time-consuming and tedious. However, many university libraries in Nigeria, along with those in more developed countries, have transitioned to computerized cataloging and classification. This has made the processing of library collections more accurate, faster, and more efficient.

Cataloging involves three main steps: allocating access points, subject headings, and classification numbers. The first step is descriptive cataloging, which includes assigning access points to the document. This involves documenting key elements such as the author, title, pagination, publisher, place of publication, edition, and series note. Various codes or rules are used to denote a document in the catalog.

The second step in cataloging is assigning a subject to the document. To determine the subject, the cataloger must examine the document closely to understand its intellectual or subject content. Information can be gleaned from the title, subtitle, cover, jacket description, contents page, references, and existing catalog records. Key concepts that best describe the document should be identified, focusing on terms users are likely to search for. Finally, a tool called "Subject Headings" is used to find appropriate, uniform headings, applying controlled vocabulary, alphabetical order, and cross-referencing related terms.

Self-Check Exercise-3

Q-1 ISBN stands for:

1. International Standard Book Number
2. International Standard Serial Number

3. Both of the above
4. None of the above

11.6 Reader Services or Reference Services

Libraries serve three key functions: acquiring information, organizing it for easy retrieval, and disseminating the information they have gathered. Reference services are responsible for the third function. While the specifics of reference services may differ across libraries, most offer an information or reference desk where librarians are available to assist. Additionally, many libraries provide reference services over the phone, and in some cases, you can email your inquiry to a librarian who will respond with an answer.

There are three primary types of reference assistance:

- **Guidance on using the library**, including help with locating materials, navigating the catalog, using computers to access information, and utilizing basic reference sources.
- **Assistance in identifying relevant library materials** to answer specific questions.
- **Providing brief, factual responses** to questions such as addresses, statistics, phone numbers, etc. that can be quickly located.

Self-Check Exercise-4

Q-1: There is an information or Reference Desk in the library for assistance. True/False

11.7 Reference Work and Reference Sources

A reference work is a book or periodical (or its electronic equivalent) to which one can refer for confirmed facts. Reference works are usually referred to for particular pieces of information, rather than read beginning to end. The writing style used in these works is informative; the authors avoid use of the first person, and emphasize facts. Many reference works are compiled by a team of contributors whose work is coordinated by one or more editors rather than by an individual author. The Library has many general and subject-specific reference books such as dictionaries, encyclopedias and year books. Each campus library has a general reference section for dictionaries etc, and you will also find a reference section within each subject area. In simple words,

books and other works that contain useful facts and information, such as dictionaries, encyclopedias, and bibliographies. These are called as reference sources.

Reference sources such as dictionaries, encyclopedias, almanacs, atlases, etc. are research tools that can help you with your paper or project. Reference sources provide answers to specific questions, such as brief facts, statistics, and technical instructions; provide background information; or direct you to additional information sources. In most libraries, reference sources do not circulate and are located in a separate reference collection. This practice makes reference sources readily available and easily accessible. Reference sources are designed to be consulted rather than read through. Their design is generally dependent on the type of information and treatment provided. Reference materials can be arranged alphabetically, topically, or chronologically. Many will contain cross listed information and more than one index. If it is not obvious how a reference source is organized, take a moment to look through the explanatory or how-to-use information, which is usually presented at the beginning of the book, or in HELP screens for online products. There are thousands of reference sources available that cover practically every subject. Although the term reference "book" is frequently used, reference sources can be books, serials, on-line databases or the Internet. A large part of using reference sources well is choosing the right one.

11.7.1 Advantages of Reference Work

- Thorough overview of a topic
- Quality checked by publisher
- Usually well-researched
- Include references to other sources you can use
- A collection of articles relating to a particular topic
- Indicate areas of professional interest
- Up to date coverage of news and opinion
- Opportunity for communities to engage
- Quick access to information

Self-Check Exercise-5

Q-1: The writing style used in reference works is-

1. Informative
2. Summative
3. Both of these
4. None of these

11.8 Issue Work

The issue system was invented by the Boston library bureau chief Ms. Naina E. Browne. The following material is used in the Issue system:-

1) For the readers: The following material is used for readers;
   a) Reader's Card:- this card of 3"X2" and contains the following information

Membership Number Last Date
Name
Address
Reader's Ticket
Non transferable

   b) An account is maintained for the registered readers. This is filled in by the members at the time of taking the library membership.

2) For the book: The following material is required for a book:
   For every book a card is maintained. This card is 4" X 2" and has the following information:-

Reference number	Collection number
Writer	
Index	

11.9 Periodicals and their Selection

Periodical is a published work that appears in a new edition on a regular schedule. The most familiar counter-examples are the newspaper, often published daily, or weekly. The most familiar example is the magazine, typically published weekly, monthly, or as a quarterly. Other examples are newsletters, literary magazines(literary journals), academic journals (including scientific journals), science magazines, and yearbooks.

The primary purpose of a periodicals collection development policy is to establish guidelines for the identification, selection, and continuation of periodicals in accordance with the intellectual and informational needs of the Library's constituency. Needs must be determined, then titles must be chosen and retained in accordance with ascertained needs and within the context of prevailing feasibility levels. Many periodicals are written for a general audience whose readers are not expected to have specialized knowledge or training. We usually call these periodicals magazines. However, probably even more periodicals are written for specialists and have articles that are difficult for readers who lack that background. These periodicals, written for a scholarly audience, are called journals.

Selection of Periodicals should be done in accordance with the relevance to the actual or potential needs of the institution. Selectors must gauge each acquisition in terms of the breadth and depth of information needed by their primary user groups and quality of the material being presented. Overall, however, library materials selectors comprehensively collect important general monographs related to the readers' interests. Similarly, for periodicals, preference is given to titles whose coverage is of sufficient breadth to be of use and interest to an entire department, while those of interest to a small number of individuals, are collected selectively. When considering the purchase of a new title, a selector must also consider the strengths and weaknesses of the existing collection in which the new title will be located. While we do generally build upon strengths, unneeded redundancy is avoided. We do purchase duplicates where high use is expected. The quality of a title must be evaluated weighing several subjective factors collectively, i.e., its sponsorship; scholarship; level of creativity; lasting value; the reputation of the author, the publisher, the contributors, the editorial board; the quality and importance of the illustrations; bibliographies included, etc. None of these is the deciding factor alone but each are considered as they contribute to or detract from the overall quality of the item under consideration.

11.9.1 Uses of Periodicals

Timeliness: The chief advantage that magazines have over books is time. Information comes out more quickly in periodicals than it can in books. Often times, an article that will eventually appear in book form, originally appears in an article in a magazine or journal. Some disciplines, especially the science and technology fields such as engineering, rely very heavily on periodicals for the latest developments in their rapidly changing fields.

Original sources*:* Results of original research are often printed in periodicals first. Reviews of new books, works of art and performances often only appear in periodicals. Often the information contained in a periodical article will never appear elsewhere, either in a book or other work.

Ease of use*:* Periodicals can often provide good summary information on a field. For a short research paper, information from articles may be easier to manage than a lengthy book. Consider how in-depth you want your information to be.

Self-Check Exercise-6

Ans-1: Which is not the example of periodicals?

1. Magazine,

2. News Letters

3. Academic journals

4. Text Books

11.10 Library Management System:

Library management system (LMS) supports the general requirement of the library like acquisition, cataloguing, circulation. It offers many flexible and convenient features, allowing librarians and library users to maximize time and efficiency. Library System gives the all detailed information about students, staff and books. It will track on the how many books available in library and books issued to the students. It shows popular book among the students. It will provide book lost in library. It keeps the record of the suppliers and book binders. It generates MIS reports for management. Our software is customizable for any library requirement.

Features of library management system are as follows:

1. Only basic knowledge of computers is required for operation of Library Management System. As it has user-friendly application interface.
2. Library Management System is Customizable and User Configurable.
3. An inbuilt Settings module makes Library Management System flexibility to cater to diverse organizational needs.
4. Library Management System brings information to the user's desktop through integration across all modules.
5. Library Management System has pre-defined reports. These are used for normal reporting as well as Administration & Staff development purpose. Additionally, Library Management System can be easily customized for their own customized reports.
6. Staff as well as student record is maintained
7. Newspapers attendance is maintained
8. Automatic fine fees calculation
9. Keeps record of supplier's and binder's
10. Customized Report designing
11. Configurable as per user's requirements

Self-Check Exercise-7

Q-1: Who is known as the father of library science in India?

1. K.M. Sharma
2. R.N. Tagore
3. B.K. Singh
4. S.R. Ranganathan

11.11 Summary

In this lesson, we learned about the meaning of school library, its organization and functions. A library is organized for use and maintained by a public body, an institution, a corporation, or a private individual. In addition to providing materials, libraries also provide the services of librarians who are experts at finding and organizing information and at interpreting information needs. In this lesson, we studied about various services provided in the library and how a library can be established in the school.

11.12 Glossary

Parameters: A numerical or other measurable factor forming one of a set that defines a system or sets the conditions of its operation

Customizable: Able to be modified to suit a particular individual or task

Cataloguing: Cataloguing is the present participle of catalogue, which means to record something, especially in a list. Learn more about the verb catalogue and see examples of cataloguing in different contexts.

11.13 Answers to Self-Check Exercise

Self-Check Exercise-1

Ans-1: A room or building where books are kept and referenced.

Self-Check Exercise-2

Ans-1: Each other

Self-Check Exercise-3

Ans-1: Both of the above

Self-Check Exercise-4

Ans-1: True

Self-Check Exercise-5

Ans-1: Informative

Self-Check Exercise-6

Ans-1: Text Books

Self-Check Exercise-7

Ans-1: S.R. Ranganathan

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11.15 Terminal Questions

- What do you mean by library? What are its functions?
- Explain the meaning of classification and cataloguing of library sources.
- What are reference services in a library?
- Why there is need of maintaining a library in the school?
- What things will you keep in mind while selecting periodicals and books for your school library?
- What are the uses of periodicals?

Unit-12

FIRST AID IN HOME AND SCHOOL

Structure:

12.1 LEARNING OBJECTIVES

At the end of this lesson, you will be able to;

1. Explain the meaning and importance of first aid.
2. Describe the objectives of providing first aid.
3. List down the principles of first aid.
4. Explain major health hazards at home and its safety precautions.
5. Explain major health hazards in school and its safety precautions.
6. Discuss major school health services.
7. List down the constituents of first aid box.
8. Explain safety precautions and first aid treatment in science laboratories in schools.

12.2 INTRODUCTION

School, teachers and parents play key role in upbringing of children by providing school health service, routine check-up, immunization, free medication, nutrition, etc. parents and teachers prepare the children against health hazards in home and school, with the provision of first aid in different emergencies and accidents like drowning, cuts, bites, fainting, burns etc. This lesson is an effort in this regard to make you understand about meaning, importance, objectives and principles of providing first aid in case of emergency situations. We will also learn about major health hazards at home and school and what precautions can be observed in such circumstances. The lesson will also throw light on safety precautions which should be observed while working in science laboratories in schools and what first aid treatment can be given in case of accidents in science laboratories.

12.3 MEANING OF FIRST AID

First aid is the assistance given to any person suffering a sudden illness or injury, with care provided to preserve life, prevent the condition from worsening, and/or promote recovery. It includes initial intervention in a serious condition prior to professional medical help being available, such as performing CPR while awaiting an ambulance, as well as the complete treatment of minor conditions, such as applying a plaster to a cut. First aid is generally performed by the layperson, with many people trained in providing basic levels of first aid, and others willing to do so from acquired knowledge. Mental health first aid is an extension of the concept of first aid to cover mental health.

12.3.1 Objectives of Providing First Aid

Everybody should know how to administer first aid as it is one of the most critical and useful skills we can ever have. After all, common situations like a child falling down

would just entail a mother cleaning up the wound and applying a band-aid. But these are just the very basic first aid techniques that everyone knows how to do. Health institutions have pointed out three objectives for administering first aid – to save a life, to minimize injuries and to hasten healing.

1. The basic goal for giving first aid is to save a life. There are situations when a doctor or health personnel is not around. Every second counts in these circumstances and it might be up to you to help save someone's life. Air is the basic element that we need to stay alive. When someone is chocking or is unconscious, it's hard for them to breathe freely. In these situations, the person administering first aid will use different techniques to clear the air passage. Some of these techniques are applying pressure on the abdomen or hitting the patient's back to remove the cause of air obstruction. If the patient still can't breathe even after the airway's cleared, cardiopulmonary resuscitation or CPR is then performed. The emergency responder gives mouth-to-mouth resuscitation and massages the patient's chest to help blood flow return to normal.

2. Minimizing or preventing more injuries to happen is the second goal of providing first aid. This can be as simple as moving the patient away from the area or covering a victim with a blanket. Bandaging a wound or trying to control bleeding by applying pressure on a wound is actually another simple act that's already a form of first aid.

3. Lastly, starting the healing process is one of the objectives of administering first aid. One common example of this goal is treating an injury by putting a band-aid on a small scratch. People with first aid training know what to do in different situations, from a minor cut to a bone fracture, and they know how critical it is to provide treatment until the medical personnel arrive.

12.3.2 The Importance of First Aid

Unpleasant though it may be, the fact remains that accidents happen. Even experiencing it as a bystander, an accident is not a pleasant scene. If an accident happens in the workplace, you cannot be a helpless witness, since simply standing by can potentially worsen the situation. This is why it's important to have at least a basic knowledge of first aid. At its most basic, first aid is the initial assistance given to a victim of injury or illness. Comprised of relatively simple techniques that can be performed with rudimentary equipment, first aid is usually carried out by a layperson until professional medical assistance arrives. The importance of first aid is hard to overestimate. Among the major benefits of first aid are the following:

1. **It affords people with the ability to provide help during various emergency situations.** If someone ingests hazardous substances, or suffers health-related issues like a heart attack, or if a natural disaster occurs, a person knowledgeable

in first aid becomes more than just another bystander. Instead, they become an invaluable support not only to victims, but also to professional emergency responders and medical practitioners.

2. **First aid helps ensure that the right methods of administering medical assistance are provided.** Knowing how to help a person is just as important in emergency situations. It only takes six minutes for the human brain to expire due to lack of oxygen. As such, ineptitude and misinformation will not be of much help to a person in need of medical assistance.

3. **Knowledge in first aid also benefits the individuals themselves.** Whether the emergency affects themselves directly, or involves people they live and work with, first aid stems the severity of an emergency in a given time and place.

4. The right first aid equipment help ensure better safety for everyone. Without the proper first aid, a simple injury could turn into something much more severe. Many fatalities resulting from accidents and emergency situations result from lack of immediate medical treatment. First aid doesn't just facilitate recovery. It helps save lives.

12.3.3 Principles of First Aid

- ❖ Do not panic.
- ❖ Survey the scene and determine if it is safe to work in.
- ❖ Do a primary survey of the victim called the ABC i.e. the air way open, the victim breathing, there severe cut and bleeding.
- ❖ Do not crowd around the injured person.
- ❖ When the injury is serious also call for the doctor.
- ❖ Let the fresh air come in.
- ❖ Do not remove clothes unnecessarily.

Self-Check Exercise-1

Q-1 Is first aid is the assistance given to any person suffering sudden illness or injury?

Yes/No

Q-2 The C.P.R. stands for-

1. Cardiopulmonary resuscitation
2. Cardiopulmonary resuscitate
3. Both of the above
4. None of the above

12.4 HEALTH HAZARDS AT HOME

Keeping our child safe is our top priority. For their safety parents, teachers and the community have a specific rule to play. Health hazards can take place anytime anywhere without any warning .Major and minor accidents can be easily prevented by taking some precautions in any situation. Home is the place where children spend most of their time after coming back from school. Accidents may be the same as school like fall, fire, electric shocks but sometimes swallowing some bright objects like buttons, coins etc. and poisoning.

(A) Fall: Falls are the most common kind of accidents at home. Children fall due to uneasy stairs, objects lying on the floors, spilled water or liquid, darkness on the doorways or the stair cases. To avoid these accidents following measure should be taken:

- Floors and stairs should be in good condition.
- Objects like balls, shoes, toys etc. should be picked up and put at the right place instead of left on the floor.
- Liquids like soap, Greece, spilled water, oil should be cleaned up as quickly as possible.
- Stairs should have easy and small steps.
- There should be proper light arrangements in the corridors and stairs.

(B) Fire: Accidents by fire mostly take place in the kitchen and cause serious injuries and sometimes a person dies due to burns. This happens due to gas leakage, spilled kerosene oil, stove blast, gas cylinder blast. To avoid such accidents we should take the following measures:

- When kerosene oil is spilled it should be cleaned quickly.
- When a gas leakage is suspected/ sensed, no match stick should be lighted and no electric switch should be turned on.
- Windows should be kept open to let the gas go out and let the fresh air come in.
- Always turn off the gas when not in use.
- Gas cylinder installation should be inspected time to time.
- Do not pump the kerosene stove to full extent.
- Gas pipe should be checked regularly.

- Do not wear nylon clothes while cooking.

(C) Electric Shock: Many fires also occur due to faulty electric wiring. In our house there are many electric items such as Toasters, Lamps, Kettles, Coolers, Refrigerators etc. If they are defective or not used carefully, they can be very dangerous. They can cause fire or give severe electric shock. To avoid such electric shocks following measures should be taken:

- Never touch any electric appliances with wet hands or bare footed.
- Never unplug an appliance by pulling on the cord.
- Do not go near electric appliance when in use.
- An electric wire should not be overloaded.
- Electric wiring should be installed and maintained by qualified electricians.
- Grown up children should know how to switch off main circuits in case of any emergency.
- Never play with electrical appliances.

(D) Poisoning: Poisoning among children is also a common kind of accident at home. Small children sometimes unknowingly consume detergents or disinfectants which prove to be very harmful for them and can cause sudden death. To avoid them the following measures should be taken:

- Household detergents and disinfectants such as liquid soaps, phenyls, acids, ammonia and dye should be kept away from the reach of children.
- All medicines should be marked and labelled and stored out of the reach of children.
- Contaminated and spoiled/rotten food should be thrown out as it can cause food poisoning.

Self-Check Exercise-2

Q-1: Health hazards can take place anytime anywhere without any warning. True/False

12.5 HEALTH HAZARDS IN SCHOOLS

School is the place where children play more freely before the morning assembly, lunch break and sometimes in the classroom. Safety measures in school are very important. Some of the major and minor accidents caused in school are falls, fire, electric shocks etc. but there are few other accidents in which school authorities have to be more careful as in stamped and natural disasters and should have proper arrangements.

(A) Fall: The most common kind of accidents that happen in school is due to fall. Children fall from desks in the classrooms while playing when teacher is not around, fall from staircases, and fall in lunch break. Keep the fainted child flat with head low. Loosen tight clothing, allow fresh air, splash cold water on face, give ammonium carbonate or crushed onion to inhale. On recovery, give tea. To avoid falls following steps should be taken:-

- The stairs should have small steps.
- Firm railing on the sides of stairs.
- Students should not push anyone in the stairs.
- Volunteers should be appointed during lunch break.
- Ramps for children with special needs.
- Teacher should appoint a monitor before leaving a classroom.

(B) Fire: Fire is the biggest danger at school. It can occur due to gas leakage (in home science labs, science labs) or short circuit and can cause serious injury and sometimes death. If the clothes catch fire, rap the flames by blanket rug. Give plenty of fluid from mouth as tea or coffee. Do not apply water. Do not break the blisters. Cover the burnt part with an antiseptic cream like burnol. Do not allow the child to run in panic. To avoid Fire Accidents in schools following measures should be taken by school authorities:

- To ensure that the fire escapes, stairs and wiring are in good conditions.
- Fire extinguishers must be kept at proper places in the school building.
- Fire Mock Drills should be practiced time to time in school.
- Teacher and other staff should be trained to use fire extinguishers.
- Students should be told not to panic.
- They should be given practice to move quickly and quietly to the exits.
- Smoke detectors should be installed in schools.
- Important phone numbers should be written on the flex boards.

(C) Electric Shock: Sometimes in schools accidents may occur due to short circuit or inadequate electrical wiring. In such cases, remove the electric contact at once by switching of the current. If need be, stand on dry wood and drag the child away with one hand which is covered by dry cloth. Start artificial respiration before doctor arrives. To avoid this, following measures should be taken:

- All electrical wiring should be installed and maintained by a qualified licensed electrician.
- An electrician should be appointed in the school hours by the school authorities.
- Students should be told regularly not to touch electrical wiring in any case specially if hands are wet.
- Shock Protectors Circuit Breakers should be installed in the schools.

(D) Stampede: Stampede takes place in schools in lunch breaks, leaving for home, getting into the bus and sometimes due to panic. To avoid this following measure should be taken:

- A flex board with safety rules should be displayed on the walls of school.
- Students should be told not to push others especially on the stairs.
- Junior classes should be on the ground floor.
- Teachers should accompany the class in the afternoon.

(E) Injuries in Playground: After entering the school premises playgrounds are very important for children. Many accidents occur in the playground like falling for swings, got hurt by some swings, getting fractured, injured by some pointed objects. If there is cut, bleeding or scrape, apply a little tincture iodine or spirit and put a clean piece of gauze over it. If the cut is deep cover it with a sterilized dressing and bandage. In capillary bleeding, cover the wound with gauze and bandage tightly. In artery bleeding apply pressure with your thumbs on the bleeding spots at the upper part of the artery. In vein bleeding, raise the injured part above the level of the heart and press over the part of the vein distal to the wound. In the case of bleeding from nose throw the head backwards, allow breathing by mouth and keep an ice bag on the Childs nose. To avoid play field injuries children should obey the following playground rules:

- Do not push anybody in the playground.
- Do not play rough games.
- Keep away from swings when they are in use.
- Never jump from a See-Saw without warning your partner.
- Do not carry sticks or pointed objects while running or playing on the ground.
- Do not play near thorny hedges or barbed wires.
- Above all to watch the children playing safely, Class Teacher should accompany the class.

(F) Natural Disasters: There is no way to know in advance when an earthquake might occur. It can happen during school hours. The following measure should be followed:

- Filling the slightest of tremors come out of the class rooms and gather in the ground.
- If trapped under a falling class, take shelter under a table or desk.
- Do not panic.
- School authority should arrange for medical help and first aid.

Self-Check Exercise-3

Q-1 Vibration and radiations come under-

1. Chemical Hazards

2. Physical Hazards

3. Electrical hazards

4. Psychological Hazards

12.6 SCHOOL HEALTH SERVICES

For several years the link between health and education has increased with understanding that a child must be healthy to learn and a child must learn to be healthy. In this aspect, School Health Service programs are introduced in schools, where children spent their working days. This clearly indicates that such type of programmes starting at the root level will give better results.

Some of the health related programmes are covered by way of providing the following health services:

Physical check-up - Physical check up is done regularly by team of doctors for some common problems like cold, cough, warms etc. They visit schools and check eyes, ears tongue and some common problems like cough and cold.

Comprehensive health assessment - It is done monthly by measuring height and weight of the child.

Immunization - It is done every year to prevent children from common diseases like diphtheria, tetanus etc.

Free medication - It is a regular practice. Children are given tablets for worms, anaemia, calcium, and general body weakness.

Nutrition counselling - Children having any type of deficiency are given proper medication and nutrition guidance.

Dental check-up - Children are given tips about caring and cleaning teeth. Children having cavity or any other dental problem are given proper treatment.

Eye check-up - It is done regularly and individually in schools. Many children have problems while reading book or black board. Children with low vision are provided visual aids.

Distribution of aids - Children having hearing problem are given proper guidance, medication and hearing aids. Children with special need are provided walkers and other orthopaedic aids.

Record keeping: Separate record is maintained for every child under school health service stating height, weight, blood group etc. duly signed by the parents, teacher and principal.

School clinic: Every school should prepare one room as school clinic to look after the health of the children, to arrange for medical examination, to guide them to adopt preventive measures against various diseases and to provide treatment of minor elements. In case any teacher finds a student not keeping well, should send him to the school clinic and ensure that satisfactory treatment is carried out. The students should be advised not to hesitate but report in the school clinic if they feel any trouble. Telephone number of the nearest dispensary and hospital should be displayed on the flex boards in the school.

12.6.1 First Aid Box and Its Constituents:

In case somebody gets injured by an accident we cannot reach the doctor at once. Sometimes some minor injuries may not require treatment after first aid. Hence, it is the duty of the school to keep a first aid box. This box should be approachable and contain following articles:

- ✓ Dressings and bandages.
- ✓ Roll of adhesive tape
- ✓ Elastic bandage for wrapping wrist, elbow, ankle and knee injuries (3 to 4 inches wide)
- ✓ Sterile cotton balls and cotton-tipped swabs
- ✓ 2 pair latex or non-latex gloves (These should be worn any time you may be at risk of contact with blood or body fluid of any type.)
- ✓ Instant cold pack
- ✓ 5 safety pins to easily fasten splints and bandages

- ✓ Turkey baster or other suction device to flush out wounds
- ✓ Aluminum finger splint
- ✓ Syringe and medicine spoon for giving specific doses of medicine
- ✓ Thermometer
- ✓ Tweezers to remove ticks, insect stingers and small splinters
- ✓ Scissors for cutting gauze
- ✓ Breathing barrier for giving CPR
- ✓ Blanket
- ✓ Hand sanitizer (liquid and/or wipes)
- ✓ First aid manual
- ✓ List of emergency numbers
- ✓ Antiseptic solution or wipes, such as burnol, hydrogen peroxide, povidone-iodine (one brand name: Betadine) or chlorhexidine
- ✓ Antibiotic ointment (brand names: Neosporin, Bactroban) that contain ingredients such as bacitracin or mupirocin
- ✓ Sterile eyewash or saline, such as contact lens saline solution
- ✓ Calamine lotion for stings or poison ivy
- ✓ Hydrocortisone cream, ointment or lotion for itching
- ✓ Pain and fever medicines, such as aspirin, acetaminophen (one brand name: Tylenol) or ibuprofen (brand names: Advil, Motrin). (Note: Do not give children and teenagers aspirin, because it has been related to a potentially serious disease called Reye's syndrome in children younger than 18 years of age.)
- ✓ Antihistamine (one brand name: Benadryl) to treat allergies and swelling
- ✓ Decongestants to treat nasal congestion
- ✓ Anti-nausea medicine to treat motion sickness and other types of nausea
- ✓ Anti-diarrhea medicine
- ✓ Antacid to treat upset stomach
- ✓ Laxative to treat constipation

Self-Check Exercise-4

Q-1 Which is biological hazard?

1. Virus

2. Fatigue

3. Alcoholism

4. Old Age

12.7 SAFETY PRECAUTIONS IN SCIENCE LABORATORIES IN SCHOOLS

Safety is an important aspect of any scientific laboratory. Every science laboratory must have a formal safety programme to ensure a safe and healthy working environment. Safety should be the code of practice and it involves discipline in addressing the safe handling and containment of various hazardous materials in a laboratory. It is the responsibility of the laboratory workers to understand and adopt good laboratory practices to achieve a healthy working environment. Hazards in a science laboratory can be broadly classified into chemical hazards, electrical hazards, fire hazards & biohazards. Fire in the laboratory may occur due to spirit lamps, electrical appliances or other inflammable reagents used in a laboratory. All laboratories should have a fire extinguisher, and easy access to safety showers and fire blankets. For putting off the flames from the inflammable liquids, smoothen the fire by throwing sand over it. Some precautions while working in the laboratory are given below:

- Never perform mouth pipetting and never blow out pipettes that contain potentially infectious material.
- Barrier protections such as gloves, masks, and protective eye wear and gowns are to be worn.
- Wash hands whenever gloves are changed .Facial barrier protection should be used if there is a significant potential for the spattering of blood or body fluids.
- Dispose off needles in rigid containers; use the "one-handed” technique.
- Dispose of all sharps appropriately.
- Encourage frequent hand washing in the laboratory; employees must wash their hands whenever they leave the laboratory.
- Make a habit of keeping hands away from your mouth, nose, eyes, and any other mucous membranes. This reduces the possibility of self inoculation.
- Decontaminate all surfaces and reusable devices after use with appropriate hospital disinfectants.
- Use proper biohazard disposal techniques (e.g., Red Bag) .
- Never leave a discarded tube or infected material unattended or unlabeled.

- Periodically clean out freezer and dry-ice chests to remove broken ampules and tubes of biological specimens.

12.7.1 First Aid in Science Laboratories

1. *Injuries caused by broken glass:* Wash the wound immediately to remove any glass pieces. Apply mercurochrome or acriflavine ointment to the wound. Cover with gauze and adhesive tape.
2. *Acid/Alkali splashes on the skin*: Wash thoroughly; bath the affected skin with cotton wool soaked in 5% aqueous sodium carbonate if acid and 5% acetic acid or undiluted vinegar, if alkali.
3. *Acid/Alkali splashes in the eye:* Water spray from a wash bottle or rubber bulb into the medial corner of the eye. Put 4 drops of 2% Aqueous Sodium bicarbonate into the eye, if acid, and saturated solution of boric acid, if alkali.
4. *Swallowing acid:* Make the patient drink some 5% soap solution immediately. Make him gargle with the soap solution. Give him 3 or 4 glasses of ordinary water. If the lips and tongue are burned by the acid, rinse thoroughly with water. Bathe with 2% aqueous sodium bicarbonate.
5. *Swallowing alkalies:* Make the patient drink 5% solution of acetic acid or lemon juice or dilute vinegar. Make him gargle with the same acid solution. Give him 3 or 4 glasses of ordinary water. If the lips and tongue are burned by the alkali, rinse thoroughly with water; bathe with 5% acetic acid.

Self-Check Exercise-5

Q-1 The shape of warning sign is……..

1. Triangular
2. Circular
3. Square
4. All of the above

Q-2 The workers require foot protection in work environment with…….

1. Fine dust and bluff
2. Hot Fumes
3. Electrical hazards
4. Penetrating materials like nails and spikes

12.8 SUMMARY

In this lesson, we learned about meaning, objectives and importance of first aid. We studied about health hazards at home and what type of first aid treatment can be provided in case of any injury or accident in home. Afterwards, we come to know about health hazards that can take place in schools and in such circumstances, what type of safety precautions should be observed. Various types of school health services were also explained in the lesson. You were also acquainted with the safety precautions during working in science laboratories and what medical assistance in the form of first aid can be given in case of accidents in science laboratories in the schools.

12.9 GLOSSARY

Afterwards: At a later or future time

Ointment: A smooth oily substance that is rubbed on the skin for medicinal purposes or as a cosmetic

Immunization: The action of making a person or animal immune to infection, typically by inoculation

12.10 ANSWERS TO SELF CHECK EXERCISE

Self-Check Exercise-1

Ans-1: Yes

Ans-2: Cardiopulmonary resuscitation

Self-Check Exercise-

Ans-1: True

Self-Check Exercise-3

Ans-1: Physical Hazards

Self-Check exercise-4

Ans-1: Virus

Self-Check Exercise-5

Ans-1: Triangular

Ans-2: Penetrating materials like nails and spikes

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12.12 TERMINAL QUESTIONS

1. Explain the meaning, importance and principles of providing first aid.
2. Discuss the objectives of providing first aid.
3. What things should first aid box contain? Name any five.
4. Write a note on common health hazards in school.
5. Describe in brief the common health hazards in home.
6. What precautions should be taken while conducting experiments in chemistry laboratory in schools?
7. What instructions will you give to the students in case of earthquake or stampede in the school.

Unit-13

VARIOUS FIRST AID TREATMENTS

Fractures, Shock, Burns, Snake Bite, Diarrhea, Vomiting and Poisoning Treatment

Structure:

13.1 LEARNING OBJECTIVES

At the end of this lesson, you will be able to;

1. Explain the first aid treatments for different types of common diseases and injuries.
2. Provide first aid treatment for different types of common diseases and injuries.

13.2 INTRODUCTION

In the previous lesson, we learned about first aid, its meaning, objectives, principles and advantages. You were acquainted with health hazards in home and school and what safety precautions can be taken to prevent these health hazards. We also studied about accidents in science laboratories and how these accidents can be prevented. School health services were also discussed in detail. We come to know that school clinic and first aid box are the major health services which should be provided by the schools to its students. The constituents of first aid box were also discussed with you in detail. In this lesson, we will learn about first aid treatment that can be provided to the children or individuals in case of common injuries or diseases.

13.3 FIRST AID TREATMENT FOR FRACTURES

A fracture is a break or crack in a bone. It is not always possible to tell if a bone has been fractured. If you are not sure apply first aid for fractures as it is best to assume it is and treat it accordingly.

- Do not encourage the casualty to move the injured part in order to identify a fracture - such movement is not necessarily a good guide for identifying a broken bone and could cause further damage to surrounding tissues as well as promote shock. In some cases a victim of a fracture is able to move the fractured limb with little or no pain. In other cases, motion will produce pain and the victim will refuse to move the injured limb.
- Do ask questions of the casualty if they are conscious. Ask questions to determine how the accident occurred and the location of the injury. Ask now so you have information to hand over to medical help when they arrive. This can save them precious time.
- If you are not sure whether a bone is fractured, treat the injury as if it is. Dislocations and sprains have the same treatment as first aid for fractures.
- Stop any bleeding. Apply pressure to the wound without causing further trauma. Use a sterile bandage if possible otherwise a clean cloth or a clean piece of clothing will suffice.
- Immobilise the injured area. Use a splint and immobilise the joints above and below any fracture. A splint can be any long firm object. A fracture is immobilised to prevent the sharp edges of the bone from moving and cutting tissue, muscle,

blood vessels, and nerves. Immobilising fractures reduces pain and helps prevent or control shock.

- Don't try to straighten or reposition the fractured limb. Splint the limb in the position you find it. Move the limb as little as possible while applying and securing the splint.
- Splinting materials include splints, padding and bandages. Ensure that splints are long enough to immobilise the joint above and below the suspected fracture.
- Before beginning first aid for fractures gather whatever splinting materials are available.
- Splints may be improvised from such items as boards, poles, sticks, tree limbs, rolled magazines, rolled newspapers, or cardboard. If nothing is available for a splint, the person's chest can be used to immobilise a fractured arm and the uninjured leg can be used to immobilise, to some extent, the fractured leg.
- Padding may be improvised from such items as a jacket, blanket, poncho or soft leafy vegetation. Put padding between the splint and the limb. Place extra padding at bony or sensitive areas.
- Bandages may be improvised from belts or strips torn from clothing, towels or blankets. Narrow materials such as wire or cord should not be used to secure a splint in place.
- Cravats or ties are used as securing materials. Cravats are made from muslin bandages or other soft material. You can improvise by cutting or tearing from pliable material such as a shirt or sheet if muslin bandages are not available. Use at least four ties (two above and two below the fracture) to secure the splints. The ties should be non-slip knots and should be tied away from the body on the splint. Do not place a cravat directly under the fracture site.
- The securing material should be tight enough to hold the rigid objects securely in place, but not so tight that it interferes with blood circulation.
- For arm fractures a sling can be improvised with material such as a piece of cloth, a belt and so forth. Use it by suspending it from the person's neck to support their fractured arm. Slings may be improvised by using pieces of torn material such as clothing, towels and blankets. A triangular bandage is ideal for this purpose. Remember that the person's hand should be higher than their elbow and the sling should be applied so that the supporting pressure is on the uninjured side.

- Apply ice packs to help limit swelling and relieve pain. Don't apply ice directly to the skin as this could cause frostbite — wrap the ice in a towel, piece of cloth or some other material.
- Treat for shock. If the person feels faint or is breathing in short rapid breaths, lay the person down with their head slightly lower than their trunk and, if possible, elevate the legs injuries permitting.
- Check for a pulse and sensation below the fracture. Check the injured limb for a pulse. An arm or leg without a pulse indicates an emergency requiring immediate surgical attention. If this is the case, and you have not already done so, call emergency medical help immediately.
- Lightly squeeze the person's fingers or toes of the injured part (unless you suspect a fracture or other injury in these areas) asking the person what they feel. Loss of sensation is a sign of nerve or spinal damage. In this case, do not move the person and call for immediate emergency medical assistance.
- You can also check for nerve damage by asking the victim to wiggle his or her fingers or toes connected to the injured extremity. Unless they are injured in these areas the person should be able to produce some type of movement. Of course if the fingers or toes are injured, do not have the person attempt to move them.

Some Do Not's when applying first aid for fractures

- Do not massage the affected area.
- Do not straighten the broken bone.
- Do not move without support to broken bone.
- Do not move joints above or below the fracture.
- Do not give oral liquids or food.

Self-Check Exercise-1

Q-1: How should you open the airway of an unconscious causality?

1. Head till and chin lift.
2. Jaw thrust
3. Head till land Jaw thrust
4. Lift the chin

Q-2: A fracture is a break or crack in a bone. True/False

13.4 FIRST AID TREATMENT FOR SHOCK

The most important thing to do is to try to maintain blood flow to the body's trunk and head. This is done by lying the person flat and raising their legs above their hips (6-12 inches or 15-30 cm). Provided they do not have injuries to their legs such as broken bones or the like.

- If the bleeding is obvious then stop it with pressure either with direct pressure with a gloved hand if possible or with padding. If you can use padding and a bandage to apply pressure to the area or improvise with such things as towels or a jacket that can be used to create compression. If you can see the blood oozing through what you have applied then apply more padding and bandaging. Do not remove the original compression as this may remove some of the clotting that the body has started to create at the site and will increase the flow of blood and then you are back at square one.
- Afterwards consider warmth. Cover the person with a blanket to keep the body from losing what heat it has.
- Encourage rest and reassure the person that help is on the way.
- Assess ABC. Airway, Breathing, Circulation - if the person goes into or is in cardiac arrest move to performing CPR.
- Being able to breathe takes priority over any other treatment so if they are struggling to breath place them in the recovery position. If they maintain their breathing continue other treatment that is needed with the person in this position.

Self-Check Exercise-2

Q-1: What is not necessary to think before applying pressure?

1. On whom to apply pressure
2. How to apply pressure
3. Why to apply pressure
4. Where to apply pressure

13.5 FIRST AID TREATMENT FOR BURNS

Burns are horrible to see and when the skin is burnt not only is it destroyed but, depending on the extent and area affected, the deeper tissue and even bones can be damaged. Before giving burns first aid, the depth of the burned area needs to be determined. There are only 2 main treatment approaches for applying First Aid to Burns. They are separated into Minor and Major Burns. Minor burns are first degree burns and small second degree burns (smaller than 3 inches or 7.5 cm diameter). Major Burns are

second degree burns larger than the persons abdomen or the area of their hand spread out (larger than 3 inches or 7.5 cm diameter) as well as full thickness burns.

1. First degree (superficial thickness) are where only the outer layer of skin is affected. They can be painful (mine always have been) there is also redness and at times swelling.

2. Second degree (partial thickness- superficial or partial thickness - deep) are where the outer and the underlying skin are affected. Now these no doubt cause pain, more intense redness, splotchy appearance, swelling and blistering.

3. Full thickness are called third degree (and at times forth degree). These extend into the deeper tissue and involve all layers of the skin and possibly the bone. Areas may appear dry, white or charred black. These may be numb or painless because the nerves in these areas have been damaged.

We can get burns due to different reasons. Thermal burns are the most common such as; Fire - dry heat, Heated objects - like metal saucepans or kettles, Wet heat - hot liquids or steam, Cold - caused by prolonged contact with moderately cold objects (snow and cold air for instance), Friction - such as skin rubbed against canvas, UV light from the sun is by far the most common burn associated with radiation. Electricity - power lines (hopefully not many of us have experienced this) or within the home or work place.

13.5.1 *First Aid Treatment for Minor Burns*

1. The immediate priority is to stop the burning process. So cool down the area by running cool water over it (not cold and not butter or anything else) or if this is difficult place a cold compress over it. Place a cool/wet clean cloth in between the compress and the skin. Placing ice directly on the burn can cause frostbite further damaging the area. Do this for at least 5 minutes or until pain settles. IF it is still painful continue with this process as it also helps reduce pain.

2. Burn cream or gel with Aloevera is our preference - Aloevera aids in healing, pain relief, has anti-inflammatory properties, help prevent blistering and scarring.

3. Cover the burn with a dry sterile non stick dressing (so it has less chance of sticking if the burnt skin breaks underneath and it oozes). This will protect the burn from friction or pressure. Change every day.

4. Minor burns may only have reddened skin with no blisters and may be treated at home if you are comfortable with this. These may require pain relief so take whatever you would normally take for pain and/or use topical burn ointment or an over the counter spray designed to reduce pain. Note: blisters may develop over the next few days.

5. Minor burn wounds can be prone to tetanus. If the skin is broken and the person has not had a tetanus booster within the last 5 years they may very well need one. Seek

advice from your doctor. If the damaged area is bigger than their out stretched hand or bigger than the person's abdomen (so around 3 inches or 7.5 cm diameter depending on the persons age) call the emergency services in your area or take them to medical help.

6. Check the burn every day for signs of infection - increased pain (not necessarily itchiness as this can be part of the healing process), redness, swelling, pus, fever, red streaks spreading from the burn area or swollen lymph nodes. If you suspect infection is present then seek medical attention as wounds take much longer to heal when germs are present and sometimes will not heal at all.

7. To prevent infection do not break blisters that may form (tempting as it may be for some) just let the body heal them from the inside out. For protection apply a non stick dressing in case it "pops". If it does "pop" keep it covered until healed as broken blisters are vulnerable to infection. If the dressing gets wet, do not leave it sitting on an open wound as this can make it easier for infection to set in.

8. Electrical burns need to be seen by medical help as there can be more serious injuries under the skin that may not be visible to the eye.

13.5.2 *First Aid Treatment for Major Burns*

1. If person is on fire get them to drop and roll to help extinguish the flames. Wrap the person in thick material such as a rug or blanket to help smother the flames. Use water to help put out the flames as well.

2. Call emergency services

3. If the person is not breathing start the CPR process.

4. Cover the burn area with a cool, moist (if possible sterile) dressing/s. A sheet will do if the area is large. Preferably not a material that is fluffy as fluff can enter the wound and cause complications later such as infection.

5. Remove any jewellery on or near the burn area as swelling can follow shortly after a burn. If swelling occurs jewellery can become tight and restrict circulation. Do not remove jewellery if it is stuck as this will cause more damage. Let medical help solve that problem.

6. Elevate the burnt areas above the heart where possible. This can help to reduce possible swelling.

7. To help prevent shock lay the person down with legs elevated. This really can only be done if it is the extremities that have been effected. Also cover the person with a blanket or jacket etc.

8. Continue to monitor the person's breathing and pulse until medical help arrives.

There are some No's that need to be said when giving First Aid for Burns:

- Do not remove burnt clothing that is stuck as this can damage the area further.
- Do not immerse large severe burns in cold water as this may cause shock. This is mentioned above.
- Do not apply burn ointments as these will need to be removed by the medical team so an assessment can be done. This can delay appropriate treatment and also cause further damage to the area.
- Do not blow or cough on the burn as this can introduce infection.
- Do not "pop" blister or disturb "dead" skin as this can introduce infection which is a common complication of burns.
- Do not give food or water to a person who has a severe burn as they may require surgery. If surgery is needed, it is best that the person not consume anything for a minimum of 6 hours prior to having anesthetic. The reason for this is if the stomach has contents in it they can exit the stomach and be inhaled into the lungs or remain in the throat and cause difficulty breathing during the operation. Neither the patient nor the medical staff needs this complication during surgery.
- Do not position the person where their airway may be restrict e.g. no pillow under their head as they may have inhaled smoke and therefore may have airway burns.

Self-Check Exercise-3

Q-1: While giving first aid to the burn area…… is best for cooling it.

1. Tap water
2. Oinment
3. Ice water
4. None of these

13.6 FIRST AID TREATMENT FOR SNAKE BITE

The knowledge of snake bite first aid can be the difference between death and survival for a person that has been bitten. Most species of snake are harmless but unless you are absolutely sure that you have identified the snake correctly then treat the bite seriously and apply snake bite first aid. Children are at higher risk for death or serious complications because of their smaller body size. Snakes found in and near water are frequently mistaken as being poisonous. Other factors that influence the possible seriousness of a snake bite include the persons' health, size, age, and psychological state. The nature of the bite may also vary, like penetration of one or both

fangs, the amount of venom injected, the location of the bite and proximity to major blood vessels. the health of the snake and the interval since it last used its venom mechanism is also important. These multiple variables make every bite unique. Depending on circumstances, the bite of a "mildly" venomous snake may be life-threatening and that of a "strongly" venomous snake may not. Again treat the bite seriously and apply snake bite first aid. The most common symptoms of all snakebites are; nausea, vomiting, diarrhea, vertigo, fainting, tachycardia (fast heart beat), cold and clammy skin, swelling around bitten area

1. Call medical help immediately if possible.
2. Remain calm, remember most snake bites are not fatal.
3. Minimise movement if possible. If you are hiking alone you may have to hike out for help.
4. If you are bitten on the arm or finger remove any rings, bracelets or watches. Loosen any tight clothing in case swelling occurs.
5. Apply a pressure bandage to the bitten limb. If the bite is to the trunk, head or neck, apply firm pressure to the bitten area. Do not restrict chest movement as breathing will be affected by this.
6. Splint or use a sling on the bitten limb to restrict movement.
7. If there is no bandage or equivalent to apply a pressure bandage make note of any inflammation by tracing the edge of the swelling with a pen or the like near/around the bite and mark the time clearly next to it. If it progresses make a new tracing noting the time of each new mark beside that new tracing. This will give valuable information to medical help as to the development of the swelling.
8. If possible, lie down and keep the bitten extremity at body level. Raising it can cause venom to travel through the body quicker. Holding it down can increase swelling.
9. When possible, arrange for transport to the nearest hospital emergency room, where anti-venom for snakes common to the area will often be available and given if required.
10. Do not try to suck the venom out of the wound or cut into the bite with a knife. Such measures have not been proven useful and may cause further injury.
11. Do not apply a cold compress or ice on the bite. Research has shown this to be potentially harmful.
12. Do not raise the wound above the heart. Raising it can cause venom to travel into the body. Holding it down can increase swelling.

13. Do not use electric shock or a stun gun on the bite area. This method is under study and has yet to be proven effective. It could harm the victim.

14. Do not wash the snake bite area

15. Do not try and capture the snake. If it's safe you can try to take a photo with a camera or with your phone. This is the best way in aiding snake identification.

16. Old style snake bite kit that should not be used in snake bite first aid.

17. Application of a tourniquet to the bitten limb is generally not recommended. The use of a compression bandage is generally as effective, and much safer.

18. Cutting open the bitten area, an action often taken prior to suction, is not recommended since it causes further damage and increases the risk of infection.

19. Sucking out venom either by mouth or with a pump, does not work and may harm the affected area directly. Suctioning by mouth presents a risk of further poisoning to the person doing the procedure through the mouth's mucous tissues. The release of bacteria from the person's mouth into the victim's wound can lead to infection at the wound site.

4. None of these

13.6.1 *First Aid Treatment for Dog Bite:*

Dog bite can become infected due to the type of bacteria in the animals mouth weather the animal is pet or wild. If the bite wound is bleeding, apply pressure to the area with cloth until the bleeding stops. If the wound is not bleeding, clear it with soap and water, hold it under running water for several minutes. Dry the wound and cover it with dry cloth. Call the doctor or take the child to get tetanus injections and antibiotics.

Self-Check Exercise-4

Q-1: First aid given to a person-

1. To reduce pain

2. Speedy recovery

3. To save lives

13.7 FIRST AID TREATMENT FOR DIARRHEA

Diarrhea is an unpleasant occurrence that affects most adults an average of 4 times a year. In most cases diarrhea is nothing to be concerned about, and the biggest health risk associated is dehydration due to loss of fluids. Those most at risk with diarrhea are young children and the elderly, who are most susceptible to dehydration.

Its symptoms are; abdominal pain, loose watery stools occurring on average 3 times a day, nausea, bloating, dehydration, fever and bloody stools. In the majority of cases, the cause for diarrhea is unknown, and unless other abnormal symptoms accompany the diarrhea, the problem becomes chronic, or other abnormalities are seen, there is no reason to search extensively for a cause. Most often diarrhea is caused by a minor infection that the sufferer is not even aware of, other times it's something more serious like a chronic or intestinal problem. A few common causes may be bacterial infections, viral infections food intolerances, parasites, reaction to medicines and intestinal diseases, such as inflammatory bowel disease or celiac disease (associated with gluten allergies). Diarrhea can be either acute (short-term) or chronic (long-term). Acute diarrhea- related in most cases to a bacterial, viral or parasitic infection- lasts under four weeks. Any bout of diarrhea lasting longer than four weeks is considered chronic and is usually linked to a more serious problem like IBS or inflammatory bowel syndrome. You can take the following precautions to prevent diarrhea.

- Do not drink any tap water, not even when brushing your teeth.
- Do not drink unpasteurized milk or dairy products.
- Do not use ice made from tap water.
- Avoid all raw fruits and vegetables (including lettuce and fruit salad) unless they can be peeled and you peel them yourself.
- Do not eat raw or rare meat and fish.
- Do not eat meat or shellfish that is not hot when served to you.
- Do not eat food from street vendors.
- You can safely drink bottled water (if you are the one to break the seal), carbonated soft drinks, and hot drinks like coffee or tea.

Self-Check Exercise-5

Q-1: Write two precautions to prevent diarrhea.

13.8 FIRST AID TREATMENT FOR VOMITING

Vomiting can be caused by many things, most commonly gastroenteritis (the "stomach flu"). Vomiting can cause kids to lose fluids, salts, and minerals, so it's important to make sure these are replaced. Following steps can be taken in case of vomiting:

1. Do not feed milk products or solid foods to a child who has been vomiting.

2. Give small amounts of fluid of ORS If your child vomits again, wait 20-30 minutes and start over.

3. Gradually increase the amount of fluids once there's no vomiting for 3 to 4 hours.

4. Resume regular diet after 24 hours without vomiting.

13.9 FIRST AID TREATMENT FOR POISONING

Poisoning is caused by exposure to a harmful substance. This can be due to swallowing, injecting, breathing in, or other means. Most poisonings occur by accident. Immediate first aid is very important in a poisoning emergency. The first aid you give before getting medical help can save a person's life. Symptoms of poisoning may take time to develop. However, if you think someone has been poisoned, do not wait for symptoms to develop. Get medical help right away. Symptoms vary according to the poison, but may include; abdominal pain, bluish lips, chest pain, diarrhea, dizziness etc.

- Seek immediate medical help. Even if the person seems perfectly fine, get medical help.
- Teach children about the dangers of substances that contain poison. Label all poisons.
- Check and monitor the person's airway, breathing, and pulse. If necessary, begin rescue breathing and CPR.
- Try to make sure that the person has indeed been poisoned. It may be hard to tell. Some signs include chemical-smelling breath, burns around the mouth, difficulty breathing, vomiting, or unusual odors on the person. If possible, identify the poison.
- Do not make a person throw up unless told to do so by poison control or a health care professional.
- If the person vomits, clear the person's airway. Wrap a cloth around your fingers before cleaning out the mouth and throat. If the person has been sick from a plant part, save the vomit. It may help experts identify what medicine can be used to help reverse the poisoning.
- Keep the person comfortable. The person should be rolled onto the left side, and remain there while getting or waiting for medical help.
- If the poison has spilled on the person's clothes, remove the clothing and flush the skin with water.
- If the person vomits, clear the person's airway. Wrap a cloth around your fingers before cleaning out the mouth and throat.
- Do not give an unconscious person anything by mouth.

- Do not try to neutralize the poison with lemon juice or vinegar, or any other substance, unless you are told to do so by the Poison Control Center or a doctor.
- Do not store household chemicals in food containers, even if they are labeled. Most nonfood substances are poisonous if taken in large doses.

Self-Check Exercise-6

Q-1: Most poisonings take place in the home.

1. True

2. False

Q-2: How do you check for breathing?

A. Listen
B. Look for rising chest
C. Feel with the cheek
D. Look, Listen to an Feel

13.10 SUMMARY

In this lesson, we studied about first aid treatments that can be provided by the teachers, parents to the children or persons suffered with common injuries and diseases in school, home or at any other place. It is expected that you will be now competent enough to provide first aid treatment to your children in home or in the schools.

13.11 GLOSSARY

CPR: Short for cardiopulmonary resuscitation

Dizziness: A sensation of spinning around and losing one's balance

Compression bandaging - is a cornerstone of therapeutic care, offering support, promoting healing, and managing conditions like venous insufficiency and lymphedema.

13.12 ANSWERS TO SELF-CHECK EXERCISE

Self-Check Exercise-1

Ans-1: Head till and chin lift

Ans-2: True

Self-Check Exercise-2

Ans-1: Why to apply pressure

Self-Check Exercise-3

Ans-1: Tap water

Self-Check Exercise-4

Ans-1: To save lives

Self-Check exercise-5

Ans-1: Do not drink unpasteurized milk or dairy products.

Do not use ice made from tap water.

Self-Check Exercise-6

Ans-1: True

Ans-2: Look, Listen to an Feel

13.13 REFERENCES AND SUGGESTED READINGS

American College of Emergency Physicians (2010). Sports First Aid and Injury Prevention. Murrough: Flashpointsystems.ie Ltd.

American Medical Association (2009). Handbook of First Aid and Emergency Care. Washington: Random House Reference.

Le, Tao and Krause, Kendall (2011). First Aid for the Basic Sciences: General Principles. London: McGraw Hill.

13.14 TERMINAL QUESTIONS

1. How will you treat a person initially if he has a fracture in arm?
2. Explain first aid treatment for diarrhea and vomiting.
3. If your child gets burn by electric press, what will you do immediately?

Unit-14

VARIOUS FIRST AID TREATMENTS

Drowning, Cuts, Bleeding and Wounds, High Blood Pressure and Low Blood Pressure Treatment

Structure:

14.1 LEARNING OBJECTIVES

At the end of this lesson, you will be able to;

3. Explain the first aid treatments for different types of common diseases and injuries.
4. Provide first aid treatment for different types of common diseases and injuries.

14.2 INTRODUCTION

In the previous lesson, we learned about first aid, its meaning, objectives, principles and advantages. You were acquainted with health hazards in home and school and what safety precautions can be taken to prevent these health hazards. We

also studied about accidents in science laboratories and how these accidents can be prevented. School health services were also discussed in detail. We come to know that school clinic and first aid box are the major health services which should be provided by the schools to its students. The constituents of first aid box were also discussed with you in detail. In this lesson, we will learn about first aid treatment that can be provided to the children or individuals in case of common injuries or diseases.

14.3 FIRST AID TREATMENT FOR DROWNING

Drowning is when a person is in danger of drowning. Immediate medical care is needed for drowning. When getting the person out of the water, support the head and neck. (Suspect a neck injury, especially with diving or water sports.). If you suspect a spinal injury, use jaw thrust instead of chin-lift for rescue breaths. Once out of the water, keep checking the person for a response. Give first aid, as needed. Put the person in the recovery position. Immobilize the person as much as possible. If the person is vomiting, clear his or her mouth of it. Remove cold, wet clothes. Cover the person with a blanket, etc.

1. Check for breathing: Place your ear next to the person's mouth and nose. Do you feel air on your cheek? Look to see if the person's chest is moving.
2. If the person is not breathing, check pulse. Check the person's pulse for 10 seconds. If there is no pulse, start CPR. Carefully place person on back. For an adult or child, place the heel of one hand on the center of the chest at the nipple line. You can also push with one hand on top of the other. For an infant, place two fingers on the breastbone.
3. For an adult or child, press down about 2 inches. Make sure not to press on ribs. For an infant, press down about 1 and 1/2 inches. Make sure not to press on the end of the breastbone. Do 30 chest compressions, at the rate of 100 per minute or more. Let the chest rise completely between pushes. Check to see if the person has started breathing.
4. Repeat if person is still not breathing. Pinch the nose of the victim closed. Take a normal breath, cover the victim's mouth with yours to create an airtight seal, and then give 2 one-second breaths as you watch for the chest to rise. Give 2 breaths followed by 30 chest compressions. Continue this cycle of 30 compressions and 2 breaths until the person starts breathing or emergency help arrives.

Self-Check exercise-1

Q-1: What is included in the CPR procedure?

A. Rescue breathing only
B. Compression of the chest only
C. Rescue breathing and chest compressions.

14.4 FIRST AID TREATMENT FOR CUTS, BLEEDING AND WOUNDS

The best way to clean a cut, scrape or puncture wound (such as a wound from a nail) is with cool water. You can hold the wound under running water or fill a tub with cool water and pour it from a cup over the wound.

1. Use soap and a soft washcloth to clean the skin around the wound. Try to keep soap out of the wound itself because soap can cause irritation. Use tweezers that have been cleaned in isopropyl alcohol (rubbing alcohol) to remove any dirt that remains in the wound after washing.
2. Even though it may seem that you should use a stronger cleansing solution (such as hydrogen peroxide or iodine), these things may irritate wounds. Ask your family doctor if you feel you must use something other than water.
3. Bleeding helps clean out wounds. Most small cuts or scrapes will stop bleeding in a short time. Wounds on the face, head or mouth will sometimes bleed a lot because these areas are rich in blood vessels.
4. To stop the bleeding, apply firm but gentle pressure on the cut with a clean cloth, tissue or piece of gauze. If the blood soaks through the gauze or cloth you're holding over the cut, don't take it off. Just put more gauze or another cloth on top of what you already have in place and apply more pressure for 20 to 30 minutes.
5. If your wound is on an arm or leg, raising it above your heart will also help slow the bleeding.
6. Leaving a wound uncovered helps it stay dry and helps it heal. If the wound isn't in an area that will get dirty or be rubbed by clothing, you don't have to cover it.
7. If it's in an area that will get dirty (such as your hand) or be irritated by clothing (such as your knee), cover it with an adhesive strip (one brand: Band-Aid) or with sterile gauze and adhesive tape. Change the bandage each day to keep the wound clean and dry.
8. Certain wounds, such as scrapes that cover a large area of the body, should be kept moist and clean to help reduce scarring and speed healing. Bandages used for this purpose are called occlusive or semi-occlusive bandages. You can buy them in drug stores without a prescription. Your family doctor will tell you if he or she thinks this type of bandage is best for you.
9. Antibiotic ointments (some brand names: Neosporin, Ultra Mide) help healing by keeping out infection and by keeping the wound clean and moist. A bandage does pretty much the same thing. If you have stitches, your doctor will tell you whether he or she wants you to use an antibiotic ointment. Most minor cuts and

scrapes will heal just fine without antibiotic ointment, but it can help the wound close up and help reduce scarring.

Self-Check Exercise-2

Q-1: How can you recognize a vein bleeding?

A. Blood flows equally out of the wound.
B. Blood flows with pulses out of the wound
C. Blood flows slowly out of the wound

14.5 FIRST AID TREATMENT FOR HIGH BLOOD PRESSURE

High blood pressure (hypertension), often called a silent killer, is the pressure of the blood in the arteries. Blood pressure is typically recorded as the systolic pressure (as the heart beats) over the diastolic pressure (time between two beats). A consistent blood pressure reading of 140/90 mm Hg or higher is considered high blood pressure. Untreated, high blood pressure will cause heart attacks, strokes, kidney failure, injury to the brain and eyes. Common Causes of High Blood Pressure are; obesity, lifestyle, genetic factors, alcohol, birth control pills etc. High BP is usually a chronic medical condition, which leads to damage the blood vessels of various organs including brain, heart, kidney, eye etc. Management of a hypertensive individual includes maintenance of optimal blood pressure as well as routine screening and attending to its secondary adverse effects on organs.

1. Reassure the patient and call for medical help.
2. Make him/her to lie on the bed and rest adequately.
3. Try to comfort and reduce anxiety, as anxiety alone can increase blood pressure.
4. Keep monitoring breathing, pulse rate, blood pressure, level of consciousness and for any other dangerous signs (e.g. paralysis of body in stroke, convulsions etc.)
5. Do not allow them to walk about, accompany the patient if it is really needed. Watch out for falls.
6. If the patient is vomiting or having seizures, turn to lateral side to prevent aspiration.
7. If patient complains of difficulty in breathing, prop him/her up using pillows behind upper back.
8. Do not give anything by mouth to eat/drink if there is suspicion of stroke.
9. Specially avoid caffeine or alcohol containing beverages.

10. Meanwhile look for possible cause for hypertensive crisis. If the patient is a known hypertensive and missed medication, consult doctor over the phone and give a dose of medications if instructed.

11. If breathing is unsatisfactory go for basic life support. Provide mouth to mouth breathing and CPR if needed.

Self-Check Exercise-3

Q-1: We tell a person has a high blood pressure when the systolic pressure is……..

1. More than 140 mm Hg.

2. More than 90 mm Hg

3. More than 110 mm Hg

4. More than 200 mm Hg

14.6 FIRST AID TREATMENT FOR LOW BLOOD PRESSURE

Life is full of surprises and uncertainties. However, with proper knowledge and right aid one can lessen the damage caused by unexpected happenings. Low Blood Pressure (BP), in scientific language is also known as Hypotension. In the case of low Blood Pressure, the pumping of blood by the heart is very weak, as a result every organ in the body does not receive sufficient amount of blood and oxygen. Causes of low blood pressure include; emotional instability, frustration, disappointments, poor diet, dehydration etc.

- If the person experiences dizziness, make him sit on the chair or lie him down.
- Elevate the person's head while lying, by placing few pillows underneath his head.
- Immediately make him consume salt by mixing it in the water or give the patient electrolyte solution.
- Be very careful while raising him from lying down or sitting position. Sudden movement could further decrease the Blood Pressure level.
- If the situation demands, cover the patient's calf and thigh with elastic stockings in order to prevent the blood to flow down to the legs, thus maintaining majority amount of the blood in the upper level of the body.
- Drinking raw beet juice or even butter milk is an effective remedy for low Blood Pressure.
- Include plenty of fresh fruits and leafy vegetables in the meal.
- Practice exercise on regular basis.

- Increase the intake of salt amount.

Self-Check Exercise-4

Q-1 On which of the factor the blood pressure depends upon?

1. Nervous system.

2. Cardiac output

3. Both of the above

4. None of the above

14.7 SUMMARY

In this lesson, we studied about first aid treatments that can be provided by the teachers, parents to the children or persons suffered with common injuries and diseases in school, home or at any other place. It is expected that you will be now competent enough to provide first aid treatment to your children in home or in the schools.

14.8 GLOSSARY

Convulsions: A sudden, violent, irregular movement of the body caused by involuntary contraction of muscles and associated especially with brain disorders such as epilepsy, the presence of certain toxins or other agents in the blood, or fever in children.

Hypertensive: A person with high blood pressure

Antibiotic: Medicine (such as penicillin or its derivatives) that inhibits the growth of or destroys microorganisms

14.9 ANSWERS TO SELF CHECK EXERCISE

Self-Check Exercise-1

Ans-1: Rescue breathing and chest compres

Self-Check Exercise-2

Ans-1: Blood flows equally out of the wound

Self-Check Exercise-3

Ans-1: More than 140 mm Hg

Self-Check Exercise-4

Ans-1: Nervous system

14.10 REFERENCES AND SUGGESTED READINGS

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American Medical Association (2009). Handbook of First Aid and Emergency Care. Washington: Random House Reference.

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14.11 TERMINAL QUESTIONS

1. Write first aid treatment for students with cut and bleeding in his elbow?
2. How can a person with hypertension (high BP) be provided quick medical assistance?
3. Write first aid treatment for students with cut and bleeding in his elbow?
4. How can a person with hypertension (high BP) be provided quick medical assistance?

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