**Module 1: Basic Concepts in ICT and Technology**

1. **Technology**: Refers to a mix of processes and products used in applying knowledge.
2. **ICT Literacy**: Involves using digital technology, communication tools, and networks to access, manage, integrate, evaluate, create, and communicate information in a knowledge society.
3. **Educational Technology**: Encompasses the use of technology in teaching and learning, including both digital and non-digital technologies.
4. **Digital Literacy**: Refers to the ability to find, evaluate, utilize, share, and create content using information technologies and the internet.
5. **Digital Learning**: Is any learning accompanied by technology or instructional practices effectively using technology.
6. **Online Digital Tools and Apps**: Require internet access to function.
7. **Offline Digital Tools and Apps**: Can be used without internet access.
8. **Instructional Technology**: Encompasses the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning.
9. **Software**: Refers to program control instructions and documentation stored on disks or tapes when not in use on a computer.
10. **Multimedia**: Involves the sequential or simultaneous use of various media formats in a presentation or self-study program.
11. **Internet**: A massive network of networks, a networking infrastructure connecting millions of computers globally.
12. **World Wide Web (WWW)**: A graphical environment on a computer network that enables access, viewing, and maintenance of documentation, including text, data, sound, and videos.
13. **Web Access**: Refers to the learner's ability to access the internet during a lesson to utilize available educational resources.
14. **WebQuest**: An inquiry-oriented lesson format where most or all information learners work with comes from the web. It is a teacher-structured research experience based primarily on using the WWW, typically lasting one or more instructional periods.
15. **Productivity Tools**: Any software associated with computers and related technologies used for personal, professional, or classroom productivity.
16. **Technology Tool**: Anything that aids in achieving a goal using technology. Examples include:

* Data/Calculation tools
* Design tools
* Discussion tools
* Email
* Handheld devices

1. **Blog**: An online journal where posts from teachers and students are arranged.
2. **Wiki**: An editable website, usually with limited access, that allows students to collaboratively create and post written work or digital files like photos and videos.
3. **Flipped Classroom**: Employs reverse instructional delivery, requiring the teacher to utilize web resources as homework or out-of-class activities for initial instruction, followed by in-class discussions.
4. **Podcast**: A video or audio multimedia clip on a single topic, often in a radio talk show format.
5. **Google Apps**: Cloud-based teaching tools stored on Google's servers, accessible to students both at home and in school.
6. **Vlog**: A video blog with entries posted as videos rather than text.
7. **Facebook**: A popular social networking site used globally by students and adults to share information about themselves.
8. **VoIP (Voice over Internet Protocol)**: Hardware and software that enable using the internet for telephone calls by sending voice data packets using IP instead of traditional circuit transmissions.

**ROLES OF TECHNOLOGY IN TEACHING AND LEARNING**

* No one can deny the influence of technology in our lives.
* As future teachers of the 21st century, it is high time to prepare to integrate technology in classrooms.
* Using technology is a tool and a catalyst for change.
* Educational technology has three domains:
  1. **Technology as a Tutor**: Technology, when programmed by the teacher, can be a tutor on its own. Examples include radio programs, television programs, DVDs, CDs, and online tutorials.
  2. **Technology as a Teaching Tool**: Technology assists teachers by facilitating and lightening their workload but cannot replace the teacher's role.
  3. **Technology as a Learning Tool**: Enhances student engagement, critical thinking, and problem-solving skills, making learning effective and enjoyable.

**THEORIES AND PRINCIPLES IN THE USE OF TECHNOLOGY-DRIVEN LESSONS**

**1. Dale’s Cone of Experience**

A visual model showing a continuum of learning experiences from concrete to abstract. Encourages learners to progress from direct, purposeful experiences to symbolic.

**Bands in Dale's Cone of Experience:**

* **Direct Purposeful Experiences**: Hands-on activities where learners use their senses to gain knowledge.
* **Contrived Experiences**: Representations like models, mock-ups, and miniatures for learning beyond direct interaction.
* **Dramatized Experiences**: Role-playing or dramatization to immerse learners in experiences.
* **Demonstrations**: Practical execution of a process or task to show how things work.
* **Study Trips**: Visits to locations outside the classroom to observe real-life situations.
* **Exhibits**: Displays (e.g., posters, artifacts) that convey information visually.
* **Television and Motion Pictures**: Two-dimensional mediated experiences to enhance understanding.
* **Still Pictures, Recordings, Radio**: Audio-visual aids to deliver content effectively.
* **Visual Symbols**: Abstract representations (e.g., diagrams, charts) for conceptual understanding.
* **Verbal Symbols**: Words, codes, or formulas representing ideas.

**2. TPACK Framework**

* **Technological Knowledge (TK)**: Understanding how to use and integrate technology tools in teaching.
* **Content Knowledge (CK)**: Subject knowledge the teacher needs to convey effectively.
* **Pedagogical Knowledge (PK)**: Mastery of teaching strategies and methods.
* **Technological-Pedagogical Knowledge (TPK)**: Knowing how to use technology to support teaching methods.
* **Technological-Content Knowledge (TCK)**: Utilizing technology to deepen subject knowledge.
* **Pedagogical-Content Knowledge (PCK)**: Effective teaching strategies tailored to specific content.
* **TPACK Intersection**: Full integration of TK, CK, and PK to deliver engaging and effective lessons.

**3. SAMR Model**

* **Substitution**: Technology replaces traditional methods without functional change (e.g., typing instead of handwriting).
* **Augmentation**: Adds functionalities (e.g., grammar checks in word processing).
* **Modification**: Redesigns tasks (e.g., collaborative online projects using shared documents).
* **Redefinition**: Creates entirely new tasks (e.g., using virtual reality for immersive learning).

**4. ASSURE Model**

- Guides lesson planning with six steps: Analyze Learners, State Objectives, Select Methods/Materials, Utilize Materials, Require Participation, and Evaluate Performance.

* **Analyze Learners**: Assess students’ needs, preferences, and abilities.
* **State** **Objectives**: Define clear learning outcomes.
* **Select** **Methods, Media, and Materials**: Choose suitable resources and instructional methods.
* **Utilize Methods, Media, and Materials**: Plan effective implementation of the resources.
* **Require Learner Participation**: Engage students actively in the learning process.
* **Evaluate Student Performance**: Assess whether learning objectives have been met.

**PRINCIPLES FOR SELECTING TECHNOLOGY**

1. **Principle of Appropriateness**: Aligns with student needs and curriculum goals.
2. **Principle of Authenticity**: Ensures real-world relevance and application.
3. **Principle of Cost**: Considers financial feasibility and resource constraints.
4. **Principle of Interest**: Engages students effectively.
5. **Principle of Organization and Balance**: Ensures proper integration without overwhelming the curriculum.