INTEGRATION OF ICT IN LEARNING

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ICT INTEGRATION IN LEARNING
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SESSION OBJECTIVES

By the end of the session, the participant should be able to

a) explain the meaning of ICT Integration in learning
b) explain theories supporting use of technology In learning
c) explain the purpose of ICT Integration n teaching and learning
d) explain TPACK model in support of learning
e) demonstrate the use of ICT tool in learning
f) access Kenya education cloud and other resources for learning

KWL

- 1. What *I know* about …….
- 2. What *I want to know* about …….

RATIONALE

- The new competency-based curriculum (CBC) has identified digital literacy as one of the core-competence

- Empowering learners to be productive knowledge workers with advanced 21st Century Skills.

TASK 1

- In your perception, what is ICT Integration? Explain how you would integrated ICT in your teaching and learning.

- Share your experience in the Portal (Chat e.g. zoom chart, Ment.com.kahoot.it)

What is ICT Integration?

- ICT **Integration in** Learning is the *process* where teachers use technology as a *tool* to help them and their students achieve *curricula* and *instructional* goals

THEORIES SUPPORTING USE OF TECHNOLOGY IN LEARNING

- **Paivio's Dual Coding Theory (DCT)**

  - Dual coding suggests that human cognition is divided into two processing systems: visual and verbal. The visual system deals with graphical information processing and the verbal system deals with linguistic processing

- **Cognitive Theory of Multimedia Learning (CTML) by Richard Mayer**

COGNITIVE THEORY OF MULTIMEDIA LEARNING (CTML) BY RICHARD MAYER

- Mayer states that the brain takes in and processes information using several channels based on how the information is presented.
- The first channel is for visually represented material and the second is for auditory represented material.
- According to this theory, knowledge is represented and manipulated through two cognitive channels: **visual-pictorial** and **auditory-verbal**.
- Mayer's cognitive theory of multimedia learning asserts that the words and visuals that we choose to use during the instructional process are important and impactful.

- Choosing a cartoon animation that directly relates to the material being presented can promote student's learning hence helping them in the learning process.

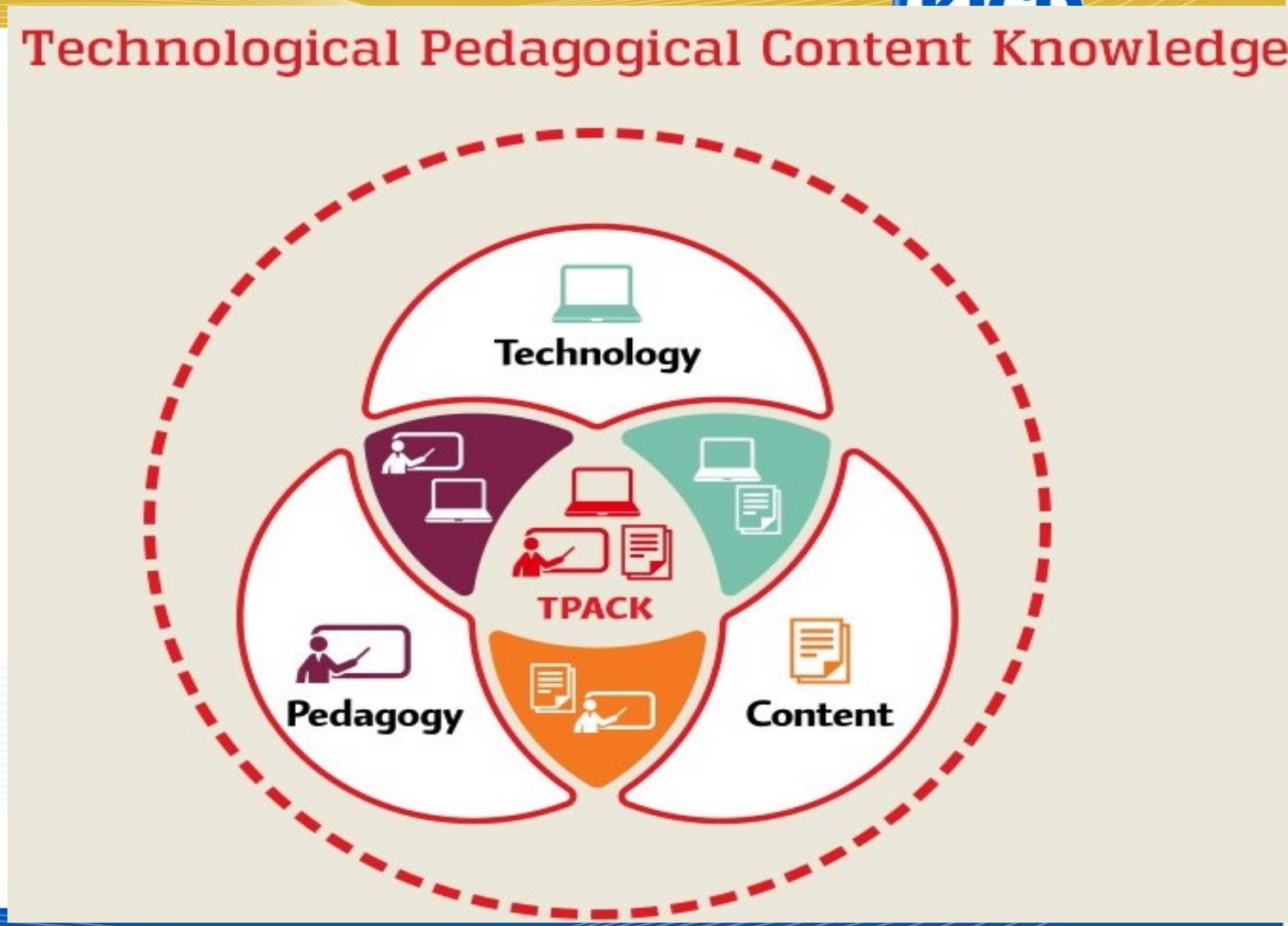
WHY ICT INTERGRATION IN LEARNING ?

- It improves learning,
- Motivate and engage learners,
- Promote collaboration between learners
- Foster enquiry and exploration
- Create a new learner centered learning culture.

WHY ICT INTEGRATION IN LEARNING ?

- Promotes Interactivity: ICT in the classroom promotes the student's active and participatory attitude
- Enhances learners creativity
- Increases communication between learners and teachers

Mishra and Koehler (2006) posited that TPACK model focus on how technology is used in learning. Technological knowledge is considered an important ingredient for enriching pedagogical content knowledge.



ICT INTEGRATION IS MORE THAN AVAILING TECHNOLOGICAL TOOLS IN CLASSROOM --- IT IS HOW THEY ARE ACTIVELY USED

How can my lesson be improved using technology?

How can I engage and empower students through technology?

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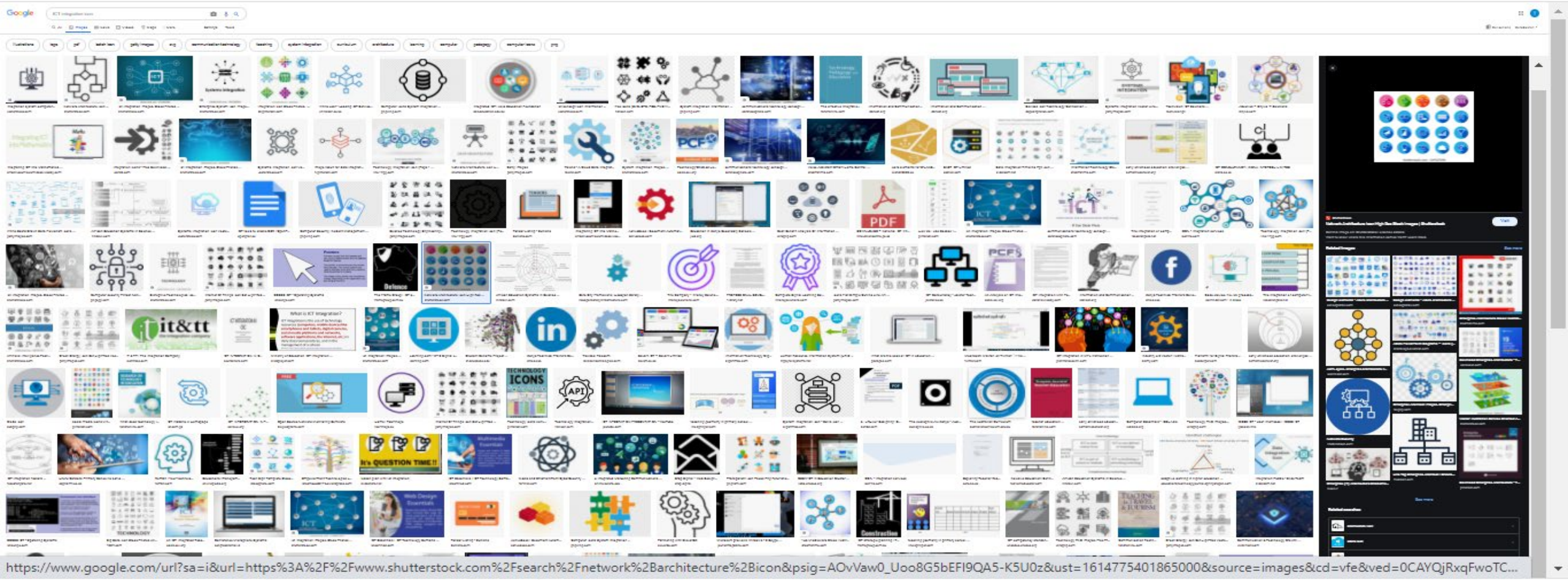

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ICT TOOLS

- **Devices** (i.e. computers, Televisions, Radios, Digital Cameras, LCD Projectors Interactive boards, Smartphones, Data storage devices (CDs, DVDs, Memory sticks among others)
- **Productivity Tools** (i.e. Word, Excel, PowerPoint, Microsoft 365 Office, etc.)
- **Searching Tools** (i.e. e-library, Google Scholar etc.)
- **Collaborative Tools** (i.e. WhatsApp, Goggle Doc, etc.)
- **Web Based Tools –Kahoot and Mentmentor** for assessment and evaluation

ICT TOOLS

- **Learning Management Systems** (i.e. Kenya Education cloud(KEC-LMS) platform, google classroom, Moodle, Edmodo, Portal etc.)
- **Conferencing /Interactive Tools** (i.e. Zoom, Google Meet, Webex, Microsoft Teams Google Hangouts, Skype, **Meta platform(Facebook Live)**, **YouTube live** among others. etc.)
- **Meeting Tools** (i.e., Attendify, Calendar, etc.)
- **Assessment Tools** (i.e. Forms, Exam.net etc.)
- **Creating Resources** (i.e. Recording, Editing, Wikis, Podcasting etc.
- **Cloud storage-google** drive, OneDrive

Functions of ICT in Learning

1.Interaction and communication

You may use ICTs that allows interactivity at various levels.

- **Flipped learning technologies** enable students to watch video programme related to any topic well in advance and prepare themselves to take part in discussion that are held later.
- **Video conferencing technologies** allow both teacher and students to be active participants by engaging in discussion while presenting a topic.
- **Social media:** Social media are websites and software applications enabling users communicate, share information, ideas, personal message on internet using computer and mobile devices.

Functions of ICT in Learning

- **Learning management system (LMS)**: LMS are software platforms that helps to organise, manage, deliver and track courses and programmes. LMS is the digital version of face-to-face classroom.

- **Simulation**: Simulation allow students to model or role-play in a scenario as a way to practice or test learning. Applications range from simple scenarios to complex, highly scripted and interactive games. Simulations can help students for better comprehension, increased retention and effective transfer of skills and knowledge.

- **Mobile app**: Software designed for the specific use in teaching-learning are called educational software. There are many educational softwares. Kahoot, Edmodo, Moodle, etc.,

Functions of ICT in Learning

- **E-learning technologies:** E-learning is the delivery of learning and training through electronic devices such as computers, tablets, mobile phones, etc. Many educational institutions have started practicing e-learning enabling students to attend classes from anywhere.
- **Audio conference and audio graphics**: Audio conferencing connects teachers and students via a two-way speech channel over telephone lines or sometimes by radio and reaches students, usually located at different places.
- **Video conference:** Is a visual communication session between two or more users regardless of their location, featuring audio and video content transmission in real time. Video conferencing connects people in real time through audio and video communication over internet and enables virtual meeting and sharing of presentations

EXAMPLES OF ICT INTEGRATION IN THE CURRICULUM-GRADE 7

LEARNERS INTERACTING/CONNECTING WITH TECHNOLOGY

Learning Area :Computer Science

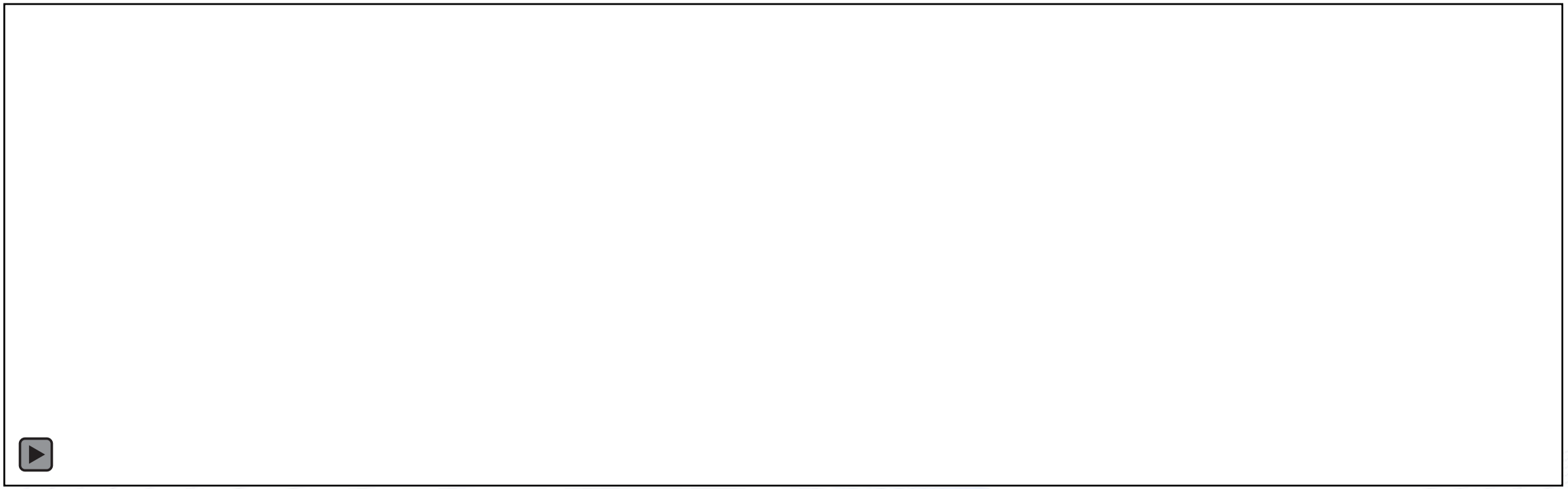
Strand: Foundation of Computer Science

Sub strand: Central processing Unit(CPU)

Learning Outcome: Explain functional elements of the CPU in a computer system

- Let the facilitator introduce the strand and sub strand
- Facilitator give learners a learning experience of watching a video simulation of the functional organization of the CPU
- To achieve the learning outcome let the facilitator give learners the following link to search the internet a video simulating the functional organization of the CPU
- https://www.youtube.com/watch?v=lmDsCo6uV24
- Let learners search on their own, watch and discuss in groups what they have watched

Alternatively let the teacher down load the same video and play it in class as shown below



Another example Grade 7

Learning area: Integrated Science

Strand: Mixtures, Elements and Compounds

Sub-strand: Mixtures

Learning outcome: distinguish between pure and impure substances using melting and boiling Points

Learning experiences

search for, and watch videos and animations on determining melting and boiling points of substances

Learners using Technology for creation

Learners can use ICT tools to develop content in a learning area. The teacher can involve learners in using ICT tools to:

- Take pictures of observations
- Take videos of demonstrations in project work.
- Create 2D and 3D art forms using graphic design tools such as procreate.
- Create and send SMS or social media messages.
- Develop Power Point presentations on different topics
- Create music using web-based tools for music production such as Chordify

RECORDING POWERPOINT PRESENTATION

From slide show tab

- Tick play Narration on slide show tab
- Click record slide show from slide show tab
- Select start recording from beginning or from current slide
- Continue with the presentation.
- save recorded power point presentation for future learning/presentations
- You can Replay - **Practical Session**

KICD INNOVATION

KENYA EDUCATION CLOUD (KEC)LEARNING MANAGEMENT SYSTEM

- Interactive Digital Content (IDC) –From KEC among other sources
- Video-based Content (VBC) - From KEC among other sources **(Edu channel TV)**
- Audio- Based Content - From KEC among other sources **(Radio lessons)**
- E-books

ACCESSING KICD DIGITAL CONTENT FOR LEARNING

KEC – www.kec.ac.ke

NB: Go through the process of accessing the content by typing the address on the URL and access the following:

- ✓ Interactive Digital Content (IDC)
- ✓ Video-based Content (VBC)
- ✓ Audio- Based Content
- ✓ E-books

Open Education Resources (OERs)

Open Educational Resources (OER) are teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions

Open Education Resources (OERs)

1.KICD Open Educational resource

KEC – www.kec.ac.ke

Open Educational resource

- Early years education
- Upper primary
- Secondary Education
- Concordia University in collaboration with KICD-story books
- Special needs Education

Open Education Resources (OERs)

2. Khan Academy

https://www.khanacademy.org/

3.PheT Interactive Simulations

https://phet.colorado.edu

Web – Based Tools For assessments

- ✓ Kahoot – kahoot.com (create); kahoot.it (play).

Practical session

- ✓ mentimeter.com (Create) ; Menti.com – Taking quiz (Play).

Practical session

Setting-up online meetings

- Use of Google Meet/zoom/Team
- Must have a Gmail account
- Practical

WhatsApp

One can:

- Create a WhatsApp group for his or her learners
- Send assignments through the group
- Coordinate and manage classes better
- Arrange for a discussion involving several learners by setting up a group call.

Self-Reflection

1. I learnt…….

2. I need to learn more about…….

3.How I will apply what I have learnt

Suggestions I have for improvement of the session

Upload your responses on

https://forms.office.com/r/7nHVcLMZrt

Facilitators to use this link to View Responses: https://tinyurl.com/KWL-Facilitators

Thank You