DEVELOPING ECONTENT FOR TEACHING AND LEARNING OF CHEMISTRY

रसायन विज्ञान के शिक्षण और सीखने के लिए ई-सामग्री का विकास करना

CURRICULAR EXPECTATIONS FOR CHEMICAL SCIENCE

- Be **engaged** in **working with hands** to design simple experiments.
- Intended to develop

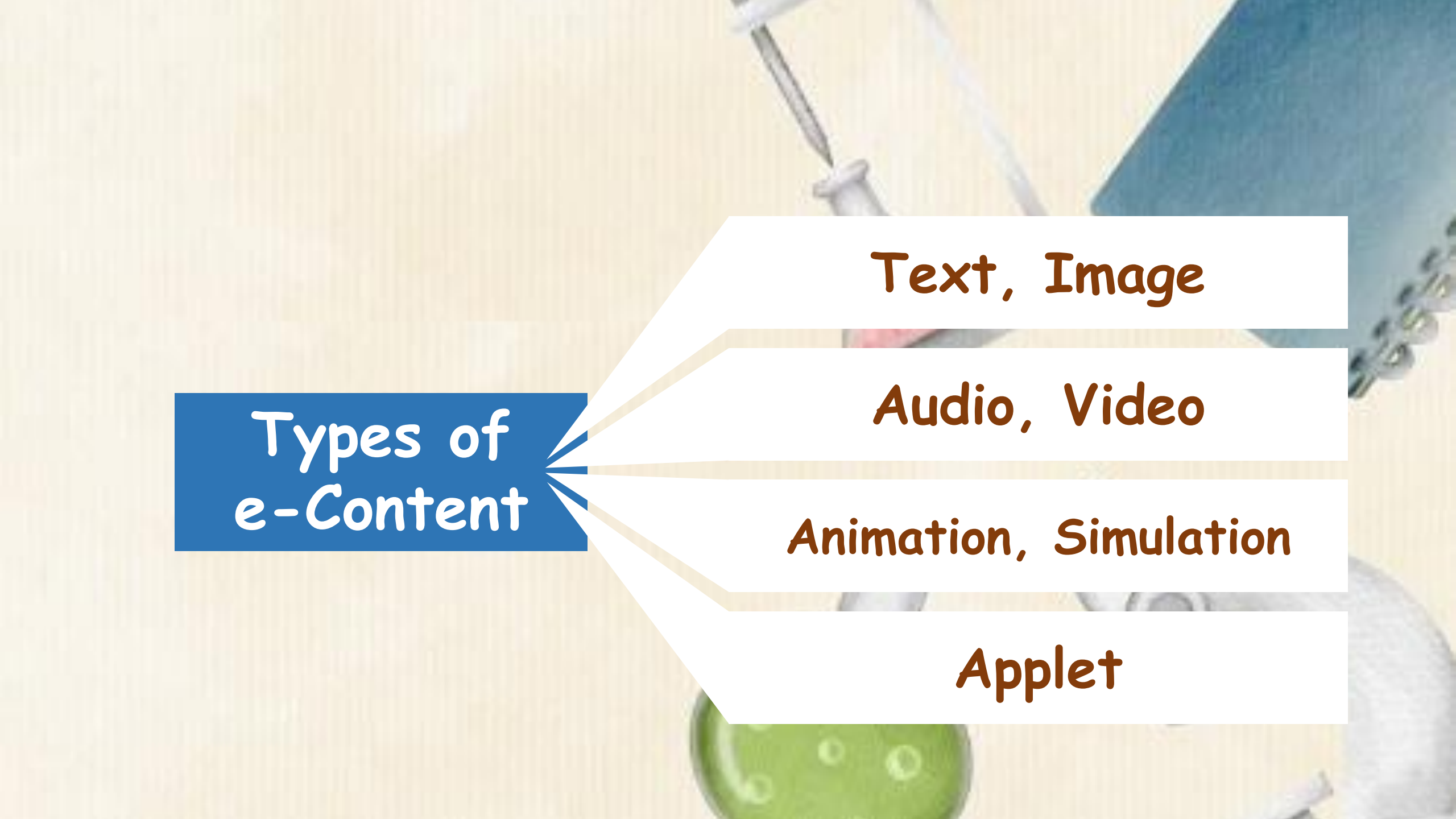
✔**scientific temper and scientific thinking**

✔**process skills;** observation, posing question, searching various resources of learning, planning investigations, hypothesis formulation and testing, collecting, analyzing and interpreting data, critically thinking, reflecting on their own thinking

✔Increase **student participation, engagement, retention**

NEED FOR DEVELOPING E-CONTENT FOR CHEMISTRY

- ✔ **Supplement** to **traditional teaching.**
- ✔ For illustrating **complex** or **abstract concepts**
- ✔ For promoting **engagement** and **retaining information**
- ✔ For meeting the **diverse learning needs** and **preferences of individual learners;** Customization of e-content
- ✔ For illustrate the **practical applications** of chemistry concepts


Types of e-Content
Text, Image
Audio, Video
Animation, Simulation
Applet

SOFTWARES/TOOLS; e-Content Development

Mind Mapping/ Concept Mapping

✔ Free Plane, Free Mind, Mindomo

Infographics

Canva, Easelly

Animation

Scratch, Tupi

Interactive

H5P, PHET, OLabs

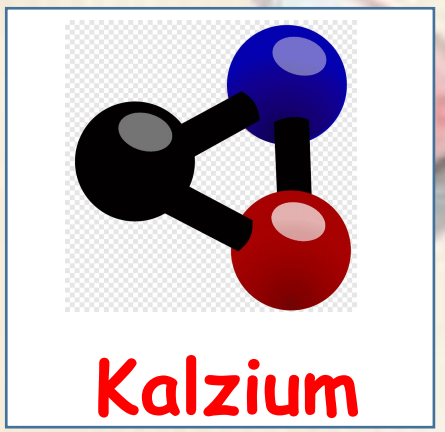
Mind Map

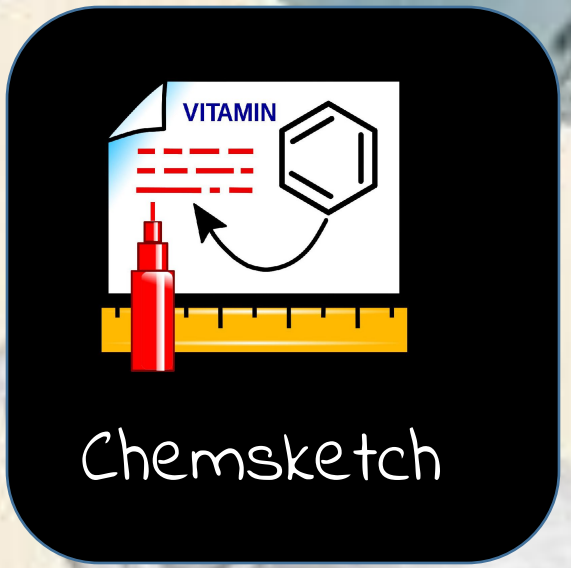
- A graphical way to represent ideas and concepts
- Visual thinking tool that helps structuring information, better analyze, comprehend, synthesize, recall and generate new ideas
- Mind mapping Free and Open Educational software: Free Mind and

Open Educational Repositories

- e-Pathshala (https://epathshala.nic.in)
- NCERT (https://ncert.nic.in)
- Online Labs (OLabs) for School Lab Experiments – Interactive Simulations (www.olabs.edu.in)
- PhET Interactive Simulations (https://phet.colorado.edu/)
- SWAYAM (https://swayam.gov.in/)
- SAKSHAT (https:// www.sakshat.ac.in)
- DIKSHA (https://diksha.gov.in/index.html)

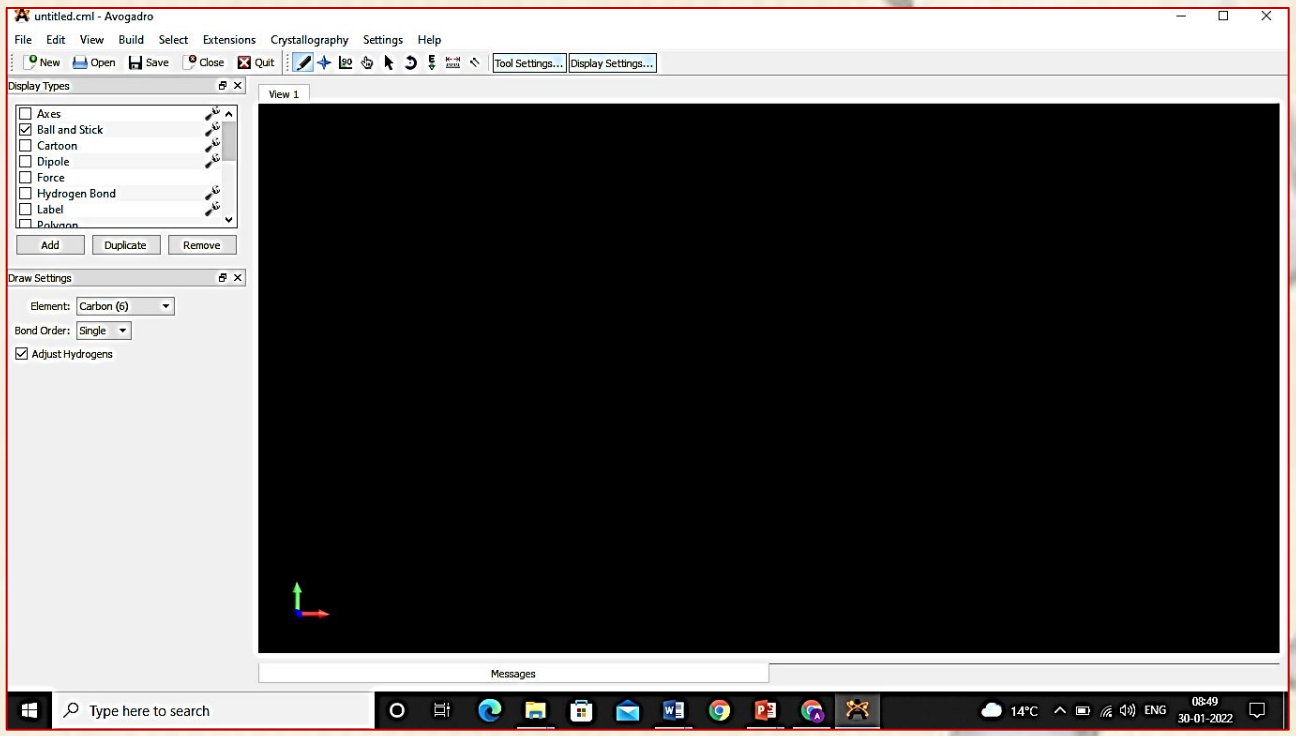
Free and Open Source SOFTWARES





Avogadro

...Molecule Editor Software

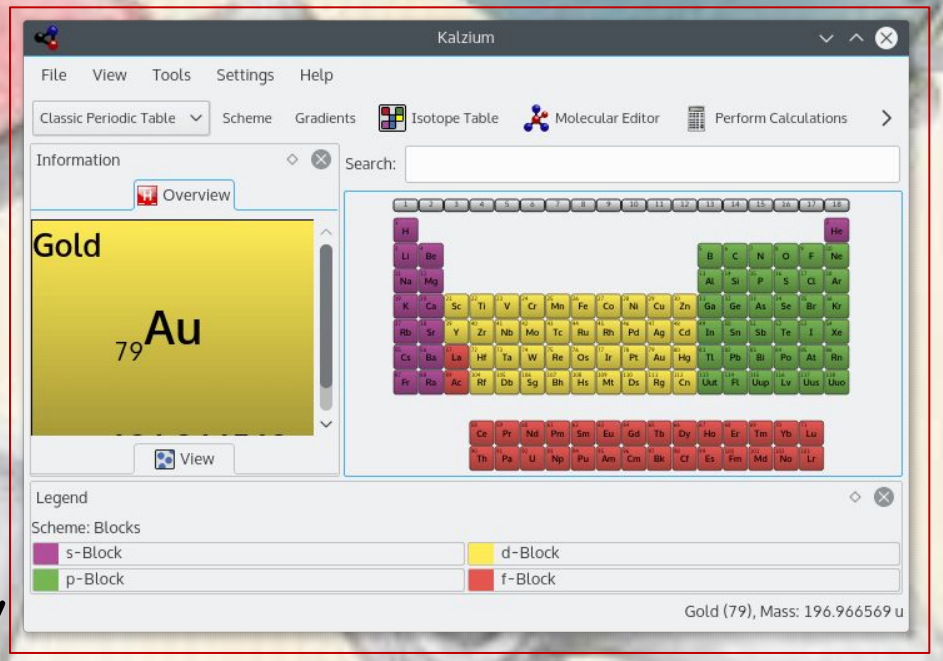


- Free and Open Source software
- Construct, edit and view molecules in 3D
- 3D Molecular Editor and Visualization tool; Huge fragment library to load inbuilt structures
- Freely downloaded on Mac, Windows, and Linux OS
- Downloaded from http://avogadro.cc

Learning Periodic Properties of Elements

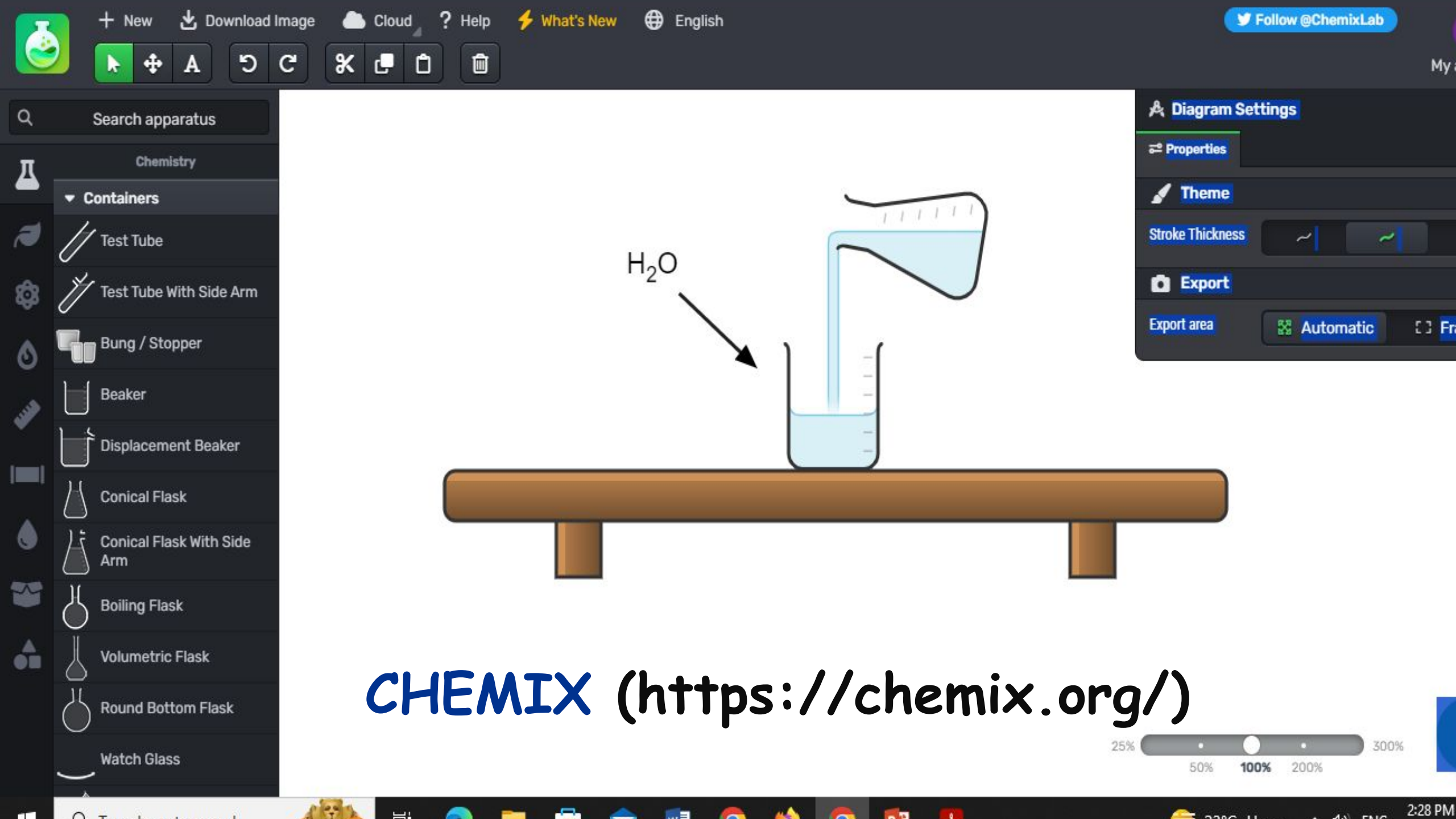
Kalzium

- ✔ Application software for exploration of elements and properties, their classification
- ✔ OER downloaded freely in Ubuntu



RSC Periodic table:

- ✔Interactive periodic table
- ✔features history, alchemy, podcasts, videos, and data trends across the periodic table.
- ✔Detailed Elements information
- ✔https://www.rsc.org/periodic-table/#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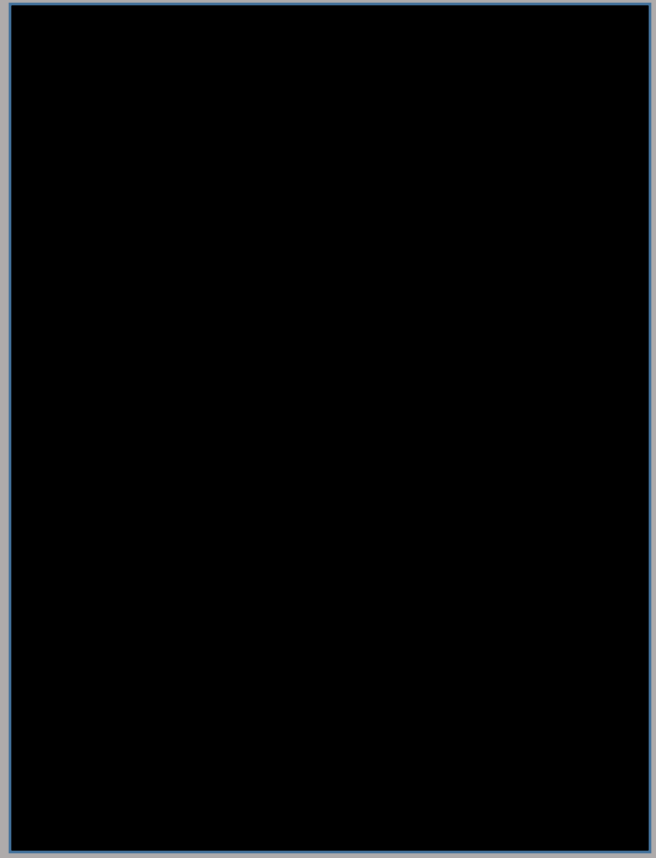
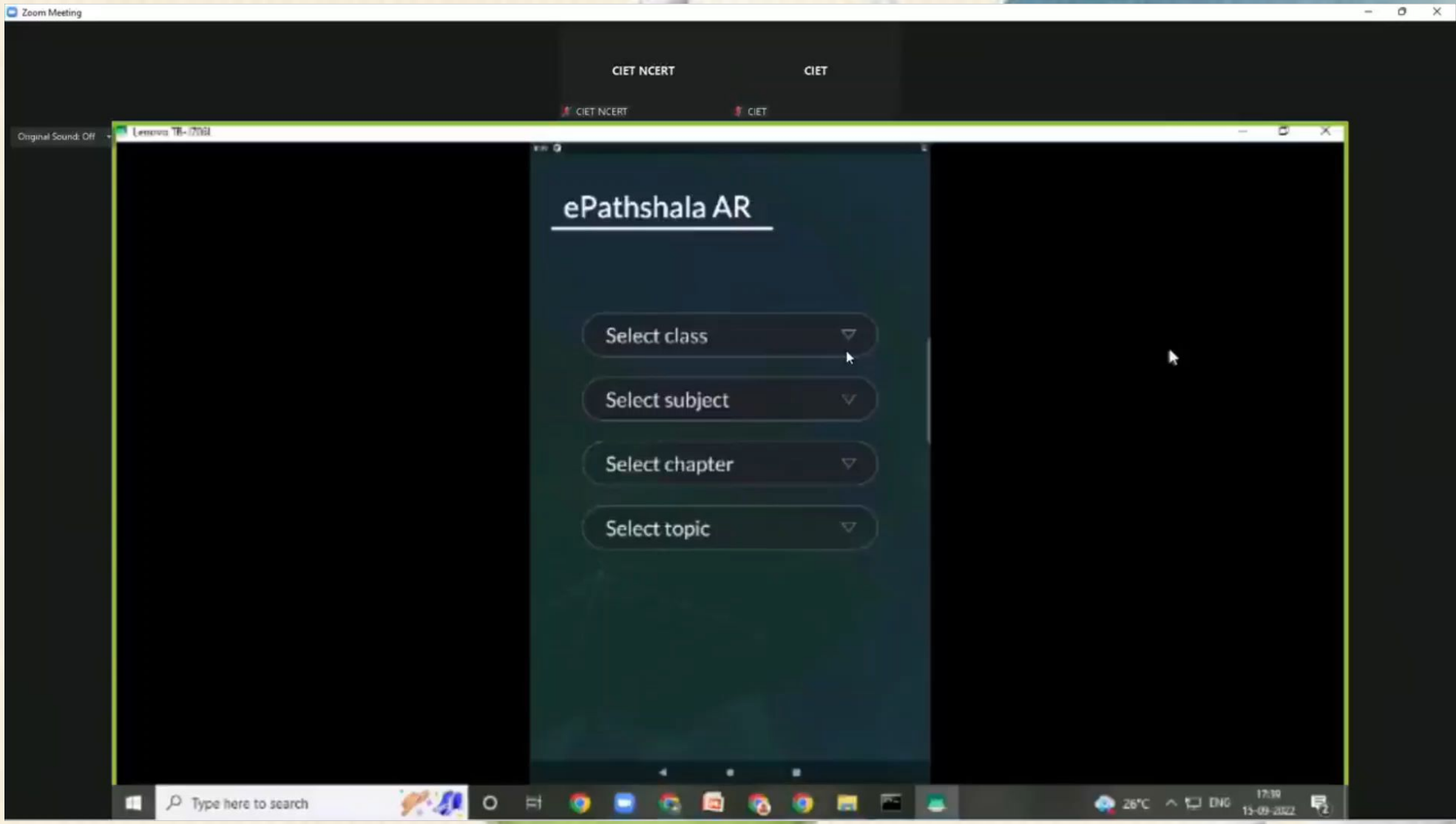
Mobile APPs for Chemistry

- **Periodic table**
- **Beaker**
- **Chemspider** (online database of chemicals owned by the Royal Society of Chemistry)
- **Chairs!** (visual pattern puzzle game)
- **Happy Atoms** (**world of molecules**)
- **My Molecularium** (Molecule Building Game)



Augmented Reality (AR) resources

ePathshala AR



Thanks for your attention

for any queries...

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