

Free and Open Source Software – a boon for education



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Nature of Knowledge and role of education

- Knowledge meant for sharing, belongs to all
 - Newtons laws of motion, scientific discoveries
- Digital technologies – expansion of information and knowledge
 - explosion in the creation, sharing and publishing of information
- Unfortunately, many ICT cannot be shared – they are ‘proprietary’
- Proprietary ICT – you do not ‘own’ the resource even when you pay for it, you only have ‘license to use’
- Popular software – MS Windows, Office, Mac OS – **proprietary** – can not be shared, copied
- Free and Open Source Software (FOSS) created to provide the path of sharing

Nature of ICT

- Free and Open Source Software – created with four freedoms
 - 1) free to study,
 - 2) free to copy
 - 3) Free to modify and
 - 4) Free to distribute
- Prof Richard Stallman (MIT) began **Free Software movement** in 1981
 - Now popular across the world... and in India
 - FSF, India, FSMI, SLF
 - Free software community develops software for free use of all



Nature of ICT

- Role of the teacher
 - Share own knowledge freely with students
 - Support creative capacities so that students become creators
- Just as public education is necessary to ensure all get benefit of education,
Public Software (FOSS) is necessary to ensure all get benefit of ICT
- So in education we should use only FOSS – Free and Open Source Software
- Kerala pioneered FOSS in 2002, now many state governments use FOSS and not proprietary software
- NCERT ICT Policy, 2012 and NCERT ICT Curriculum, 2013 recommend FOSS



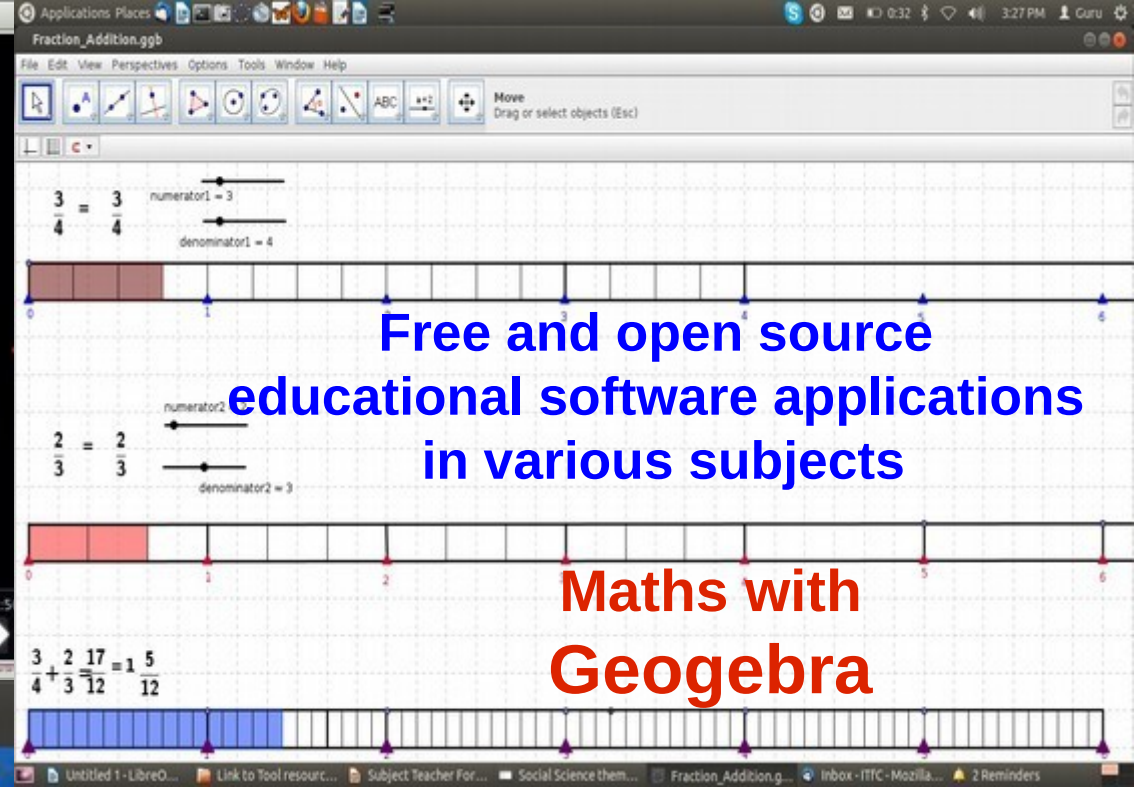
Nature of ICT

- For most of the proprietary tools we use, we have equivalent FOSS tools
 - Libre Office (MS Office)
 - Firefox browser (Chrome, Edge)
 - Duckduckgo search engine (Google, Bing)
 - PDF viewer
- In addition, we have hundreds of tools where proprietary versions are not available or too expensive
 - PDF editor – Okular. Create animations – Peek, Tupi
 - Audio editing – Audacity. Video editing – Kdenlive
 - Video making (screen cast) – Kazam
- Hundreds of FOSS educational apps are available for our use
 - Geogebra, Phet, Stellarium, Tux Math, Kalzium
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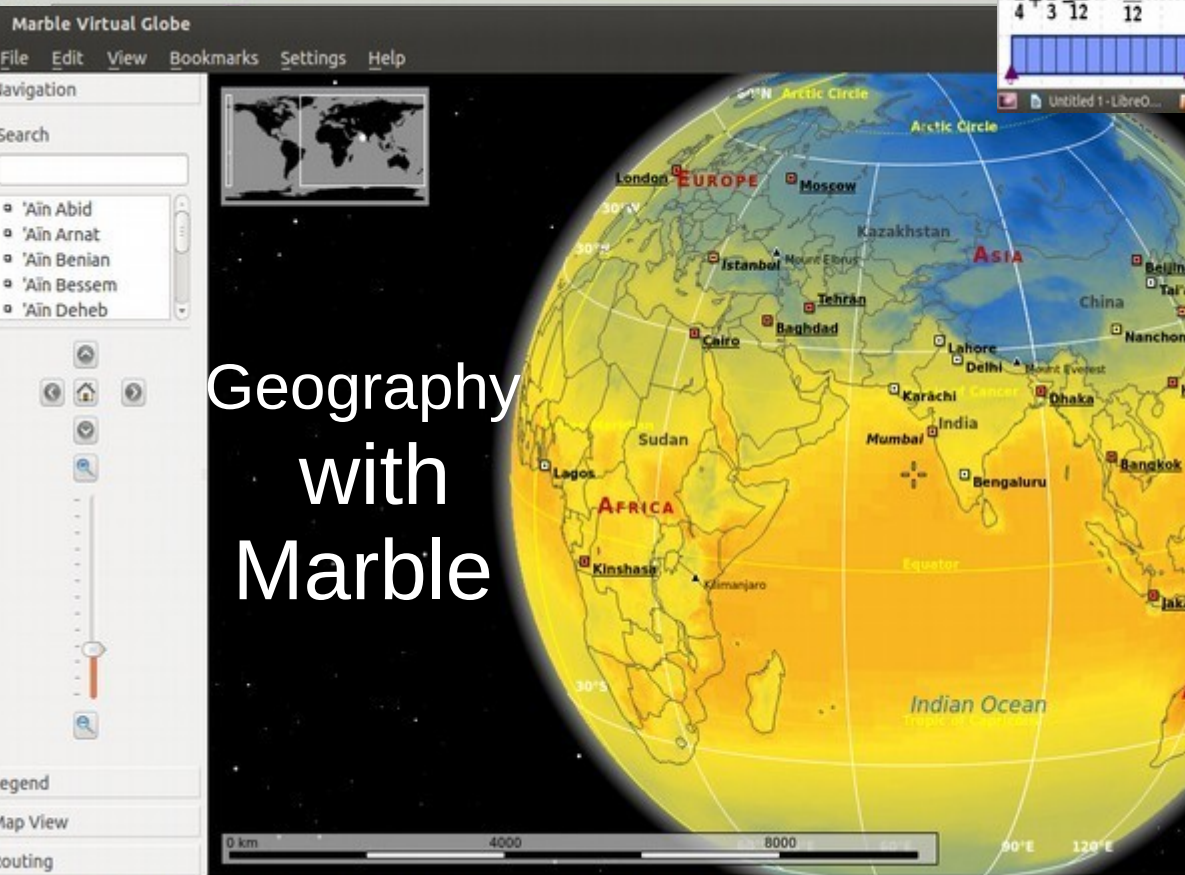


Lunar
eclipse with
Stellarium

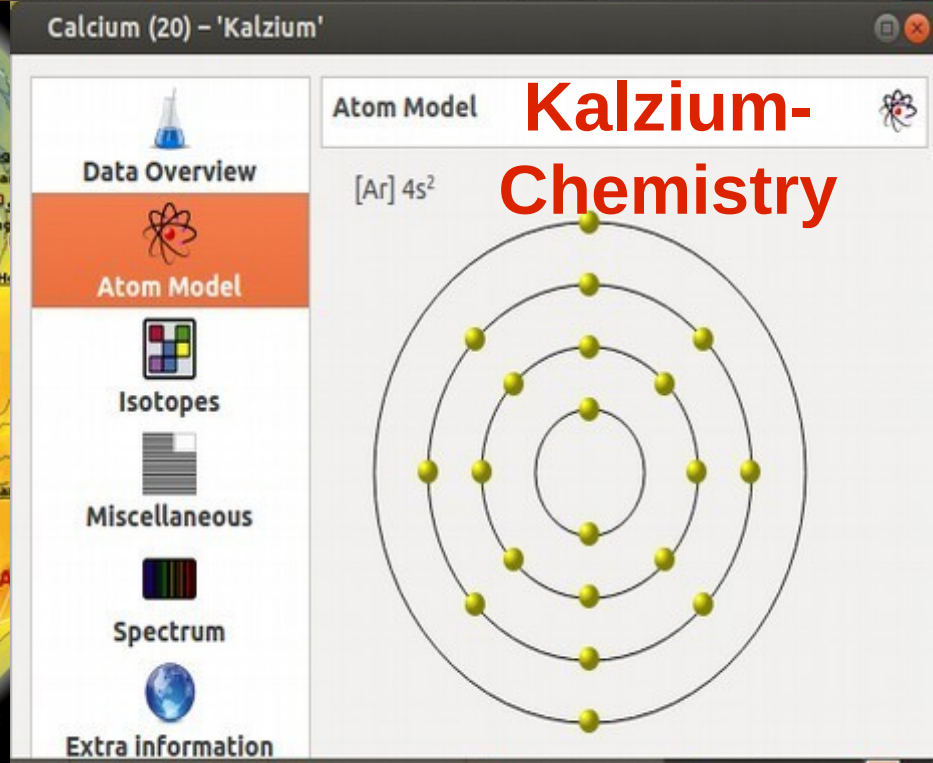


Free and open source
educational software applications
in various subjects

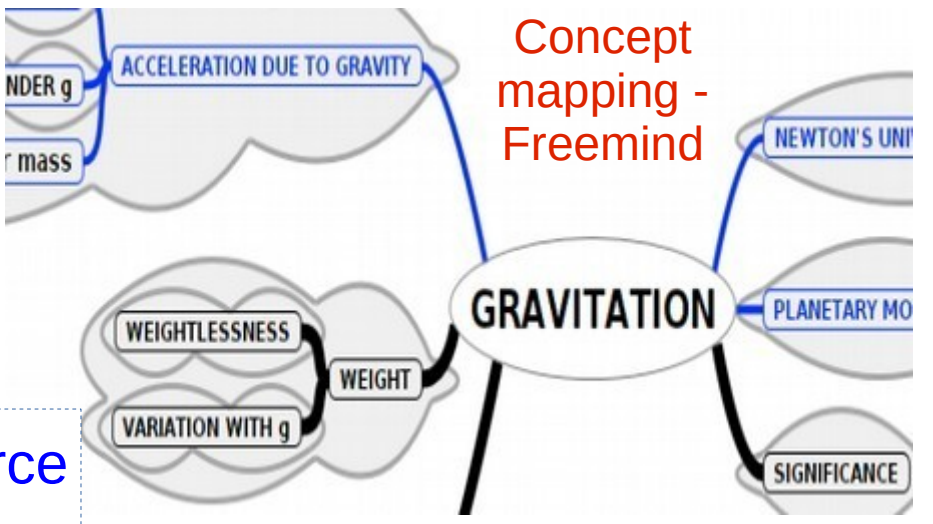
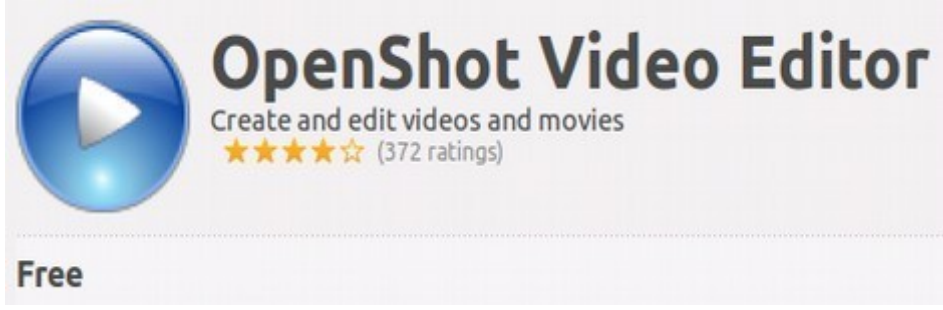
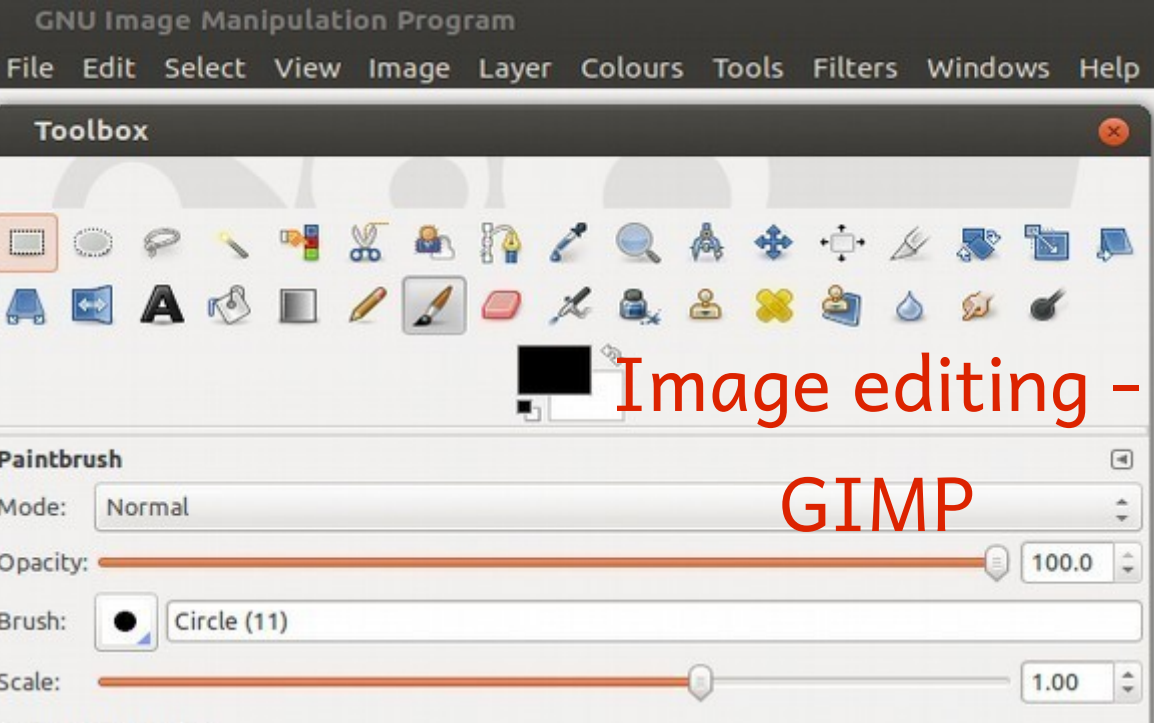
Maths with
Geogebra



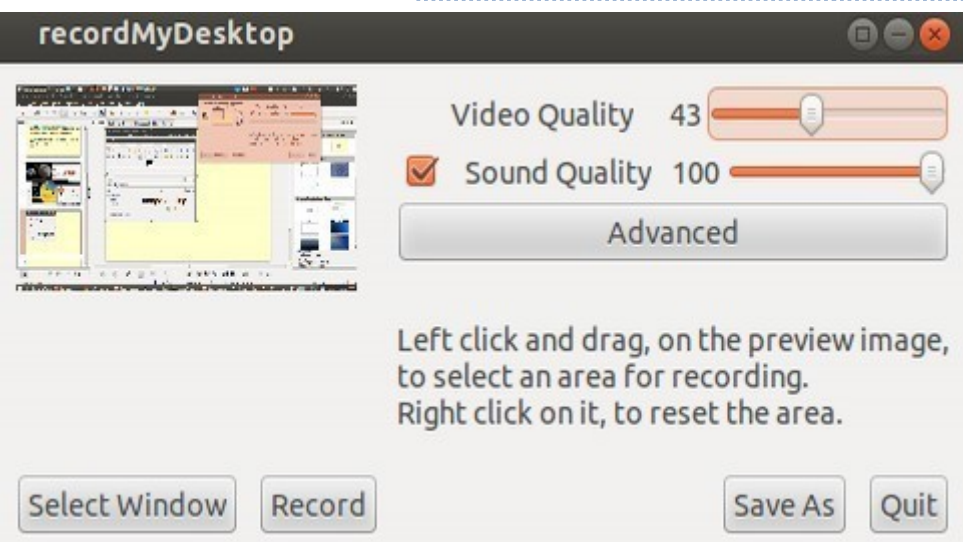
Geography
with
Marble



Kalzium-
Chemistry



Variety of free and open source editors – text image, audio, animation, mind maps, video etc.



Video recording - recordMy Desktop
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Demo of select FOSS tools

https://teacher-network.in/OER/index.php/Explore_an_applicator

(<https://tinyurl.com/itfc-foss-manual>)

Subject specific applications

- Geogebra – tool to teach maths (Pi)
- Phet – Science experiments (Pendulum)
- Marble – Digital Atlas
- Math formulae – LibreOffice Math (Learn page -gif files)
- Kalzium – Chemistry

• Generic applications

- Freeplane - concept mapping
- H5P – dynamic resources

- Installing custom Ubuntu ‘Kalpavriksha’ will install all these applications (link available in Learn Ubuntu page)



Important URLs

All FOSS applications - user manual pages

https://teacher-network.in/OER/index.php/Explore_an_application
(<https://tinyurl.com/itfc-foss-manual>)

includes Geogebra, Phet, Marble, Audacity, Kdenlive and 50 other FOSS tools useful for teachers. Each page is for one tool.

It has installation instructions and how to use the features as a teacher

English_language_learning_resources

<https://karnatakaeducation.org.in/KOER/en/index.php/>

English_language_learning_resources

Create your own resources

h5p.org

Publish resources

soundcloud.com

create your website

wordpress.org

Questions?



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Free and Open Source Software – to create Free and Open Content

- Teachers should see software as tools to create content and use in teaching
- When teachers create content, they should license it as 'FREE AND OPEN'
- Free and Open Educational Content is called 'Open Educational Resources' (OER)
- 4Rs (called "Four Freedoms")
 - Resources can be **accessed** for free and **re-used**
 - Resources can be **revised**/ adapted to make it relevant
 - **Re-mix** different kinds of OERs to make a new resource
 - **Redistribute** - Share the revised/ remixed resource
- Teachers CAN/SHOULD/MUST access OER from Web, create their own OER to create a Personal digital library (PDL) for each topic they teach/learn



Need to create and share OER for our use

- Need for local language resources
 - 1,19,000+ Hindi pages on wikipedia
 - 54,31,000+ English pages on wikipedia
- Language of digital resources on the internet
 - 26% of population; 56% of internet pages
 - 17% of population; 0.1% of internet pages
- Teachers must come together in ‘professional learning communities’ and create OER
 - *Teachers are CREATORS... not USERS.....*
 - *Lets collaborate, create and share OER*



How to work with OER?

- Access
- Create your own
- Access, modify and recreate
- Create – Review – Revise – Share – Publish, a virtuous cycle for teachers
- Be a Teacher – Creator
- Creative Commons Licensing (copy-left)
- You can access freely, acknowledge – CC-BY
- **You can access freely, acknowledge, share it as OER : CC-BY-SA**
- You can access freely, acknowledge, share it as alike, no changes to be made: CC-BY-SA-ND
- You can access freely, acknowledge, non commercial use: CC-BY-SA-NC

