Task Development on Energy
SEAMEO QITEP in Science's Experience

SEAMEO Regional Centre for
QITEP In Science

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Training Programmes

A. Regular Trainings
B. International Collaborative Trainings
C. In Country (Customized) Trainings

Topics/Titles

1. Environmental Education for Sustainable Development
2. Science Classroom Supervision
3. Laboratory Management
4. Earth and Space Science
5. STELR on Renewable Energy (STEM education)
6. Developing Thinking Skills through IBSE for Sustainable Development
7. Science subject matter enrichment
8. Introducing STEM education to school principals
9. STEM Education
10. Others

Topics on Energy in the Trainings

Elastic energy

- bamboo
- rubber

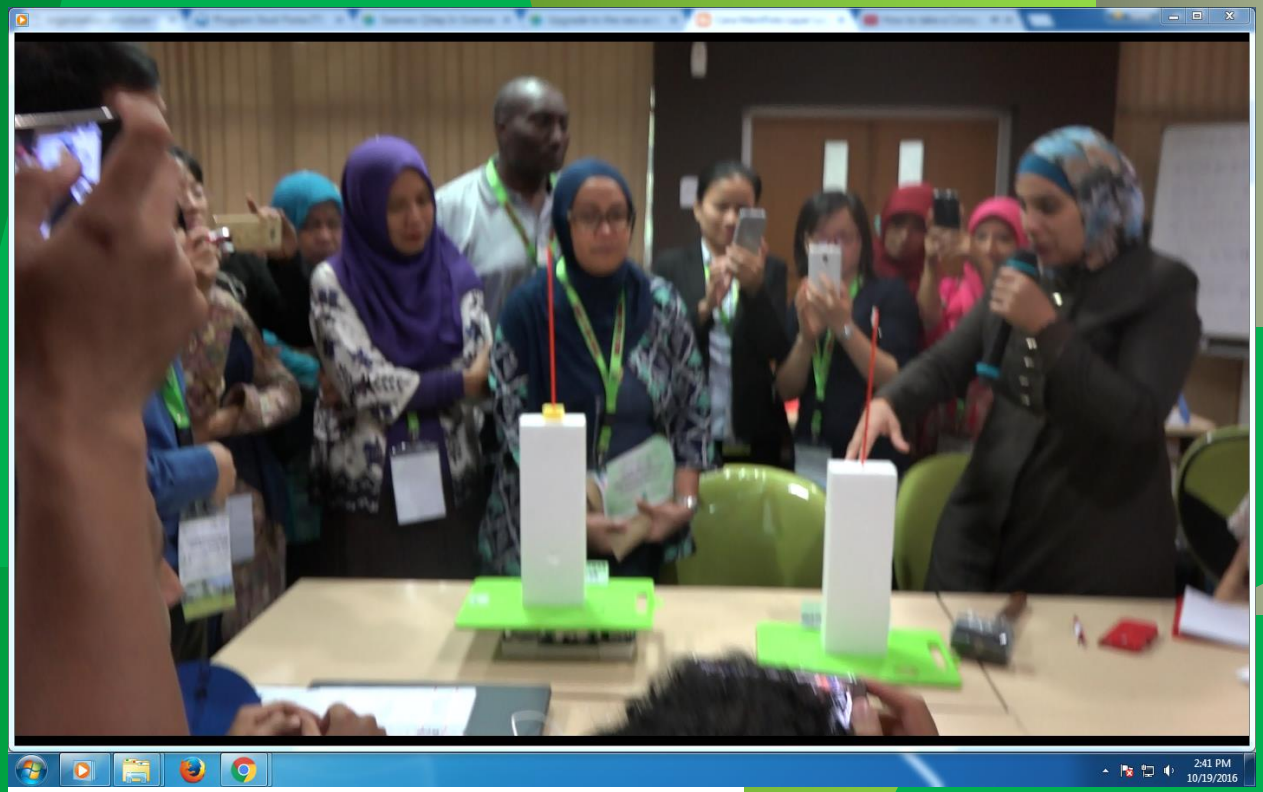
- Throwing tennis ball competition
- Discussion on the competition result-analysis through ,e.g., modeling a bamboo split to fulfill the Hooke’s law
- -> obtain the characteristic of the bamboo split used
- -> compare with other group to understand the physical characteristic of the bamboo.

Earth quakes

- Indonesia (also Japan) experiences so often Earth quakes (mostly low scales), tectonic/volcanic
- How to record earth quakes and to measure the strength -> design and build
- How to survive from the quake disaster –safe building -> modeling of building

Design a Seismograph

Simple seismograph



Anti-quake technology

Wind energy

- Analysis number of blades vs. wind power produced
- Design electric generator
  - Understanding of electric current/electronic
  - Understanding of electromagnetic induction

Energy efficient housing

- Energy transfer by
  - Radiation: Shading and eaves, position of the Sun in the sky
  - Conduction : Insulation in buildings
  - Convection: Ventilation, Fans
- Particle theory of matter: Air conditioning, Evaporation

Solar energy

- How huge is energy released by the Sun
- Why the Sun shines/what happens within the Sun
- Solar panel for car toys at different exposure

Heat energy (resource material in video)

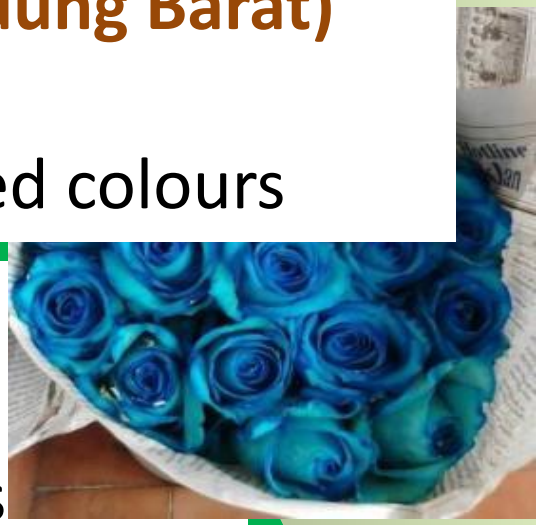
- Effect of temperature on molecules movement in water

Teachers' STEM Projects

Rose Flower Colouring

(Cece Sutia-SMA 1 Parongpong Bandung Barat)

Aims: produce rose flowers with expected colours



STEM:

- *Science:* plants, transportation in a plant, capillarity, colouring substances
- *Math:* simple data analysis (colouring concentration vs colour performance of flowers)
- *Technology:* utilize simple equipment, ICT for dissemination
- *Engineering:* design of colouring substance insertion

Thank you