

Tentative Tasks of Cross Border  
Lesson study  
on Energy through STEAM

# Energy related KNUE Project through STEAM

- In 2014, KNUE has done the project supported by MOE and Korea Foundation for the Advancement of Science and Creativity
- It is a project to develop textbook/teacher' guide to make:
  - A Plant Factory with sunbeams(grade 3-4)
  - A lighthouse with wind power(grade 5-6)
  - A Lamp with pro-environment Fuel cell(middle)
  - A rotating hosue toward the sun(high)

# A Plant Factory with sunbeams (1)

- A natural disaster has caused a shortage of food in many countries.
- Securing foodstuffs stably without a problem from natural disaster.
- It is a concept of a plant factory.

# A Plant Factory with sunbeams(2)

- In this project, students will make a plant factory to study the following things:
  - The process which sunbeams are changed to electricity and electricity to light.
  - The process of photosynthesis
  - hydroponics

# Making Plant factory and Cultivation

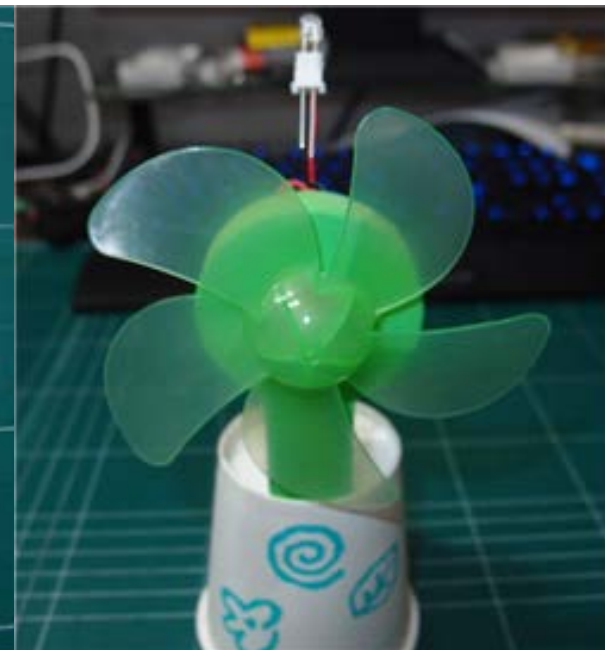
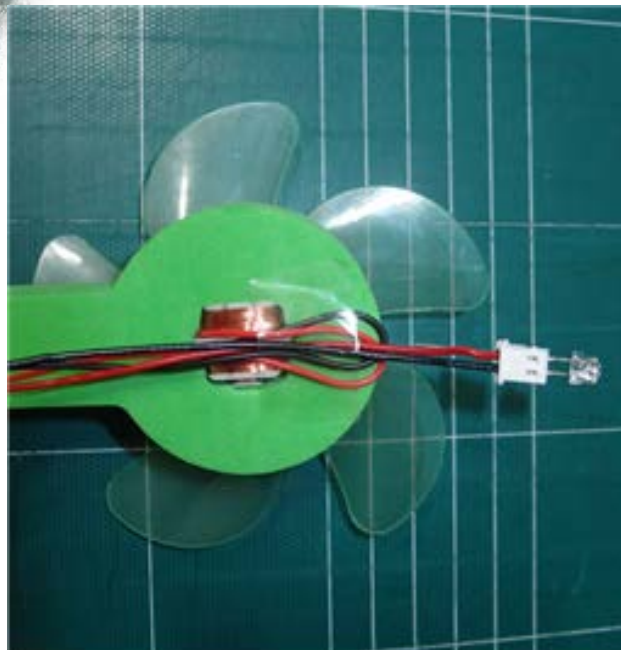


# A lighthouse with wind power

- Students make a lighthouse with wind power to study the following things:
  - The importance of wind power.
  - How to change wind power to electrical power?
  - Job related with wind power



# Making a lighthouse with wind power

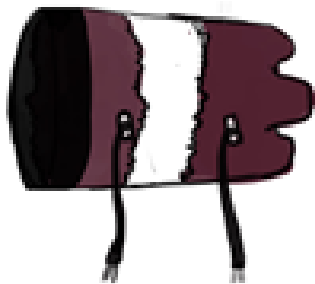


# A Lamp with pro-environment Fuel Cell

- Students make a lamp with pro-environment fuel cell to study the following things:
  - A problem of existing battery
  - The importance of fuel cell.
  - Promising jobs related with fuel cell.



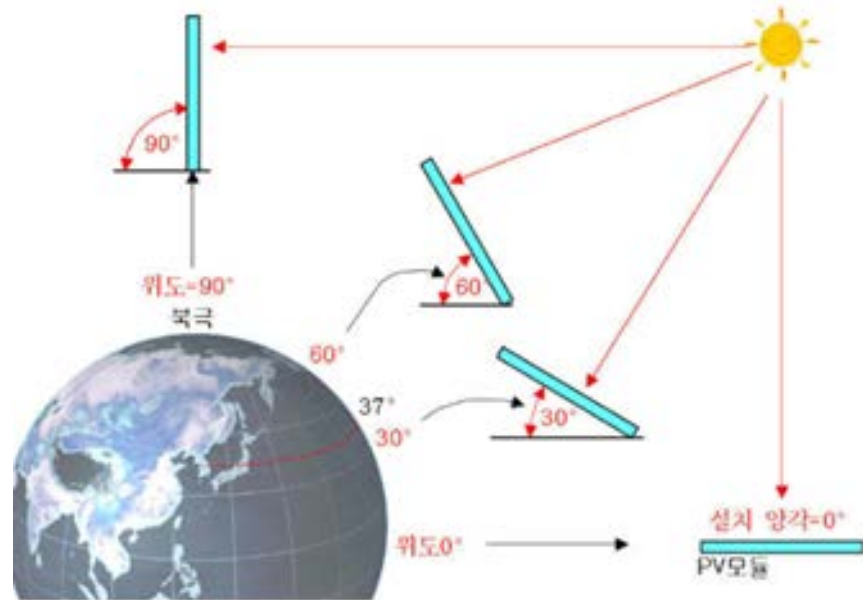
# Making pro-environment of Fuel Cell



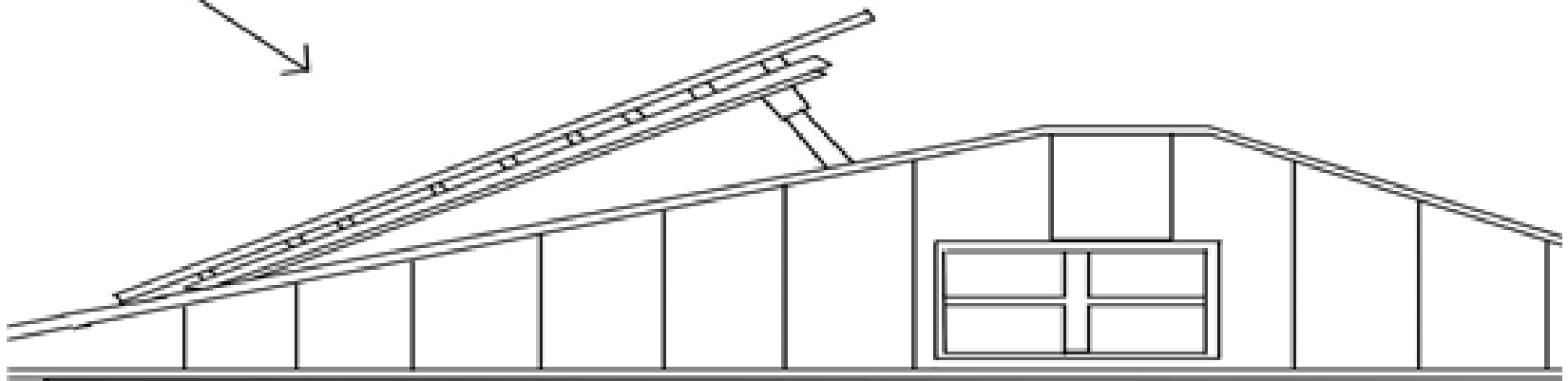
# A rotating house toward the sun

- Students make a rotating house toward the sun to learn the following things:
  - The importance of sunbeams
  - The process to change sunbeam to electrical energy?
  - Ideas to promote the efficiency of sunbeams
  - Promising jobs related with sunbeams.

# Designing A rotating house toward the sun



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# Steps for Cross Border Education

- The most important and the first step for cross-border education is to develop **textbooks** on energy which can be used in many countries.
- Teaching ideas are not enough. **We need a customizing process for fitting teaching ideas to situations of each economy.**

# Steps for Cross Boader Education

- These teaching ideas must be harmonized to each school's formal curricula.
- It is easy to develop some kind of project ideas at the local level.
- My school already has developed teaching ideas on energy. But it is only the Korean project.
- The ideas must be reviewed by each country through custimizing process.