



Promoting Science, Technology, Engineering, Mathematics and Innovation (STEMI) in Schools

THE INCLUSION OF RENEWABLE ENERGY AND ENERGY
EFFICIENCY IN THE CURRICULUM.



Outline

- Background
- Overview of Content of the Science Curriculum
- Expected learning Standard in Energy
- Grade Specific Standards (On Energy Efficiency and Renewable Energy)
- Other Suggested Strategies for promoting Energy Efficiency
- Conclusion



Background



- Under the current dispensation, the role of STEMI in the improvement of living standards can never be underestimated.
- This is reflected in key sectors such as education, health delivery, agriculture, production of energy and manufacture of goods and services STEMI.
- In recognizance of this, the MoE has introduced several interventions to boost the learning of this key sector at the school level.



Background



- At the heart of every society is education. Within the heart of education is the CURRICULUM.
- The standards-based curriculum introduced in the 2019/2020 academic year makes provisions for learning STEMI concepts (including Energy-related concepts)



OUR DREAM GHANAIAN CHILD



Independent

Global Citizen

Creative

Good Moral Values

Innovative

Team Leader

Critical Thinker

Patriotic

Problem Solver

Digitally Literate

Team Player

Good Communicator



Overview of Content of the Science Curriculum

STRAND	SUB-STRANDS	B1	B2	B3	B4	B5	B6
DIVERSITY OF MATTER	Living and Non-Living Things	✓	✓	✓	✓	✓	✓
	Materials	✓	✓	✓	✓	✓	✓
CYCLES	Earth Science	✓	✓	✓	✓	✓	✓
	Life Cycles of Organisms	✓		✓	✓	✓	✓
SYSTEMS	The Human Body Systems	✓	✓	✓	✓	✓	✓
	The Solar system		✓	✓	✓	✓	✓
	Ecosystems	✓		✓	✓	✓	✓
FORCES AND ENERGY	Sources and Forms of Energy	✓	✓	✓	✓	✓	✓
	Electricity and Electronics	✓	✓	✓	✓	✓	✓
	Forces and Movement	✓	✓	✓	✓	✓	✓
HUMANS AND THE ENVIRONMENT	Personal Hygiene and Sanitation	✓	✓	✓	✓	✓	✓
	Diseases	✓	✓	✓	✓	✓	✓
	Science and Industry	✓	✓	✓		✓	✓
	Climate Change	✓	✓	✓	✓	✓	✓



Expected learning Standard in Energy

- By the end of Primary Six, learners are expected to attain the following standard in the concept of Energy:

Demonstrate an understanding of the concept of energy, its various forms and sources and the ways in which it can be transformed and conserved.



Grade Specific Standards on Energy Efficiency and Renewable Energy

Grade	Concept to be learnt
Basic One	Understand energy and give examples of its uses
Basic Two	Identify the sun as the main source of light and warmth on earth
	Identify everyday applications of energy
	Understand that objects become hot or cold through the loss or gain of heat
	Recognise the importance of safety when using electricity
Basic Three	Know heat as a form of energy and identify some sources of heat
	Identify different sources of electrical energy



Grade Specific Standards on Energy Efficiency and Renewable Energy

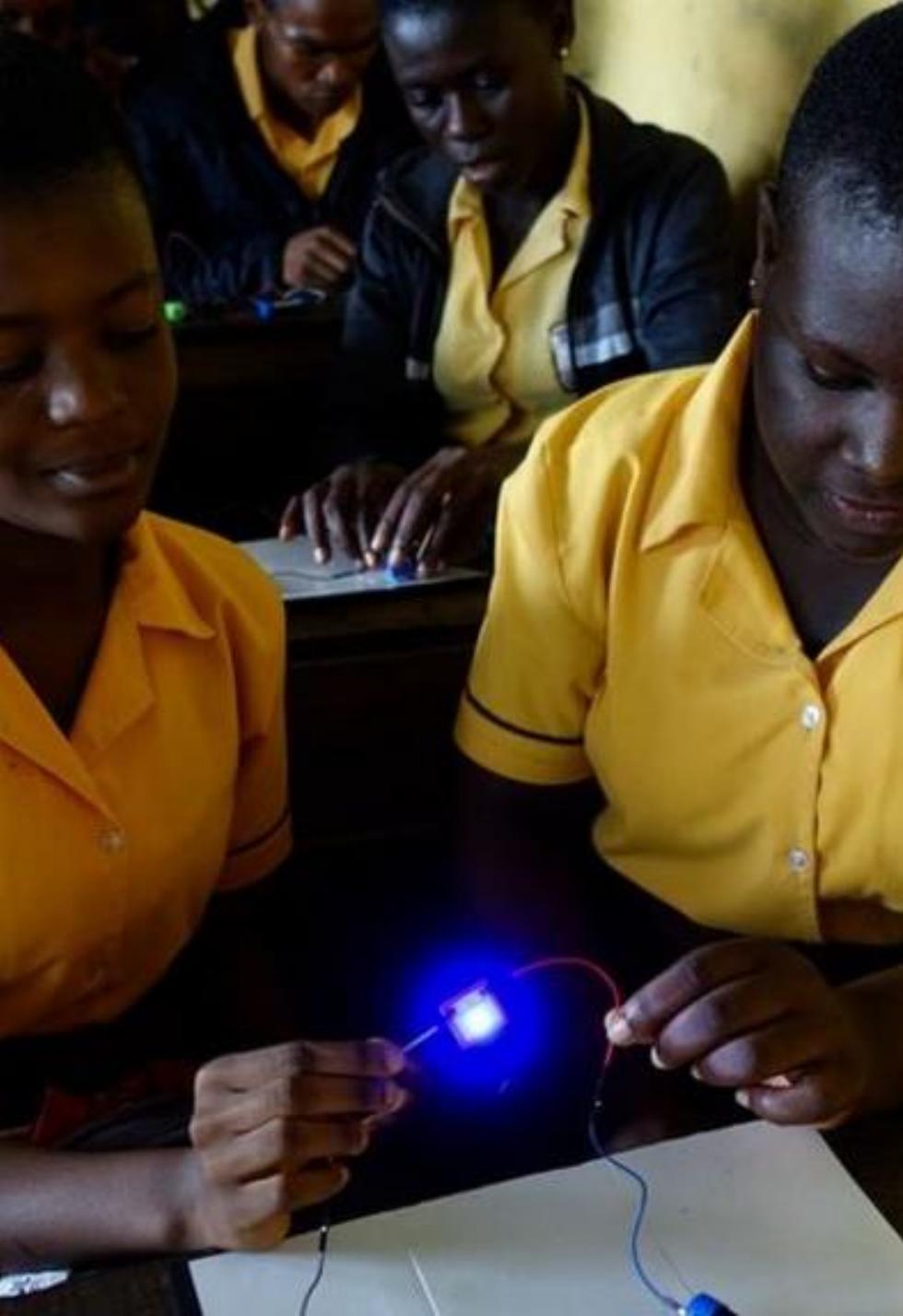
Grade	Concept to be learnt
Basic Four	B4.4.2.1.1 Identify the uses of electricity
	B4.4.2.1.2 Describe ways of conserving electricity
Basic Five	B5.4.1.1.1 Explain how energy is transformed from one form to another
	B5.4.1.1.2 Know how to use electricity efficiently in the home
Basic Six	B6.4.1.1.1 Compare renewable and non-renewable sources of energy



Sample Provision in Curriculum

CONTENT STANDARDS	INDICATORS AND EXEMPLARS	SUBJECT SPECIFIC PRACTICES AND CORE COMPETENCIES
<p>B5.4.1.1 Demonstrate an understanding of the concept of energy, its various forms and sources and the ways in which it can be transformed and conserved</p>	<p>B5.4.1.1.2 Know how to use electricity efficiently in the home</p> <ul style="list-style-type: none"> • Learners mention names of things that use electricity in the home. • Brainstorm with learners to come out with how they use the electrical gadgets. • Learners talk about what will happen if electrical gadgets are not switched off when not in use. • Elaborate on and link learners' ideas with the issue of power outages and crisis which come as a result of the inefficient use of electricity in our homes and industries. • Learners, in a think-pair-share activity, identify how they can use electricity efficiently in the home, community and school. e.g. ironing in bulk, putting off television sets and freezers when ironing, using energy-efficient bulbs and other electrical gadgets with higher energy efficient ratings: (more stars imply higher energy efficiency). 	<p>Core Competencies Critical Thinking and Problem-Solving Cultural Identity and Global Citizenship Personal Development and Leadership Communication and Collaboration</p> <p>Subject Specific Practices Analysing, Evaluating Manipulating</p>





Others

Suggested approaches to promoting STEMI education in Schools

- Formation of STEMI and Energy Efficiency Clubs
- Projects on STEMI and Energy Efficiency in School

E.g. Basic 4:

- ❖ Monitoring electricity consumption in the home and at school.
- ❖ Learners record the amount of electricity consumed in their homes or at school over a period of three (3) months and report on their findings.



Others

Suggested approaches to promoting STEMI education in Schools

- Organisation of STEMI Day Celebrations in School
- Invitation of Resource Persons to make Presentations



Conclusion



- **SDG GOAL 7 on Affordable and Clean Energy Targets that** : By 2030, the global rate of improvement in energy efficiency must be doubled.
- It also seeks to “increase substantially the share of renewable energy in the global energy mix”.



Conclusion

Integrating concepts on Renewable Energy and Energy Efficiency in the curriculum presents us with a great opportunity to:

- Create awareness on the need to use energy **wisely**
- Make the Future Generation **ambassadors** of Energy Efficiency
- Ensure the provision of **clean** and **reliable** supply of energy at an **affordable** cost to all citizens.





MINISTRY OF EDUCATION
REPUBLIC OF GHANA

*Thank
You!*

