Learning Remotely Practical Solar STEM
" Tell me, I'll forget, Show me, I'll remember. Let me do it, I'll understand"

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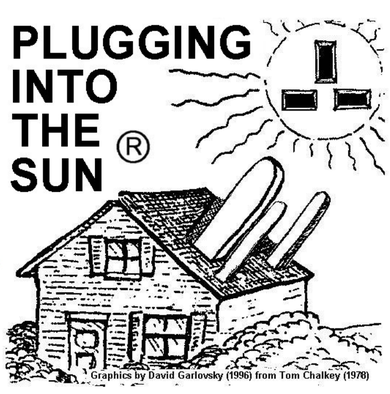

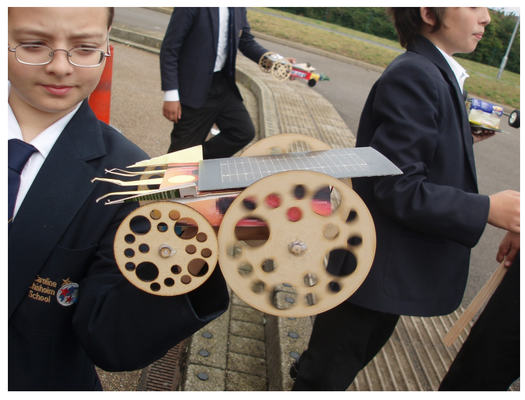

Up-skilling in renewable energy technologies

- **The Solar-active STEM resources uses** flexible PV amorphous silicon technology which has *significant output on a dull winter's* day.
- The solar car resource covers **concepts in GCSE science, use of algebra and geometry** applied in a useful way e.g. finding centre of a circle [i.e. **triangulation]** for wheels.
- Students experienced our 'Let me do it, I'll understand' approach, which encourages problem-solving to implement modifications to affect performance by applying STEM's innovative and integrated approaches.
- **Pit Stop of cre8ate maths** was applied to investigate car performance through practical real data gathering and analysing. For example, **time and distance data collected** to calculate speed on various surfaces and graphs created that motivated discussion.
- Students gained knowledge in **core principles of climate change science**.
- At Shelly College, Sheffield students investigated performance in looking at size wheels, tread for car to travel further and faster in 1 revolution and relation to gear ratios; shape of the frame to benefit from aerodynamics.
- At Royds Hall secondary students explored aerodynamics, forces and improved the design of their cars in mathematics lessons.
- Student teachers of Stenden University in The Netherlands developed lessons for 4 – 12 year olds - challenged to construct the most clever and fast car. A race took place on Ameland. beach
- The solar car activities were successfully reviewed through a questionnaire by teachers and students.

CONCLUSIONS

Practical on-line self-supporting sessions were successfully conducted using a problem solving approach.. The professional development practical on-line sessions were available to primary, secondary and FE/HE teachers. The teaching approach focused on learning to be enjoyable while students acquired problem-solving skills and employable opportunities. The teaching approach was effective in encouraging invention while students gained knowledge and skills in climate change science.