

Assignment 3: Rich Multimedia Lesson

Topic: Renewable Energy: Understanding Solar Power

Overview

In today's module, we are going to be looking at the concept of solar power and the role it can play in sustainable living while addressing environmental challenges. A renewable energy source, solar power uses the energy from the sun to generate power that can be used for practically any purpose. It reduces our reliance on non-renewable resources and understanding solar power is key to promoting environmentally friendly practices and contributing to a more sustainable future.

Lesson Objectives:

By the end of this lesson, learners will be able to:

1. Understand the basic principles of solar power.
2. Understand how solar panels convert sunlight into electricity.
3. Identify the advantages and challenges of using solar power.
4. Explore ways individuals can incorporate solar energy into their daily lives.

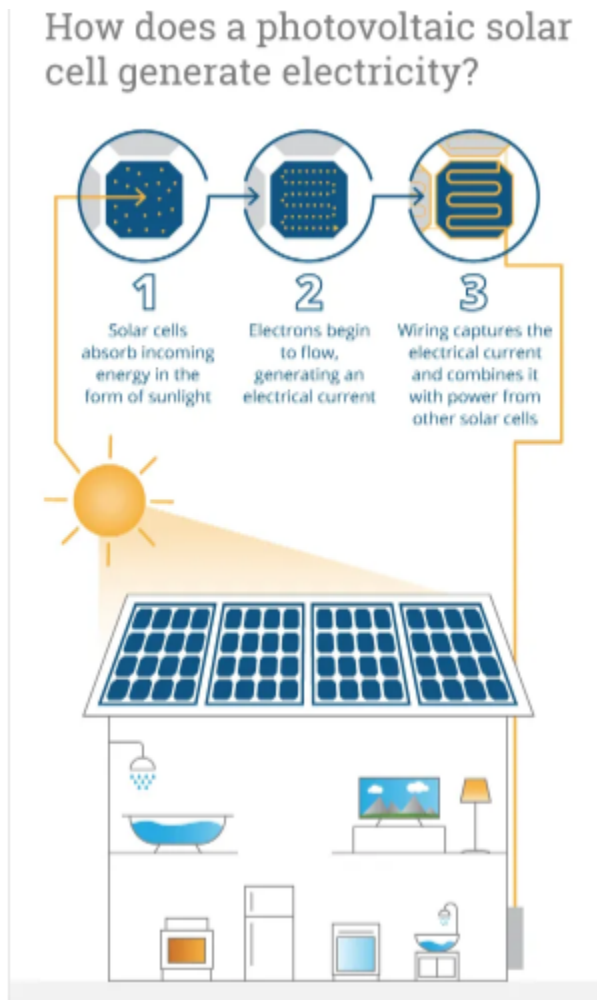
Read/Watch:

- [Solar Power Explained | National Geographic](#) (2 minutes) – A video explaining the principles of solar power.
- [How Do Solar Panels Work | Richard Komp](#) (5 minutes) – A video on converting sunlight into electricity.
- [The Pros and Cons of Solar Energy | EnergySage](#) (3 minutes) – A video on the potential pros and cons of going Solar.

Content:

To enhance understanding, infographics are listed below. A visual representation of a solar panel system, highlighting key components and the energy conversion process, is provided.

Visual aids are being used here to help you better understand the step-by-step nature of the process and make things easier to grasp (Kim et al., 2008).





Application

Here are a few activities to help you put into practice what you've learned so far. These are all H5P-based and allow you to interact along with being easy to use.

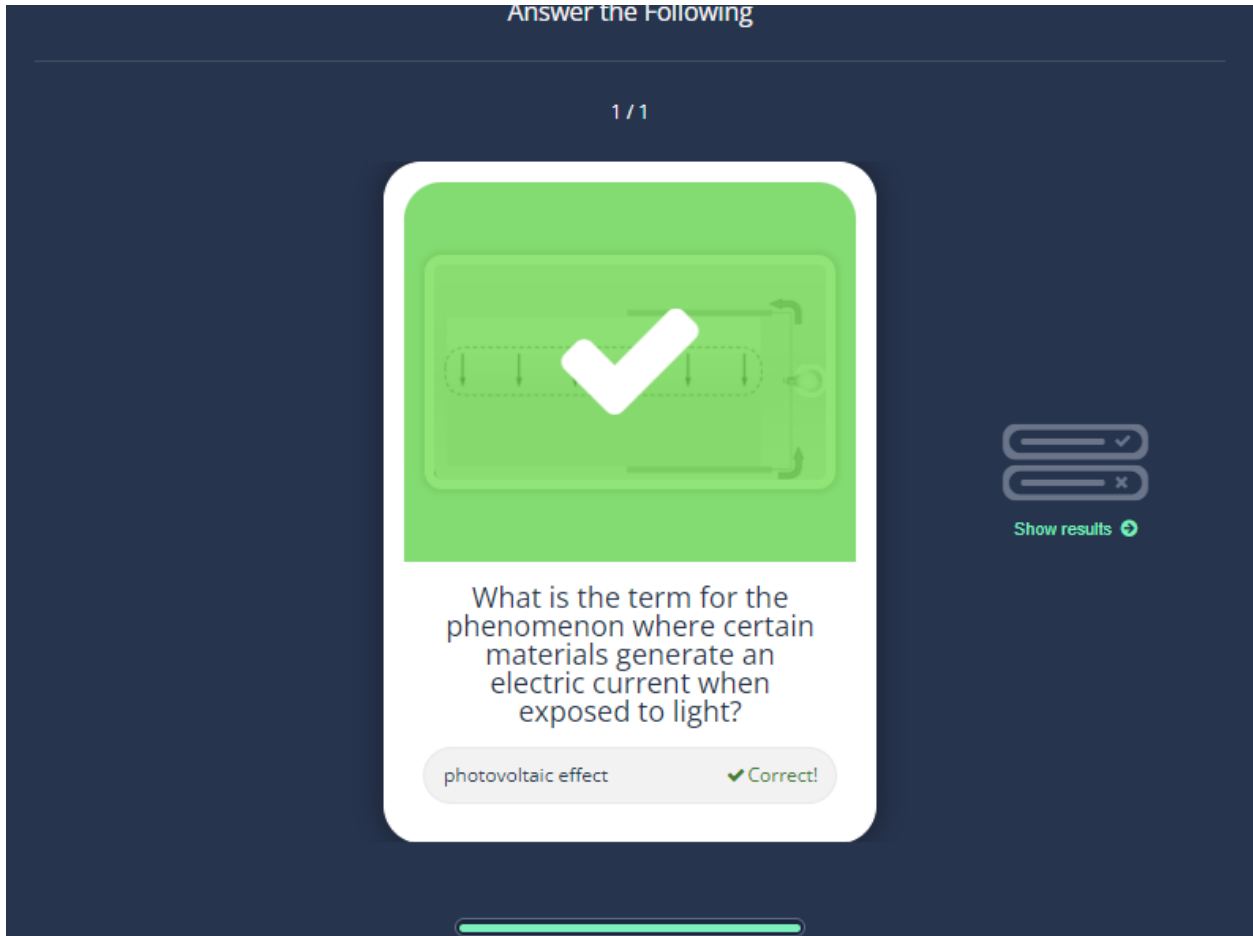
You have made 1 attempt

Which semiconductor material is commonly used in the fabrication of solar cells to convert sunlight into electricity?

- ✓ Silicon
- Aluminium
- Copper

★ 1/1

H5P Reuse I am confused



Students are also encouraged to add to their knowledge and share their findings by drawing a flowchart explaining the process of sunlight to electricity conversion. Use of any helpful tools is highly encouraged to better convey their know-how.

Discussion Forum

Go outside into your surroundings and find 3 potential places that can benefit from inputting solar energy into their operations. These places can be houses, businesses, or anything you find useful. Once found, make a small illustration to show how a solar system would be implemented on top of these places. Use of software to better express yourself is encouraged.

Interact with Peers

Engage with what your peers have posted. Add comments to spark ideas. Ask what they think is stopping people from adopting solar energy.

Reflections

Here are a few questions you can use to spark your ideas. You can use as many of these as you like to reflect on what you've gained so far.

- Reflect on the technological advancements in solar power. How do you think future innovations in solar technology might impact our energy landscape and address environmental concerns?
- Can solar power be implemented into your daily routine?
- Are the challenges that accompany solar energy enough to deter you from considering it as a viable source?
- Is there evidence of solar energy adoption impacting the global climate?

To Do This Week:

1. Watch the video on Solar Power Explained | National Geographic.
2. Watch the video on How Do Solar Panels Work? | SciShow.
3. Read the article Pros and Cons of Solar Energy | Engineering Choice.
4. Complete H5P activities: Drag and Drop Solar Power Components, Multiple Choice/True or False Solar Power Quiz.
5. Post to the Discussion Forum: Share ideas on incorporating solar power into your daily life and post an image representing solar technology.
6. Reply to peers' discussion posts, ensuring you reply to at least one classmate.
7. Use the reflection questions and discuss with 3-4 peers.

Reflection Questions

A discussion of how each member has contributed to the project.

All three of us came together to figure out what we all preferred to do and what we were good at. Abdullah decided he was going to search up and link all the related content to the topic we had chosen. Speaking of which, our topic was a result of all of us wanting something important in today's society, yet also had the potential to teach something moderately complicated. Usama decided to make the related activities using H5P and also decided to take the time to generate some reflection questions. Dylan added other things relating to the template that we were following like the To Do section and others. Overall we collaborated heavily and were even involved in each other's parts so that we could give active feedback and produce something we were all agreeing on.

Identify which media you created and with which tools.

We decided to use visuals early on because of the impact that had on how students perceive information. We knew the topic we were covering would be hard to get across to readers which is why we stuck to pictures early on. Additionally, we picked some videos to give students further understanding because we knew understanding the steps involved in solar energy production can be hard to write and draw effectively and we wanted videos to explain the process from start to finish. Then, drawing from what we had covered previously during this course, we did some interactive activities using H5P. our previous experience showed that the tools that you can make using H5P require very little effort but they make the act of solving and learning new things better. Lastly, we also put a lot of emphasis on group discussions within groups and outside of groups because of our experiences related to group discussions we've had.

Identify the principles, theories, and techniques that we studied this term that you have followed in your lesson.

In structuring our lesson we wanted to pay close attention to one of the first theories that we covered which was the cognitive load theory. We knew with the topic we had chosen the intrinsic load was relatively high so we wanted to minimize extraneous load so that we could manage germane cognitive load so that we could make our topic as easy as possible (Kirschner et al., 2011).

Additionally, we wanted to focus on Merrill's principle of application and integration as we felt these would benefit the students the most in terms of understanding the topic we were presenting because of its complex nature (David Merrill, 2007). We also followed a backward design policy when designing this as we had experienced throughout the course and while putting an emphasis on active learning (Mahmood et al., 2011).

References

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- Kim, R. S., Seitz, A. R., & Shams, L. (2008). Benefits of Stimulus Congruency for Multisensory Facilitation of Visual Learning. *PLoS ONE*, 3(1), e1532. <https://doi.org/10.1371/journal.pone.0001532>
- Kirschner, F., Kester, L., & Corbalan, G. (2011). Cognitive load theory and multimedia learning, task characteristics and learning engagement: The Current State of the Art. *Computers in Human Behavior*, 27(1), 1–4. <https://doi.org/10.1016/j.chb.2010.05.003>
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