Overview			
Topic	Introduction to Solar Energy	Date	
Grade Level	3 - 5	Presenter	
School		Teacher	

Goal

Introduce students to the basics of solar and renewable energy. Have students think about how energy plays a role in their own lives, and have fun modeling how solar panels move energy.

Timeline	Materials
Opening/Introduction - 10 Presentation - 20 Activity – 10 Conclusion - 5	Printed photos of types of electricity generation. Large sticky notes

Introduction

- Where does electricity come from? / How do we make electricity?
- What does "renewable" mean?
- What does "renewable energy" mean? / What kinds of energy are renewable or non-renewable?
- Is solar energy a renewable energy?
- How does solar energy work?

Presentation / Core Content

Show students photos of different kinds of electricity generation. Ask them what they are called, and if they know whether or not it is a renewable energy source.

Show a general diagram of a home solar energy system, including panels, conduit, inverter, and appliances. Ask, and then explain: How does energy flow through this system? What happens to energy that isn't used inside the house?

For more advanced students, you may discuss the difference between grid-tied and off-grid systems.

You can also discuss AC / DC, string inverters vs. micro-inverters. You may also introduce solar thermal systems, and utility-scale solar. This is also a great opportunity to talk about your career in solar energy, and answer any questions that students may have.

Activities

Silent brainstorm:

Ask students to independently think of an idea for a new solar technology, and write them on a small sticky note. After the writing period is over, ask students to share their ideas.

Solar Energy Game:

This activity simulates photons coming from the sun and exciting the electrons in the silica within a solar panel. Students should stand or sit in a line with their hands facing up, next to their classmates.

One student stands outside of the rows and represents the sun. When he or she says "Sunshine!", the first student hi-fives the person next to him or her. Explain that this is akin to when the photon gives energy to the electron. That electron is excited and bumps into the adjacent one. Students simulate this by (gently!) hi-fiving the person next to them, passing the imaginary energy from the photon. Remind students that they cannot "pass" the energy along until their hand is hi-fived. The last student in line then raises their hand and says "Lights on!". The first row to turn the lights on wins.

Conclusion

Ask students to share one thing they have learned, or one question they have about solar or renewable energy.