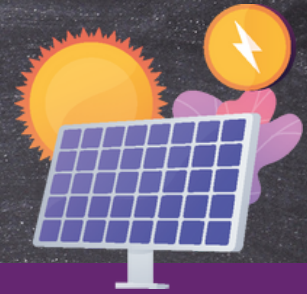


Discovery of Solar Power and Renewable Energy

Designed for learners in Grades 3-5



Course Description:

The city of Powerville is in trouble! The community's energy sources have been zapped by a supervillain named Ample Energy. The Mayor of Powerville, Ray O. Sunshine, has asked YOU to be a Renewable Resource Superhero. Over these 15 lessons, students will complete hands-on activities introducing them to solar energy and renewable resources in order to solve a variety of community-themed challenges.

Equipment, Curriculum, and Training Available:

- Equipment, Curriculum, and Training Available:
- Classroom Solar and Renewable Energy Equipment Kit
- 15 Lesson Hours
- Curriculum and supporting materials
- Ongoing product and curriculum support
- Professional development
- Facilitation by a trained STEM instructor (optional)

Lesson	Learning Target Examples
1. Shazam! Energy!	Define, review, and sort types of renewable and nonrenewable energy.
2. I Have the Power: Distributing Energy	Explore sustainable energy distribution by identifying energy "wants" and "needs".
3. It's a Bird, It's a Plane, It's... Solar Energy!	Define solar energy and model the flow of energy from sunlight to living things.
4. How Heat ZOOMS! (Conductors)	Perform hands-on heat transfer experiments around conduction, convection, and radiation.
5. Zap! It's Heating Up (Insulators)	Evaluate how various materials perform as insulators in order to design a passive solar building.
6. Let's Have a Look! (Lightwaves)	Observe the properties of various wavelengths of light, such as UV.
7. Up, Up, and Away: How Light Behaves	Experiment with properties of light such as reflection and refraction.
8. Beware of the Dark Side: The Albedo Effect	Observe how reflectivity and absorption affects an object's temperature.
9. Watch Out! Here Comes Photovoltaic Cells	Observe how Photovoltaic cells generate electricity and explore their various uses in sustainable energy production.
10. Vroom! Solar Mobiles	Build and race a miniature solar powered car.
11. Whoosh! Solar Water Heaters	Apply heat transfer principles to construct a solar-powered water heater.
12. Bam, Pop, Sizzle! Solar Ovens Part 1	Design and construct a solar oven that uses conduction, convection, and radiation to cook food.
13. Bam, Pop, Sizzle! Solar Ovens Part 2	Test and improve solar oven designs.
14. Truth, Justice and a Better Tomorrow: Design a Renewable Resource City Part 1	Review and evaluate the types of energy sources used in a community.
15. Truth, Justice and a Better Tomorrow: Design a Renewable Resource City Part 2	Design and plan a sustainable "Renewable Resource City".