

## Solar



### About the Series

Coming up with better ways to get where we need to go and power the lives we live requires development of new technologies, along with research to help us minimize the impact of these technologies on our environment. The overall goal of this series is to encourage people to ask questions and look beyond fossil fuels for innovative solutions to our ever-growing energy needs. Interest in science and technology provides the necessary foundation for our future in a world powered by clean energy. The series also provides insight into what careers in science, engineering and other topics related to clean energy technologies are really like.

### In this Episode

Arizona gets plenty of sunlight, and researchers there are working hard to turn that energy into electricity we can use. On this trip we learned about new materials used to improve solar cells, and how these materials convert light energy to electrical energy.

While visiting Arizona State University, Lisa Van Pay of the National Science Foundation talked to Brad Brennan, a graduate student in the lab group of [Devens Gust](#), Thomas Moore and Ana Moore. Their group makes and tests new materials that will allow us to build smaller, cheaper, flexible photovoltaic solar cells that can go almost anywhere.

Brennan is working on dye molecules that absorb light energy the way chlorophyll does in plants, while Brittany Lynn, a student at the University of Arizona, has been testing solar cells with different surfaces to see how surface shape affects the energy production of the cells. Lynn spent a summer doing this research in the [Armstrong lab](#) as part of the National Science Foundation's Research Experiences for Undergraduates program, coordinated by the [Center for Integrated Access Networks](#) at the university.

### Concepts

- Physical and chemical properties reflect the nature of the interactions between molecules and atoms and can be used to classify and describe matter
- Waves carry energy from place to place without the transfer of matter
- Stationary and moving charged particles result in the phenomena known as electricity and magnetism

### Content Standards

Physics/Chemistry  
High School\*

- 1.2 (Chem) Explain the difference between pure substances (elements and compounds) and mixtures.
- 4.1 (Phys) Describe the measurable properties of waves (velocity, frequency, wavelength, amplitude, period) and explain the relationships among them.
- 5.5 (Phys) Electric current is a flow of charge caused by a potential difference.