



F **6** FOCUSED FIELD TRIPS

PLEASE NOTE: Parts of Level 1 are currently under renovation while we prepare your next scientific adventure! For up-to-date construction information, please visit azscience.org/construction_updates.

Sixth Grade Student Investigation

This Investigation contains activities on a variety of topics found throughout the Center. Exhibits are also sometimes removed temporarily for repair or refurbishment, or may be in use by other groups, so be prepared to be flexible.

Investigation Activities

**Level 1: All About Me in the Steele Foundation Gallery - opens Sept. 26 to members and Sept. 27 to the public!
The W.O.N.D.E.R. Center – Coming Soon!**

Find out just what makes you, YOU!

Level 3: Forces of Nature in the Sybil B. Harrington Galleries

Earth's Processes and Systems

How do you think the weatherman predicts the weather on earth? It is by studying how the earth works and how the atmosphere affects our climate that we can begin to understand how water, air, and our oceans affect us on a daily basis. By learning more about the earth's atmosphere we can also gain valuable information on how pollution affects our air, water, and climate as well.

Where to go

Air Wall, The Ocean in Motion, Magic Planet

What to do

Find the Air Wall and use the rotating lever to watch the different types of cloud formations roll by.

Why do you think there are so many different kinds of clouds?

What can you learn from the different types of clouds?

Find "The Ocean in Motion."

How do you think ocean currents affect Earth's climate?

What do you think would happen if the currents changed paths or direction?

What do you think would happen if the currents stopped altogether?

Now find The Magic Planet in the Wells Fargo Classroom. Use the buttons on the monitor to control the Planet so that you can examine weather data – including past hurricanes!

What can you learn from examining weather data?

In what ways can this knowledge help us?

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Water Cycle

Earth's water is constantly in motion through a series of phases called the water cycle which includes precipitation, collection, evaporation, and condensation.

Where to go

Water Goes Round

What to do

Using the ball bearings to represent water, complete the model of the water cycle using all four phases. Then try to complete the water cycle omitting any one of the four phases. Your challenge is to complete the new cycle without that single phase.

Can you go straight from one phase to another? Can that happen in nature?

How long has water been around for?

What are the many ways that water falls to Earth?

Changes in Environments

The weather in Arizona can vary greatly, from scorching heat in the summer to a violent rainstorm during the monsoon season. Many different types of natural hazards can create many different affects on this planet: floods, droughts, hurricanes, tornadoes, etc.

Where to go

Immersion Theater, Air Wall

What to do

Go to the Forces of Nature movie stage and watch, listen and feel phenomena such as lightening and thunder, desert heat, earthquakes, hurricanes and more!

Find the Air Wall and read about hurricanes, dust storms and lightening.

Have you ever been in a hurricane?

How can weather affect humans?

Can weather affect landforms?

Level 4: Solarville in the APS Solar Gallery

Photovoltaic Activity

Light energy from the sun, in the form of **photons**, can be harnessed as a source of electricity. Photons are captured by **solar panels** via the **photovoltaic effect**. Photovoltaics is the direct conversion of light into electricity at the atomic level. Some materials exhibit a property known as the photoelectric effect that causes them to absorb photons of light and release electrons. When these free electrons are captured, an electric current results that can be used as electricity. (NASA)

Where to go

How a Solar Panel Works

What to do

Find How a Solar Panel Works and flip through each layer of a solar panel.

What particles are in a stream of sunlight?

List the **five** layers of a solar panel:

- 1.
- 2.
- 3.
- 4.
- 5.

What does the metal layer do?

What is the role of boron in the silicone layer?

Renewable Energy

Every day we rely on various sources of energy to heat and cool our homes, run our cars, wash our clothes, cook our food, turn on lights and make the products we use. Without energy we wouldn't be able to watch TV or talk on the phone. Over the years our scientists have discovered many ways to generate the energy we need to live comfortably. Some of this energy is from non-renewable sources; once it is used up, we can't get any more. Other energy comes from renewable sources such as the sun.

Where to go

Renewable Energy

What to do

Read the panel on renewable energy.

The United States leads in what two renewable energy sources?

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How is geothermal energy produced?

What produces most of the world's energy?

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