Solar Power

Energy Kids is a great starting place to learn more about energy sources and the basics of energy. It is a U.S. Department of energy site and it is definitely for adults too. Here is the site about solar energy. It includes basic definitions and explains how a solar cell works.

<http://www.eia.gov/kids/energy.cfm?page=solar_home-basics>

This is a good introduction to solar power from the Department of Energy website. You can click on the links to get more details and technical information. You should follow all the links to help prepare for our discussion this fall. <http://www.eere.energy.gov/basics/renewable_energy/solar.html>

Popular Science article and series about alternative energy

“American Energy Independence” appeared in June 2013 issue of Popular Science. This is a non-technical summary of different energy technologies and is a good introduction to the topics we will discuss this fall.

The Future of Energy: Solar

<http://www.popsci.com/science/article/2013-05/future-energy-solar>

City of Light

<http://www.popsci.com/science/article/2013-05/city-light>

And: The Beam Down Optical Experiment

<http://www.popsci.com/science/article/2013-05/beam-down-optical-experiment>

Video about new solar cell technology <http://unctv.pbslearningmedia.org/resource/kqedcl11.sci.ess.solarpower/solar-power/>

Quick video that talks about how a solar cell works By Erik Sofge

<http://unctv.pbslearningmedia.org/resource/oer09.sci.ess.watcyc.solarhome/solar-panels-for-your-home/>

Wind Power

Again, Energy Kids is the place to start. This site has all the basic info that you need to get started.

<http://www.eia.gov/kids/energy.cfm?page=wind_home-basics>

Next, move up to the Department of Energy website. You can click on the links to get more details and technical information. You should follow all the links to help prepare for our discussion this fall.

<http://www.eere.energy.gov/basics/renewable_energy/wind.html>

The Future of Energy: Wind <http://www.popsci.com/science/article/2013-05/future-energy-wind>

Map of wind turbines in North Carolina <http://wind.appstate.edu/turbine-map>

Recent article in the Charlotte Observer about wind power

<http://www.charlotteobserver.com/2013/03/13/3910598/5-companies-vie-to-build-wind.html>

By Erik Sofge

Hydropower (dams, tidal, wave, etc.)

Again, Energy Kids is the place to start. This site has all the basic info that you need to get started.

<http://www.eia.gov/kids/energy.cfm?page=hydropower_home-basics>

Next, move up to the Department of Energy website. You can click on the links to get more details and technical information. You should follow all the links to helpprepare for our discussion this fall.

Hydropower <http://www.eere.energy.gov/basics/renewable_energy/hydropower.html>

Ocean

<http://www.eere.energy.gov/basics/renewable_energy/ocean.html>

Part 3: Wave power. This segment is all about harnessing the energy of ocean waves.

http://www.popsci.com/technology/article/2013-06/americas-road-energy-independence-part-3

By Erik Sofge

Interesting video about Hoover Dam. It describes how electricity is generated and also discusses the environmental consequences of building dams.

<http://www.pbslearningmedia.org/resource/phy03.sci.phys.energy.hooverelec/hoover-dam-and-hydroelectric-power>

Biomass

Again, Energy Kids is the place to start. This site has all the basic info that you need to get started.

<http://www.eia.gov/kids/energy.cfm?page=biomass_home-basics>

Next, move up to the Department of Energy website. You can click on the links to get more details and technical information. You should follow all the links to help prepare for our discussion this fall.

<http://www.eere.energy.gov/basics/renewable_energy/biomass.html>

The Future of Energy: Waste

<http://www.popsci.com/science/article/2013-05/future-energy-waste>

To go with this article, Popular Science produced a 4-part video series. Each segment is about 5 minutes. The videos provide an interesting look at some of the things that are going on in the alternative energy industry. Note of caution, Shell was a sponsor of the video series and as a result the reviews on these videos are mixed. You have to tough out the Shell ad at the beginning of each segment

Part 2: Biogas. This segment is about the production of biogas (methane) from organic material deposited in landfills. Keep in mind that this is really about the release of stored solar energy (plants that were in the food needed sunlight to growand produce sugars; animals ate these plants).

<http://www.popsci.com/technology/article/2013-06/americas-road-energy-independence-part-2>

By David Ferris

Geothermal

Again, Energy Kids is the place to start. This site has all the basic info that you need to get started.

<http://www.eia.gov/kids/energy.cfm?page=geothermal_home-basics>

Next, move up to the Department of Energy website. You can click on the links to get more details and technical information. You should follow all the links to help prepare for our discussion this fall. <http://www.eere.energy.gov/basics/renewable_energy/geothermal.html>

Iceland has developed the use of geothermal energy so that it generates 25% of the country’s electricity. This website has a good discussion of the types of geothermal energy they use.

<http://www.nea.is/geothermal/>

Video about the use of geothermal energy in Iceland.

<http://www.youtube.com/watch?v=kWN5yXCYeXc>

Hydrogen

Again, Energy Kids is the place to start. This site has all the basic info that you need to get started.

<http://www.eia.gov/kids/energy.cfm?page=hydrogen_home-basics>

Next, move up to the Department of Energy website. You can click on the links toget more details and technical information. You should follow all the links to help prepare for our discussion this fall.

<http://www.eere.energy.gov/basics/renewable_energy/hydrogen.html>

Artificial photosynthesis to make hydrogen fuel This is a basic description of artificial photosynthesis

<http://science.howstuffworks.com/environmental/green-tech/energy-production/artificial-photosynthesis.htm>

This is a slightly more technical description

<http://spectrum.ieee.org/energy/renewables/prospects-for-an-artificial-leaf-are-growing>

Video about artificial photosynthesis

<http://www.youtube.com/watch?v=qQYBoGk180I>

How hydrogen fuel cars work

<http://auto.howstuffworks.com/fuel-efficiency/hybrid-technology/hydrogen-cars.htm>

Nuclear Power

Again, Energy Kids is the place to start – at least for the nuclear fission part of the discussion. This site has all the basic info that you need to get started.

<http://www.eia.gov/kids/energy.cfm?page=nuclear_home-basics>

The structure of an atom

<http://www.universetoday.com/82128/parts-of-an-atom/>

What are nuclear fission and nuclear fusion?

<http://www.youtube.com/watch?v=3rn339v_Q-w>

A more detailed description of nuclear fission

<http://www.youtube.com/watch?v=_pY5HeZpNr8>

This video demonstrates the idea of a chain reaction that is essential for a nuclear reactor.

<http://unctv.pbslearningmedia.org/resource/nvhe.sci.chemistry.fission/a-fission-chain-reaction/>

How a nuclear power plant works (also includes a description of hydroelectric station and coal/natural gas station)

<http://www.youtube.com/watch?v=LTnfXLws40Q>

Article about the next generation of fission reactors

<http://www.popsci.com/technology/article/2011-06/next-gen-nuke-designs-promise-safe-efficient-emissions-free-energy>

A video about controlled nuclear fusion.

<http://unctv.pbslearningmedia.org/resource/kqedq11.sci.superlaser/super-laser-at-the-national-ignition-facility/>

What happened in Japan? <http://www.bbc.co.uk/news/world-asia-pacific-12726591> <http://www.youtube.com/watch?v=SI_mzBqWqvk&list=TLdjscuMLFFE8>

Fossil Fuels

Again, Energy Kids is the place to start . This site has all the basic info that you need to get started.

Coal - <http://www.eia.gov/kids/energy.cfm?page=coal_home-basics>

How a coal fired power plant works

<http://unctv.pbslearningmedia.org/resource/ket09.sci.phys.energy.coal/making-electricity-at-a-coal-burning-plant/>

Oil - <http://www.eia.gov/kids/energy.cfm?page=oil_home-basics>

The Future of Energy: Oil and Gas

<http://www.popsci.com/science/article/2013-05/future-energy-oil-and-gas>

Natural Gas - <http://www.eia.gov/kids/energy.cfm?page=natural_gas_home-basics>

The Future of Energy: Oil and Gas

<http://www.popsci.com/science/article/2013-05/future-energy-oil-and-gas>

This video is a good introduction to fracking,

<http://ngm.nationalgeographic.com/2013/03/bakken-shale-oil/fracking-animation-video>

More about fracking

<http://www.popsci.com/technology/article/2010-09/instant-expert-unnatural-gas>

Fracking in NC

<http://www.newsobserver.com/2013/06/07/2945625/nc-house-approves-bill-that-keeps.html>

Map of potential fracking locations in NC

<http://rafiusa.org/issues/landowner-rights-and-fracking/fracking-map-in-nc/>

By Curtis Brainard