



# ELEMENTARY SCHOOL 2021-2022

## Energy Efficiency & Conservation

### Lab Activity: 4<sup>th</sup> – 5<sup>th</sup> grade



**Title:** Alternative Energy Comparisons

**Objective:** Students will identify different forms of renewable energies, draw comparisons and ultimately propose a system that they think would work best for Miami- Dade County.

**Materials:** pens/pencils, paper

**Estimated Time Needed:** 60 minutes

#### **Vocabulary:**

**biomass** - organic matter used as a fuel, especially in a power station for the generation of electricity

**geothermal energy** - the thermal energy in the Earth's crust which originates from the formation of the planet

**hydroelectricity** - the generation of electricity using flowing water

**solar energy** - radiant energy emitted by the sun

**tidal energy** - power produced by the surge of ocean waters during the rise and fall of tides

**wind energy** - the process by which the wind is used to generate mechanical power or electricity

#### **Procedures:**

1. As a class begin by introducing renewable vs nonrenewable energy sources, and watch [The 7 Types of renewable energy](#) on renewable energy sources and review the pros and cons of renewable energy sources
2. Using [FPL's Latest Fuel Mix Comparison Chart](#) (bottom right corner of document), students explore where energy comes from through FPL and list which ones are renewable and non-renewable
3. Look at [US energy potential maps](#) and locate Miami.
4. Have students review which energy source(s) Florida has the most potential for and create an argument for greater incorporation of that source taking into consideration the pros and cons established beforehand.
5. Students write a persuasive essay as to why or why not a renewable energy source should not be used locally (state your opinion, 2-3 supporting ideas, conclusion).

#### **Guiding Questions:**

- What are different forms of renewable energy?
- What are pros and cons of renewable energies?
- What form of energy is Florida best suited for?

**Evaluation:** Share examples of persuasive essays.

#### **Additional Resources:**

- [Renewable energies around the world](#) interactive map
- [U.S. energy mapping system](#) interactive map
- [EIA renewable energy for kids](#)
- [Where is it windy?](#)
- [What are wind and shear turbulence?](#)
- [Solar energy basics](#)
- [EIA Electricity generation by energy source](#)



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#### **Benchmarks:**

##### **4th Grade**

##### **Science**

- SC.4.E.6.3. Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable.
- SC.4.E.6.5. Investigate how technology and tools help to extend the ability of humans to observe very small things and very large things.
- SC.4.E.6.6 Identify resources available in Florida
- SC.4.P.10.2. Investigate and describe that energy has the ability to cause motion or create change.

##### **Language Arts**

- LAFS.4.W.3.7 Conduct Short Research Project

##### **5th Grade:**

##### **Science**

- SC.5.P.10.2. Investigate and Explain Energy's ability to cause motion or create change
- SC.5.P.10.4. Investigate and explain that electrical energy can be transformed into heat, light, and sound energy, as well as the energy of motion.

##### **Language Arts**

- LAFS.5.W.3.7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.