APES- Alternative Energy Project

Name: _____

Task: Choose and research one of the following energy alternatives:

- *Biomass*
- *Wind Energy*
- *Hydroelectric Energy*
- *Geothermal Energy*
- *Nuclear Power*
- *Solar Power*

Complete a Presentation *(PowerPoint 8-10 slides)* to teach the class about your alternative energy. Use the outline questions below to guide your research. *Also include current events, news stories or magazine articles that are relevant to your topic. Be sure to include graphs, diagrams, pictures and drawings of your alternative energy.*

Topic Outlines:

- *Biomass*

What does "Biomass" mean? How is Biomass being used today as a substitute for gasoline to run cars, trucks or buses? *(Use the words: Potential Energy and Kinetic Energy).*

What are some different ways Biomass is being used to heat homes today?
How is Biomass being used today to create electricity?

Name and explain 3 advantages/disadvantages in using Biomass compared to using Fossil Fuels or other alternative energies.

What can be done to encourage the use of Biomass Energy in the future so we don't use up the world's fossil fuel supply?

- *Geothermal*

Where does geothermal energy come from?

How can geothermal energy be used to create electricity?
How can geothermal energy be used directly to heat homes and factories?

What is a "heat pump"?

Name and explain 3 advantages and disadvantages in using geothermal energy compared to using fossil fuels and other alternative energies.

What are some locations in the U.S. and around the world that use geothermal energy?
What is being done to encourage the use of geothermal energy for our country and around the world in the future?

- *Hydroelectric*

What is a good definition of hydroelectric power?

How does "moving water" get turned into electrical energy? *Explain each part of the dam from the moving water to production of electricity.*

Name and explain 3 advantages/disadvantages of getting electricity from hydroelectric power and how it compares to using fossil fuels or alternative energies

Where are some good locations in the U.S. and around the world that use hydroelectric power to create electricity?

Can anything else be done to use the power of moving water to create electricity? *(Tidal Power)*

- *Nuclear Power*

What does fission mean?

Explain how today's fission nuclear reactors create electricity.

Name and explain 3 advantages/disadvantages of getting electricity from nuclear energy and how it compares to using fossil fuels and other alternative energies

What states in the U.S. and countries around the world use nuclear power to create electricity today?

Are new nuclear reactors being built? *If yes, where?* What is the problem with creating nuclear reactors?

What is the current status of creating nuclear energy using "fusion"?

- *Solar Power*

What is a good definition of solar energy?

How does a solar cell make electricity? What is it made of? What does "active" and "passive" solar mean and how do they work?

Name and explain 3 advantages/disadvantages about solar energy to heat or produce electricity compared to using fossil fuels or other alternatives

Where are some solar cells, active, and passive solar energy being used in the U.S.? What is being done to encourage the use of solar energy in our country and around the world?

- *Wind Energy*

Where does wind energy come from? What is a good definition of wind energy?

How does wind energy get turned into electricity energy? Name 2-3 different designs of wind turbines and explain how they are different and how they are alike

Name and explain 3 advantages/disadvantages of getting electricity from wind energy compared to using fossil fuels or other alternative energies

Where are some locations in the U.S. and around the world that use wind energy to create electricity? What is being done to encourage the use of wind turbines to create ore electricity for our country in the future?

APES- Alternative Energy Project Rubric

Name: _____/ Partner: _____

Topic: _____

Presenter includes:

- *A clear, concise description of the energy source and how it works _____/10 pts*
- *A picture or diagram of the energy source and how it works _____/5 pts*
- *PowerPoint is interesting and easy to read with 8-10 slides _____/5 pts*
- *Current research/article or case study is included in discussion _____/5 pts*
- *Presenter shows how energy source is used/data is presented _____/5 pts*
- *3 Advantages/3 disadvantages about energy source is presented _____/5 pts*
- *Presenter discusses the future of this energy source/how can it be marketed? How can it be used? What will be required of people/government? _____/15 pts*
- *Presenter was able to answer questions and had knowledge of source _____/10 pts*

Total score _____/60 pts

Comments: