Energy Sources Project

Each small group of students will be responsible for researching an energy source that they pick from a hat. They will do a class presentation, build a physical model, and participate in a debate with another energy source. The energy sources include: *Biomass, Coal, Geothermal, Hydropower, Natural Gas, Nuclear, Petroleum, Propane, Solar, and Wind*.

A. Presentation

1. Power Point, Google Slides, or Prezi

- ➢ Clean, well-constructed, and well-organized
- ➢ Maximize readability
- ➢ No more than 40 words per slide
- ➢ At least 90% of slides must contain at least one picture, diagram, or graph
  - ☐ If you include a diagram or graph, be prepared to explain it
- ➢ Slides that are overly wordy, hard to read, or contain typos or errors cannot receive full credit
  - ☐ These are bullet points, *not a script!*
- ➢ Share presentations with **nfulmer@lcusd.net** via **your student Google Drive or email**.
- ➢ The last slide will be used for the bibliography (see section "C" at the end of handout for details). Presentations without a bibliography will earn exactly *zero* points. Points will be deducted for incomplete bibliographies.

2. Content

- ➢ History & Politics
  - ☐ Politics doesn't only refer to political controversy but also includes any relevant laws, acts, or organizations governing the production, use, and/or distribution of your energy source.
- ➢ Science
  - ☐ Relevant physics, chemistry, biology, geology, etc.
  - ☐ What *is* your energy source?
  - ☐ Explain the physics used to convert your energy source into (typically) electrical energy
  - ☐ Fuel mass to energy output; i.e. how many joules of energy per kilogram? The average American household uses about 40 billion joules of energy per year. How much of your energy source would one need to power a home for a year? (not applicable to geothermal, hydropower, solar, or wind)
- ➢ Production & Use
  - ☐ What is production and use of your energy source at the state, national, and global levels?
  - ☐ How much do we import and export?
- ➢ Pros & Cons
  - ☐ Why is your energy source an effective fuel?
  - ☐ How does the use of your energy source effect the environment/earth's climate?
  - ☐ What are the shortcomings of your source? What are possible solutions to these concerns, and how difficult or easy are those solutions to achieve?

3. Time

- ➢ 6 - 9 minutes

4. Model

- ➢ Physical model to help explain the physics behind the energy source and/or demonstrate the distribution of energy source
- ➢ All components of the model should be labeled clearly
- ➢ Include text and information to explain your model
- ➢ The model must be self-contained such that anyone could look at it, read the captions, and understand what it is communicating without you having to further explain it

- ➢ The audience should *learn* something from your model
- ➢ Make sure to include names and period on the model

5. Public Speaking

- ➢ Do not read from note cards or power point
- ➢ Keep eyes upward on the audience
- ➢ Speak slowly and clearly
- ➢ Be mindful of time remaining
- ➢ Practice your presentation
- ➢ Be deliberate about your speech
- ➢ Maintain a formal tone
- ➢ Avoid using "Ummm" or "So yeah"
- ➢ Face the class, not the screen

6. Q&A

- ➢ While one team is presenting, each student in the audience will write three thoughtful questions based on that presentation
- ➢ Three students will be picked at random to ask a question to the presenters
- ➢ The presenters will be graded on their ability to accurately answer questions posed by their classmates

B. Debate

1. Each group will be assigned a different energy source to debate. Each team will make a clear argument for the adoption of your energy source over the other group's energy source. Speakers must appeal to the widest possible audience through sound reasoning, succinct organization, credible evidence, and clear delivery.

- ➢ Debate assignments will be randomly selected on the day of the debate, so be prepared to debate any group
- ➢ After debate assignments have been finalized, everyone will have 15 minutes to prepare before the debate begins

2. Format (order of opening/closing statements determined by coin flip)

- ➢ Opening Statements — max 2 minutes per team
- ➢ Crossfire — 5 minutes
  - ☐ Team A asks question of Team B
  - ☐ Team B responds
  - ☐ Team A rebuttals response
  - ☐ Team B responds to rebuttal
  - ☐ Teams switch roles and repeat
- ➢ Closing Statements — max 1 minute per team
  - ☐ Teams will have 1 minute to prepare their closing statements

C. Mandatory Bibliography

1. Must include a minimum of 7 independent sources:

2. Must include at least one text source

3. Must include at least one periodical/magazine

4. Must include at least one online sources

D. Points

1. Presentation — 1200 exp
2. Debate — 800 exp

E. Due Dates

1. Presentations — Monday, Jan. 29
2. Debate — Wednesday, Jan. 31