



Energy Literacy

Putting students in charge of their
learning. Pun intended



About me...



Teach everything...7th grade, 9th grade, 12th grade, high school electives

12+ years teaching experience

Liberty Bell High School

Winthrop, Wa

What is Energy Literacy?

Turn to a neighbor...

What does it mean to be Energy Literate?

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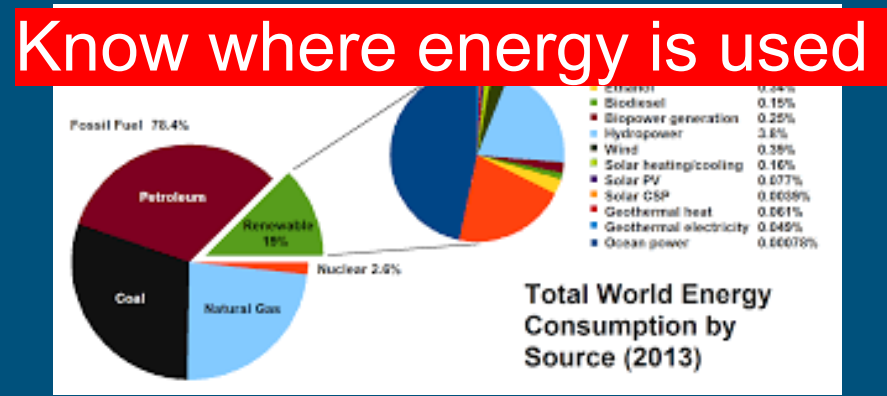
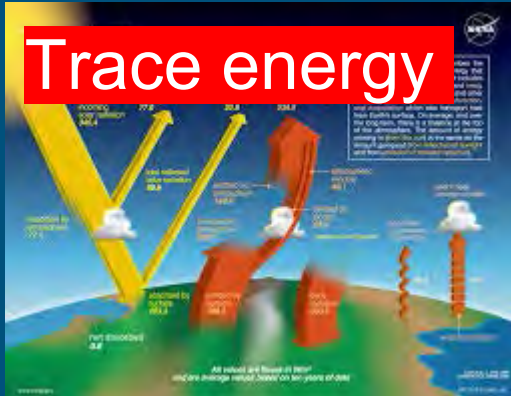
What does it mean to be Energy Literate?

What is Energy Literacy?

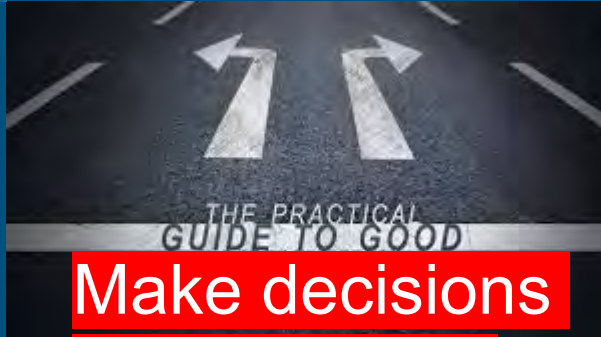
Turn to a neighbor...

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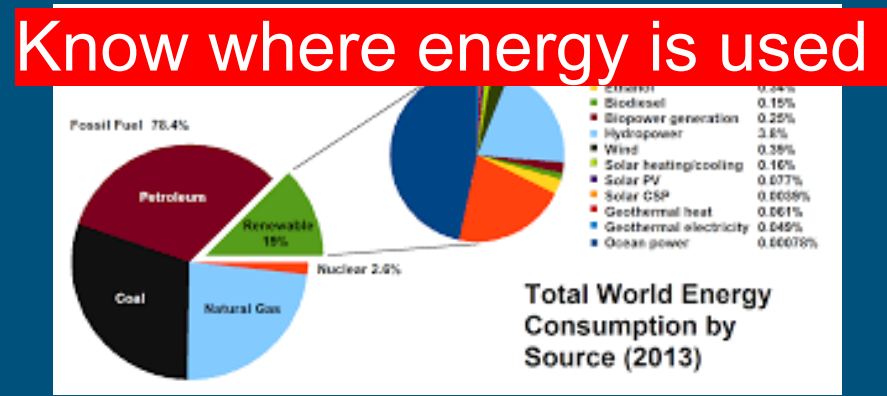
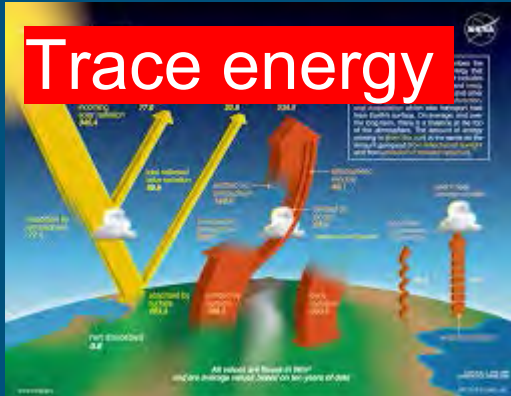
Communicate about energy



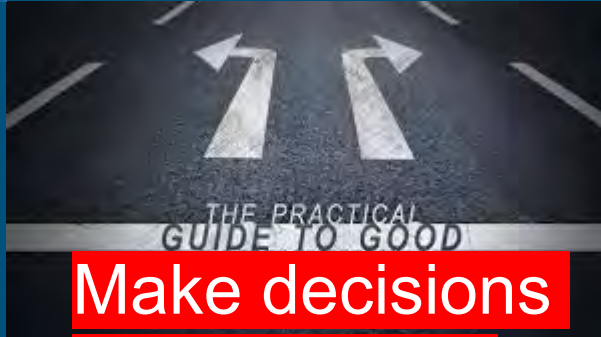
Make decisions about energy

Assess credibility of sources

What does it mean to be Energy Literate?



Communicate about energy



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Students in Charge of their Learning (pun intended)

1. Pre - assessment - Concept Maps, KWL
2. Building Background knowledge - Energy describes motion - Angel Chimes, Roller Coasters
3. Demonstration of knowledge gained in class - Angel Chimes/Rube Goldberg Machines/Value of a Tree
4. Research and Application in authentic situations - Science Symposium

= Increased Energy Literacy

My students start with misconceptions:

“Energy is created as a result of doing something.”

“Energy comes from a force applied to an object.”

“Objects at rest have no energy.”

“There are only a few types of energy.”

“There is only a certain amount of energy in the world, when it’s gone, that is it.”

Build Background Knowledge



Build Background Knowledge



How does this lead to Energy Literacy?

What is energy?

Can energy be destroyed?

What are the types of energy?

How do you compare the value of a tree as jet fuel vs. a barrel of oil?

How do energy transformations add to our current situation regarding climate change?

Student Support Systems

| NAME | Submit Research Prop. (2 Pgs) | Submit Research Prop. (2 Pgs) | Submit Research Prop. (2 Pgs) | Submit Research Prop. (2 Pgs) | Peer Rev. | Final Draft | Experiment Design | Submit Paper | Reflection | Presentations | Peer Review | Classroom Presentation | TOPIC |
|-----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-----------|-------------|-------------------|--------------|------------|---------------|-------------|------------------------|------------------------------|
| Dustin / Inso | | | | | | | | | | | | | Wind Turbines |
| Kyleen / Dargen | | | | | | | | | | | | | Behavioral - Climate |
| Alegh | | | | | | | | | | | | | Graphene |
| Illyse | | | | | | | | | | | | | Energy Efficient Building |
| Tova | | | | | | | | | | | | | Solar |
| Peter | | | | | | | | | | | | | Plastics |
| Emile / Dean | | | | | | | | | | | | | 3D Printing Culture |
| Jade | | | | | | | | | | | | | Calories in Food |
| Joel | | | | | | | | | | | | | Mini Wind Turbine |
| Sally / Ival | | | | | | | | | | | | | Insulation |
| Sam / Peter | | | | | | | | | | | | | Water Distribution |
| Sierra / Santiago | | | | | | | | | | | | | Energy Efficient Building |
| Makenna / Jordanline | | | | | | | | | | | | | Medical 3D Printing |
| Larkin / Alex / George / Rosemary | | | | | | | | | | | | | Food - Organic vs. Processed |
| Wiley / Michael | | | | | | | | | | | | | H2O Energy |

| | |
|------------------|---|
| Week of March 30 | Proposal - Choose Topic, Begin Research |
| Week of April 4 | Spring Break |
| Week of April 11 | Research Write Thesis Statement Outline Paper Works Cited Page |
| Week of April 18 | Write Research Paper Rough Draft Design Experiment |
| Week of April 25 | Final Draft Research Paper Revise Experiment; |
| Week of May 2 | Experiment Data Analysis |
| Week of May 9 | Writing Conclusion Reflection |
| Week of May 16 | Presentation Boards |
| Week of May 23 | Presentation in Class Starting May 25/26th |
| Week of May 30 | Presentations in Class |
| Week of June 6 | Symposium |

Assess credibility of sources

Researching - determine validity of sources, use of google scholar as a tool, multiple sources to support thesis statements.

Student Thesis Example:

In order to mitigate the disastrous environmental effects of climate change, everyone from around the world must unite in changing their habits, incorporating eco-friendly technologies into their everyday lives, and building cities run entirely on eco-friendly renewable energy.

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Trace energy

- Research paper - Students analyze a real world problem

Know where energy is used

- Research Paper - Students discuss where energy is used and how usage could be changed
- Experiment - Students analyze data

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Communicate about energy

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Research Paper - writing about global problems and possible solutions

Presentation - presenting to an authentic audience

Make decisions about energy

—
Students design experiments

Reflect on their data and learning

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= Increased Energy Literacy and Engagement