GRADE LEVEL EXPECTATION:

There are different forms of energy, and those forms of energy can be changed from one form to another - but total energy is conserved

BIG IDEAS:

Change (Energy Transformations), Constancy (Energy Conservation), Systems, Forms of Energy

STUDENTS WILL KNOW:

Various forms of energy, Data Collection
Potential and Kinetic Energy, Validity
Conservation of Energy, Peer Review
Resources to find energy transfers

Need to know Vocab: Potential, Kinetic, Energy Transformation
Conservation of Energy, Mechanical.

Nice to know Vocab: Forms of Energy: Thermal, chemical, Electrical, nuclear, gravitational, sound, mechanical.

STUDENTS WILL DO:

- Gather, analyze, and interpret data to describe the different forms of energy and energy transfer DOK 1-2
- Develop a research-based analysis of different forms of energy. Use research-based models to describe energy transfer mechanisms, and predict amounts of energy transferred. (DOK 1-3)
- Use research-based models to describe energy transfer mechanisms, and predict amounts of energy transferred. DOK 1-2
- Share data and discuss conflicting results. (DOK 2-3)
- Recognize and describe ethical traditions of science: value peer peer review, making work public, etc. (DOK 1)
- Use tools to gather, view, analyze and report results for scientific Investigations designed to answer energy transfer questions. DOK 1-2

ACTIVITIES FOR LEARNING: (NOTEBOOK UNIT 2)

LAUNCH: Title Page-Vocab. Poem or Comic, picture examples, non-examples.

1. Energy in my life Activity. “Who eats, sings, draws, plays, etc.”
2. ESPN – Perpetual Motion Video, Energy Skate Park
3. Pre-Assessment – ABC quiz
4. Why I love this Unit!

EXPLORE (Inquiry):

1. Potential vs. Kinetic Energy PPT. and Graphic Organizer
2. Mini-Lesson: Forms of Energy Foldable. (See Master notebook)
   a. Notes: (See Master Notebook)
3. Video Clip: Bill Nye: Energy Transfers (get 10 notes)
4. WORKDAY – finish title page and foldable!
5. FORMS of ENERGY STATIONS LAB:
   a. Day 1: Potential Energy Stations – NEED #1-3 with student teachers
   b. Day 2: Kinetic Energy Stations – NEED #4-6 w/Student teachers.
   c. Review lab stations. Check for completion of 8 square foldable.
      i. Quia Site.- Challenge Board
6. Review Game: BINGO: Energy Transfers (overhead from NRG binder)
7. Energy Web Animations (Reflection as group) – Class Website

Unit Comments:

- Check for ties to math curriculum with Rate = Speed and motion graphs (linear, inverse relationship for graphs).
- Delta P, Delta K
- High School Math connections for highs. Calculate potential/kinetic.

SUMMARY: ENERGY PROJECT:

a. Build a wind turbine.
b. Identify potential and kinetic energy within a system.
c. Describe Energy Transfers.
d. Present to class – group-demonstrate understanding.

8. Benchmark Assessment and Review BA.
MY UNIT REFLECTION:

FINAL PROJECT: