

## Energy Jeopardy: 45 minutes

**Objective:** Students will practice using vocabulary associated with the types of energy, and the importance of energy conservation.

### Materials

- Computer with [PowerPoint](#) software
- Projector
- 1 large white or chalk board (for score keeping)
- 6 small (8"x10") white boards (for teams) w/ dry erase markers (*available at <https://www.officedepot.com/a/products/721997/Charles-Leonard-Dry-Erase-White-Lap/>*)
- Large popsicle sticks

### Explanation

- Before introducing this activity to the classroom, you should understand which concepts regarding energy that the class is familiar with. If necessary, prepare and facilitate a short discussion or video regarding energy and energy conservation.
  - Allot 45 minutes for the game
  - Divide class into teams of 4-6
  - Each team gets a white board to write their answers down on
- Jeopardy
  - The teacher will move through the PowerPoint Jeopardy ([here](#))
  - The teacher will read the ENTIRE question before the team can begin response on white board
  - Each response must be written in the form of a question, beginning with “What is [answer]?”
  - The class has 30 seconds to write the “question” on the their whiteboards
  - The teams with the correct “question” will receive the respective amount of money, while the losing teams will deduct it.
  - Each round’s winners choose a Category and Dollar Amount. If three way or tie occurs, teacher pulls stick to pick team to move forward. All teams with correct answers receive points.
  - FINAL JEOPARDY
    - Each team wagers dollar amount prior to reading the question.
    - The class has **45** seconds to write the “question” on the their whiteboards
    - The teams with the correct “question” will receive the respective amount of money, while the losing teams will deduct it.

### Discuss

What are some ways that the students work to conserve energy at home? Are the habits that can be changed at school or at home to help conserve energy?

### Post-Class activity (homework)

#### Option 1

Home energy audit (by NOVA), includes carbon footprint calculation for home

Option 2 (Middle School)

Students illustrate the energy transformation of 3 machines at home through a storyboard or comic strip. The illustration should include the origination of power (e.g. power plant, oil refinery), the transportation of power to wall outlet or gas tank, the use of the machine and associated emissions. Do the students know where their power originates from, and how far it is transported for their convenience? Student should write a short paragraph about the energy transformations they discovered in their everyday lives.

Option 3 (High School; §112.37 (3))

Students are assigned a news or journal article related to energy. The students are tasked with answering these questions (minimum 1 sentence response) about the article: What was the key takeaway from the article? Did it have a positive or negative outlook on energy production and/or consumption? Did the article use scientific evidence to evaluate the topic? Describe the connection between the environment and the energy type described in your article. What is your overall opinion about the article?

## Texas Assessments of Academic Readiness Resources – TEKS

§112.18. Science, Grade 6, Adopted 2017.

(b) Knowledge and skills.

(7) Matter and energy. The student knows that some of Earth's energy resources are available on a nearly perpetual basis, while others can be renewed over a relatively short period of time. Some energy resources, once depleted, are essentially nonrenewable.

(9) Force, motion, and energy. The student knows that the Law of Conservation of Energy states that energy can neither be created nor destroyed, it just changes form.

§112.19. Science, Grade 7, Adopted 2017.

(b) Knowledge and skills.

(5) Matter and energy. The student knows that interactions occur between matter and energy.

(A) recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis; and

(B) diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids.

§112.35. Chemistry (One Credit), Adopted 2017.

(c) Knowledge and skills.

(11) Science concepts. The student understands the energy changes that occur in chemical reactions. The student is expected to:

(A) describe energy and its forms, including kinetic, potential, chemical, and thermal energies;

(B) describe the law of conservation of energy and the processes of heat transfer in terms of calorimetry;

§112.36. Earth and Space Science, Beginning with School Year 2010-2011 (One Credit).

(c) Knowledge and skills.

(12) Solid Earth. The student knows that Earth contains energy, water, mineral, and rock resources and that use of these resources impacts Earth's subsystems. The student is expected to:

(A) evaluate how the use of energy, water, mineral, and rock resources affects Earth's subsystems;

(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:

(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;

(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;

(C) draw inferences based on data related to promotional materials for products and services;

(D) evaluate the impact of research on scientific thought, society, and public policy;

(E) explore careers and collaboration among scientists in Earth and space sciences; and

(F) learn and understand the contributions of scientists to the historical development of Earth and space sciences.

§112.37. Environmental Systems, Beginning with School Year 2010-2011 (One Credit).

(c) Knowledge and skills.

(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:

- (A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;
- (B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;
- (C) draw inferences based on data related to promotional materials for products and services;
- (D) evaluate the impact of research on scientific thought, society, and the environment;
- (E) describe the connection between environmental science and future careers; and
- (F) research and describe the history of environmental science and contributions of scientists.

(5) Science concepts. The student knows the interrelationships among the resources within the local environmental system. The student is expected to:

- (C) document the use and conservation of both renewable and non-renewable resources as they pertain to sustainability;
- (D) identify renewable and non-renewable resources that must come from outside an ecosystem such as food, water, lumber, and energy;

(6) Science concepts. The student knows the sources and flow of energy through an environmental system. The student is expected to:

- (B) describe and compare renewable and non-renewable energy derived from natural and alternative sources such as oil, natural gas, coal, nuclear, solar, geothermal, hydroelectric, and wind;
- (D) investigate and explain the effects of energy transformations in terms of the laws of thermodynamics within an ecosystem;

(9) Science concepts. The student knows the impact of human activities on the environment. The student is expected to:

- (J) research the advantages and disadvantages of "going green" such as organic gardening and farming, natural methods of pest control, hydroponics, xeriscaping, energy-efficient homes and appliances, and hybrid cars;