

# ENERGY

## 1. ENERGY

Writer: Aaron Gee

Toss Up: Short Answer

What is the most common sulfur compound that occurs naturally in natural gas?

Bonus Answer: HYDROGEN SULFIDE

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Bonus: Short Answer

Earth's core is kept hot by the radioactive decay of several radioactive substances, including Uranium-235 and 238; name the other two heat-producing isotopes which are also significant contributors to the radioactive heat production of the Earth.

Bonus Answer: POTASSIUM-40 AND THORIUM-232 (Question is very hard?)

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## 2. ENERGY

Writer: Kerwin Chen

Toss Up: Short Answer

Who was the Joule named after?

Bonus Answer: James Joule

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Bonus: Short Answer

Who was the watt named after?

Bonus Answer: James Watt

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## 3. ENERGY

Writer: Andrew Chen

Toss Up: Multiple Choice

In what bulk form is the most energy stored?

W) compressed gases

X) water behind dams

Y) chemical batteries

Z) temperature gradients

Toss Up Answer: X

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Bonus: Short Answer

Which country has the highest amount of solar power per capita?

Bonus Answer: Germany

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## 4. ENERGY

Writer: Andrew Chen

Toss Up: Short Answer

Order the following fuels by extractable energy per pound, from least to greatest. uranium, thorium, gasoline, coal

Bonus Answer: coal, gasoline, uranium, thorium

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Bonus: Multiple Choice

Which is the leading source of carbon monoxide emissions in the US?

W) forest fires

X) vehicles

Y) factories

Z) lightning

**Bonus Answer: X**

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## **5. ENERGY**

**Writer: Aaron Gee**

**Toss Up: Short Answer**

Used normally, a 150-watt, 120 volt light bulb requires how many amps of current?

**Bonus Answer: 1.25 Amps**

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**Bonus: Short Answer**

If 10 joules of energy are required to move 5 coulombs of charge between two points, the potential difference between the two points is equal to how many volts?

**Bonus Answer: 2 volts**

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## **6. ENERGY**

**Writer: George Papastefanou**

**Toss Up: Multiple Choice**

Which material takes the least energy and CO<sub>2</sub> to produce?

W) Wood

X) Aluminum

Y) Glass

Z) HDPE (High Density Polyethylene Plastic)

**Toss Up Answer: W**

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**Bonus: Short Answer**

What electrophysical process is behind wireless charging?

**Bonus Answer: Induction**

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## **7. ENERGY**

**Writer: Nten Nylam**

**Toss Up: Short Answer**

Which country has the greatest electricity consumption?

**Bonus Answer: China**

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**Bonus: Multiple Choice**

What is the most used form of renewable energy in the world?

W) Wind power

X) Geothermal heat

Y) Solar power

Z) Hydroelectricity

**Bonus Answer: Z**

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## **8. ENERGY**

**Writer: Aaron Gee**

**Toss Up: Short Answer**

Cadmium and boron are used in a nuclear reactor to absorb which subatomic particle?

**Bonus Answer: Neutron**

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**Bonus: Short Answer**

The electrical resistance of a semiconducting wire is least likely to be reduced by a decrease in which two of the following four wire characteristics?

Radius, Melting Point, Length, or Temperature?

**Bonus Answer: Melting Point and Radius**

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**9. ENERGY**

**Writer: Ahmad Alnasser**

**Toss Up: Multiple Choice**

In a typical power plant used to generate electricity in the U.S., the percentage of energy in the fuel that is converted to electricity is about:

W) 60%

X) 90%

Y) 20%

Z) 35%

**Toss Up Answer: Z**

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**Bonus: Short Answer**

The Nuclear Waste Policy Act of 1982 and amendments require what

Federal agency to site, construct and operate a geologic repository for disposal of high-level nuclear waste?

**Bonus Answer: U.S. Department of Energy**

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**10. ENERGY**

**Writer: Elias Milborn**

**Toss Up: Multiple Choice**

Which of the following is measured by total harmonic distortion, a standard for gauging the quality of power provided to customers?

W) How distorted the waveform is from a pure sinusoidal waveform

X) How distorted the waveform is from a triangular waveform

Y) The difference between a sinusoidal waveform and a triangular waveform

Z) the maximum value of a sinusoidal wave form with respect to the reference point of the waveform

**Toss Up Answer: W**

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**Bonus: Multiple Choice**

Which of the following is NOT an accurate representation of a limitation on the production and use of bioplastics?

W) using crops for plastic diverts plants from the food supply

X) bioplastics are unlikely to disintegrate in a landfill

Y) bioplastics produce a variety of pollutants when burned

Z) Individuals at home would find it more difficult to compost bioplastics

**Bonus Answer: Y**

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**11. ENERGY**

**Writer: Andrew Chen**

**Toss Up: Short Answer**

As of December 2016, name any country that has achieved carbon neutrality.

**Bonus Answer: vatican city or bhutan**

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**Bonus: Multiple Choice**

Which of the following appliances uses energy the fastest?

- W) a microwave
- X) a vacuum cleaner
- Y) a desktop computer
- Z) a refrigerator

**Bonus Answer: Z**

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**12. ENERGY**

**Writer: Ivan Zhang**

**Toss Up: Multiple Choice**

Which of the following outputs the most energy?

- W) Coal
- X) Natural Gas
- Y) Petroleum
- Z) Surface Oil

**Toss Up Answer: W**

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**Bonus: Short Answer**

What is the powerhouse of the cell?

**Bonus Answer: Mitochondria**

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**13. ENERGY**

**Writer: Olivia Gallager**

**Toss Up: Short Answer**

Which of the following, by name or number, are not considered to be a greenhouse gas: Nitrous Oxide, Water Vapor, Methane, and Nitrogen gas.

**Bonus Answer: Nitrogen Gas, 4**

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**Bonus: Short Answer**

What are the two most used fuels for nuclear reactors?

**Bonus Answer: Plutonium and Uranium**

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