

Energy Forms

Kinetic – Energy of Motion



Rotational Kinetic – Energy of motion
(spinning)



Potential – position

Elastic potential – something elastic is stretched or compressed



Rotational Energy

- Energy of motion



Picture of Earth

Where is the sun?

A.



B.

D.

C.

E. Can't tell

Rotational Energy

- Energy of motion



Efficiency

Why do runners get better times in cool rainy races?



Who's faster?



Same Energy Source

Heat!

All energy transformations transfer some to heat.

To be more efficient, less transfer to heat.

Cars get hot

Generators get hot

Windmills get hot

Often due to friction or just burning fuel.

Energy Drinks

Sugar – if not sugar free

The only actual energy



Stimulant Drugs

suppress the bodies natural reaction to exhaustion.

Not healthy

Induction is the

- A. Creation of a magnetic field using a battery
- B. A changing magnetic field
- C. Creation of a current with a changing magnetic field
- D. Lighting a light bulb with a current.
- E. None of the above

Generators

Faraday's Electromagnetic Lab (2.07)

File Options Help

Bar Magnet Pickup Coil Electromagnet Transformer Generator

Bar Magnet

Strength: 75 %

0 50 100



Show Field

Show Compass

Show Field Meter

Pickup Coil

Indicator

Loops: 2

Loop Area: 50 %

20 100

Show Electrons

Reset All

0 RPM

S N

Play/Pause

Induction is the

- A. Creation of a magnetic field using a battery
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- D. Lighting a light bulb with a current.
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Power Plants



- Burn Coal or Natural Gas
- Convert to mechanical energy
- Then to Electrical via *induction*

Windmills

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Office of Energy Efficiency & Renewable Energy

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HOW DOES A WIND TURBINE WORK?

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PLAY STOP *Hover over turbine parts for more info.*

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Text Only Version

100%

NGSS Practices

Eight practices that are essential for all students to learn:

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

NGSS Practices

Eight practices that are essential for all students to learn:

1. Asking questions (for science) and defining problems (for engineering)

When I asked the clicker question about the definition of induction, did this meet 1. above?

- A. Yes
- B. Partly
- C. No
- D. I don't know

NGSS Practices

Eight practices that are essential for all **students to learn**:

1. **Asking questions** (for science) and defining problems (for engineering)

When I asked the clicker question about the definition of induction, did this meet 1. above?

- A. Yes
- B. Partly
- C. No**
- D. I don't know

NGSS Practices

Eight practices that are essential for all students to learn:

3. Planning and carrying out investigations

When I had you use a piece of string to learn about AC current, was I meeting 3. above?

- A. Yes
- B. Partly
- C. No
- D. I don't know

NGSS Practices

Eight practices that are essential for all students to learn:

3. Planning and **carrying out investigations**

When I had you use a piece of string to learn about AC current, was I meeting 3. above?

A. Yes

B. Partly

C. No

D. I don't know

NGSS Practices

Eight practices that are essential for all students to learn:

5. Using mathematics and computational thinking

When you investigated the features of the cup instrument that made it loud, or change pitch, did I meet 5. above?

- A. Yes
- B. Partly
- C. No
- D. I don't know

NGSS Practices

Eight practices that are essential for all students to learn:

5. Using **mathematics** and **computational** thinking

When you investigated the features of the cup instrument that made it loud, or change pitch, did I meet 5. above?

- A. Yes
- B. Partly
- C. No**
- D. I don't know

You analyzed data
(information)
But there were no
numbers involved,
no calculations.

NGSS Practices

Eight practices that are essential for all students to learn:

5. Using mathematics and computational thinking

When you investigated the features of the cup instrument that made it loud, or change pitch, did I meet 5. above?

- A. Yes
- B. Partly
- C. No
- D. I don't know

6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information