

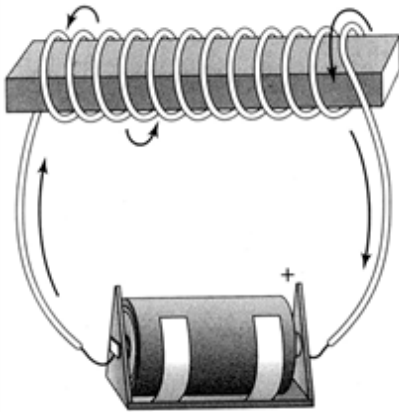
## Module Test: Energy Transfer

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1) Dolphins communicate using special vibrations and sounds. How is this possible?

- ☐ Dolphins have very good hearing.
- ☐ The energy can flow easily through water.
- ☐ Dolphins make loud sounds only other dolphins can hear.
- ☐ The energy is transferred from one dolphin to another through sound.

2) Adam and Terry are building an electromagnet, like the one shown in the diagram. They want to test how the battery's stored energy affects the strength of the electromagnet. Which result would the students expect to see in their investigation?



- ☐ The battery with the higher stored energy will produce more electric current and will strengthen the electromagnet.
- ☐ The battery with the lower stored energy will produce more electric current and will weaken the electromagnet.
- ☐ The battery with the higher stored energy will produce less electric current and will weaken the electromagnet.
- ☐ The battery with the lower stored energy will produce more electric current and will strengthen the electromagnet.

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**3)** Fill in the blanks using the available answer choices.

Light travels in a \_\_\_\_\_ path.

(Blank 1)

Blank 1 options

- curved
- straight
- random

**4)** Why are sounds not heard in space?

- ☐ Space is too cold for sound waves to travel.
- ☐ There is too much matter to travel through in space.
- ☐ Space is a vacuum with few particles to travel through.
- ☐ Energy cannot travel in space.

**5)** How does sound energy travel?

- ☐ in strings
- ☐ in beams
- ☐ in pulses
- ☐ in waves

**6)** Sound waves cannot travel through \_\_\_\_\_.

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7) A pom-pom launcher \_\_\_\_\_

- ☐ transfers kinetic energy to thermal energy
- ☐ transforms kinetic energy to sound energy
- ☐ transforms stored energy to energy of motion
- ☐ transfers energy of motion to stored energy

8) When a student plays a guitar, how does the sound travel to reach your ears?



- ☐ using echos
- ☐ through potential energy
- ☐ through thermal energy
- ☐ through sound waves

9) Fill in the blanks using the available answer choices.

\_\_\_\_\_ is an excellent thermal conductor because it conducts heat easily.  
(Blank 1)

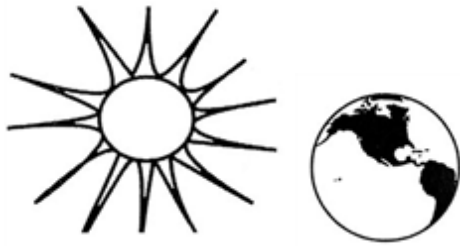
Blank 1 options

- Wood
- Plastic
- Aluminum

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**10)** How does heat travel from the Sun to Earth?



- ☐ conduction
- ☐ convection
- ☐ radiation
- ☐ conduction and convection

**11)** Which is the best description of how sound waves travel?

- ☐ in a straight path to your ear
- ☐ back and forth from the source
- ☐ outward in all directions
- ☐ upward from the source

**12)** The path along which electrical current flows is called a(n) \_\_\_\_\_.

**13)** How are sound waves and states of matter (solid, liquid, gas) related?

- ☐ Sound waves cannot travel through any states of matter.
- ☐ Sound waves can travel through all three states of matter.
- ☐ Sound waves can travel through solids, but not gasses or liquids.
- ☐ Sound waves can travel through liquids, but not solids or gasses.

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**14)** A boy, who was at a very loud motorcycle race, said he could feel the motorcycles vibrate his body, even though he was not touching them. How is this possible?

- ☐ The noise was too loud for the boy.
- ☐ The boy was sitting very close to the motorcycles.
- ☐ The energy was transferred to the boy's body through sound.
- ☐ The motorcycles sent electrical currents through the boy's body.

**15)** A classroom has a tropical fish tank. The students notice that the tank has a light in it. The teacher says the light is to keep the fish warm. Which sentences best explain how the light keeps the fish warm? Select all that apply.

- ☐ The light transfers energy to the water.
- ☐ The light makes it easier to see in the tank.
- ☐ The light helps keep the tank clean for the fish.
- ☐ The light's energy provides food for plants in the tank.
- ☐ The light's energy increases the temperature of the water.

**16)** Austin and Keion are conducting an experiment on how to strengthen their electromagnet. Currently, the magnet will pick up and hold 7 round pieces of metal. They have conducted a number of tests with different actions and recorded their results. What conclusion can you draw based on the data from their results?

Test Action	Pieces of Metal Picked Up
Add 5 more loops to the coil	18
Decrease loops to the coils by 5	6
Use a lower voltage battery	5
Use a different type of wire	7

- ☐ The electromagnet was made stronger by adding loops to the coil.
- ☐ The electromagnet was made stronger by removing loops from the coil.
- ☐ The electromagnet was made stronger by using a lower voltage battery.
- ☐ The electromagnet was made stronger by using a different type of wire.

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17) A student made the circuit in the drawing below.



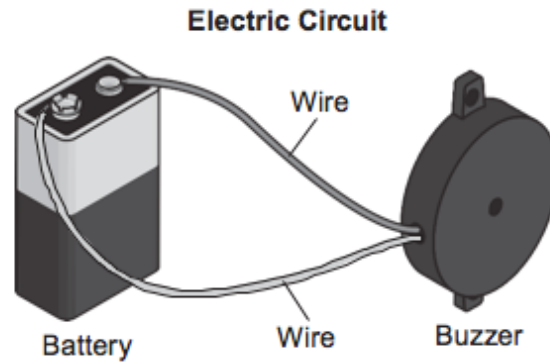
Which does the student need to add to the circuit to make it work?

- ☐ another bulb
- ☐ another battery
- ☐ a switch
- ☐ another wire

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- 18)** Nora claims that energy can be transferred by an electric current. She supports her claim by building an electric circuit. Nora uses two wires to connect a battery to a buzzer, as shown.



- a. Describe what Nora observes after building the electric circuit. Explain why this supports her claim.

- Nora removes one of the wires connecting the battery and the buzzer.
- b. Describe what happens after Nora removes the wire. Explain why this happens.