Test A

Unit 2 Evaluation

Name: _____ Class: _____ Date: _____

Mark the correct answers with a ✔.

1 What effects does energy have?

I. It can change the state of matter.

II. It can change the shape of objects.

III. It can change the speed of motion of an object.

A. I and II.

B. I and III.

C. II and III.

D. I, II and III.

2 If a ball freely falls from the third floor of a building, what happens to its energy while it falls?

A. Its kinetic energy increases.

B. Its gravitational potential energy increases.

C. Its kinetic energy decreases.

D. Its elastic potential energy decreases.

3 What type of energy does a stretched rubber band have?

A. Gravitational potential energy.

B. Elastic potential energy.

C. Chemical potential energy.

D. Kinetic energy.

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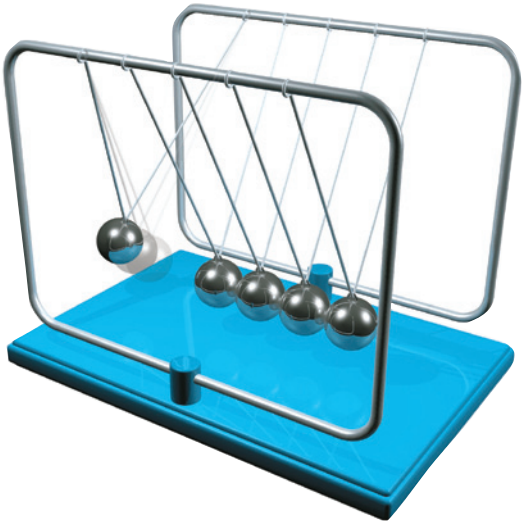
4 What property of energy is associated with the image?



A. Conservation.

B. Storage.

C. Transformation.

D. Degradation.

5 What is the value of the gravitational potential energy at point 2 compared with the gravitational potential mechanical energy at point 1?

A. It is greater.

B. It is less.

C. It is equal.

D. It is three times as much.

6 John and Paula are talking about the concepts of heat and thermal energy. John says that both concepts mean the same thing. Paula says that thermal energy is the kinetic energy of the particles in a body, while heat is the energy transferred between two bodies. Who is right?

A. John.

B. Paula.

C. Both.

D. Neither.

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7 If you add ice to a glass of water, the water cools down. What explains this phenomenon?

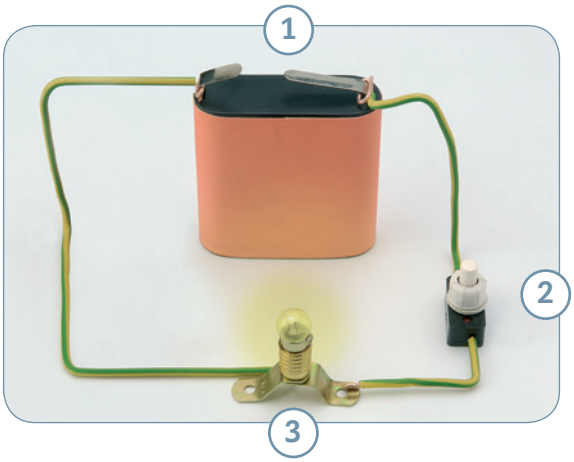
A. The ice transfers energy in the form of heat to the water.

B. The ice transfers thermal energy to the water.

C. The water transfers energy in the form of heat to the ice.

D. The water transfers thermal energy to the ice.

Look at the image and answer questions 8 and 9.



8 In the circuit, what form of energy does component 1 store?

A. Light energy.

B. Chemical energy.

C. Radiant energy.

D. Electric energy.

9 What energy transformation is produced by component 3?

A. Light energy into electric energy.

B. Chemical energy into electric energy.

C. Electric energy into radiant energy.

D. Light energy into heat.

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10 Why is it better to use LED lightbulbs instead of conventional bulbs?

A. Because LED bulbs transmit more energy.

B. Because LED bulbs transform more energy into light.

C. Because LED bulbs store more energy as heat.

D. Because LED bulbs transform more energy into heat.

11 Which object does not need energy to function?

A. A chair.

B. A lamp.

C. A microwave.

D. A flute.

12 What do a lamp and a flashlight have in common?

I. Both transform electric energy into radiant energy.

II. Both transform electric energy into chemical energy.

III. Both change the speed of movement of objects.

A. I.

B. I and II.

C. II and III.

D. I, II and III.

13 Which is false?

A. Photosynthetic organisms transform light energy from the sun into chemical energy.

B. Nutritional information lets us know the energy content of food.

C. Human beings use all their energy to produce heat.

D. Base metabolism uses part of the energy from food to maintain cellular activity.

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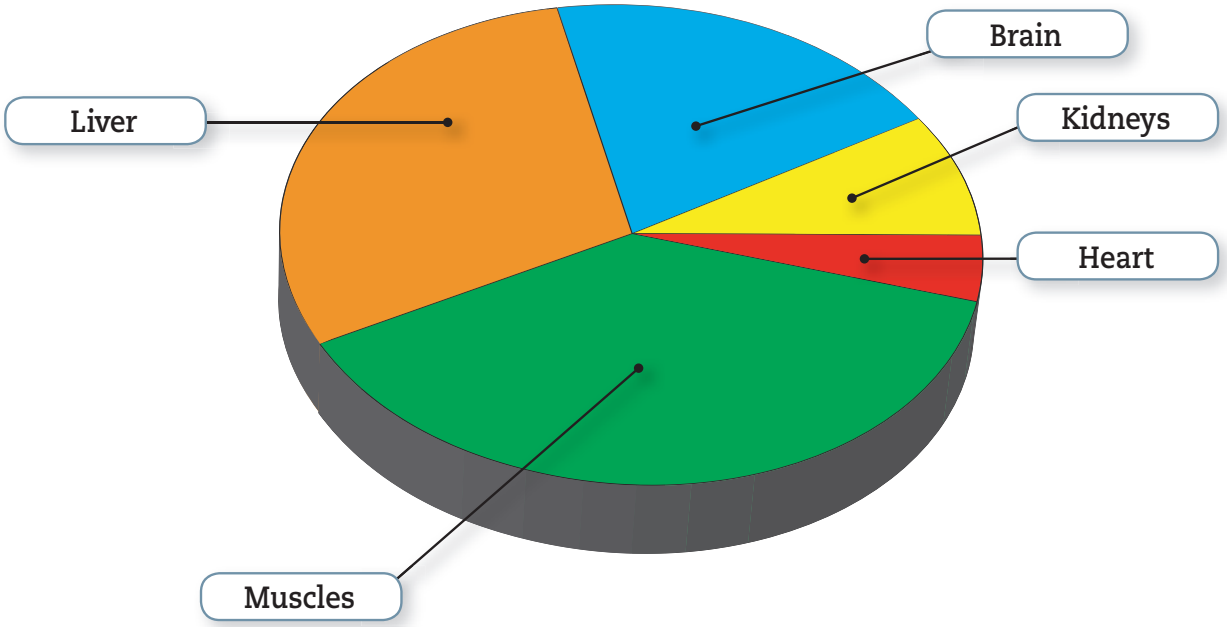
Look at the graph and answer questions 14–16.

Consumption of Energy in Base Metabolism



14 Which of these organs requires the most energy?

A. The brain.

B. The heart.

C. The kidneys.

D. The muscles.

15 Which type of energy do organs need to function?

A. Radiant energy.

B. Light energy.

C. Chemical energy.

D. Thermal energy.

16 Which body parts increase their consumption of energy the most when the body is exercising?

A. The brain and liver.

B. The heart and lungs.

C. The kidneys.

D. The muscles.

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17 Why is the sun important?

I. It is the principal source of energy.

II. It is a renewable resource.

III. It provides energy for photosynthesis.

A. I and II.

B. I and III.

C. II and III.

D. I, II and III.

18 What types of energy do our bodies transform food into?

A. Thermal and kinetic energy.

B. Chemical and kinetic energy.

C. Chemical and thermal energy.

D. Kinetic and light energy.

Look at the table and answer questions 19 and 20.

Activity	Use of Energy Obtained from Food (%)
Base metabolism	60
Physical activities	30
Heat production	10

19 Which activity uses the most energy?

A. Physical activities.

B. Base metabolism.

C. Heat production.

D. Heart functioning.

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20 An LED light bulb transforms 15 percent of electric energy into light and the remaining 85 percent into heat. Comparing this data with the data in the table, what can be concluded?

A. The human body is less efficient than a lightbulb.

B. The human body is more efficient than a lightbulb.

C. The human body and a lightbulb have the same energetic efficiency.

D. Food converts energy more efficiently than a lightbulb.

21 What do photosynthetic organisms transform light into?

A. Chemical energy.

B. Thermal energy.

C. Kinetic energy.

D. Wind energy.

22 What type of energy do you use to ride a bicycle?

A. Heat energy.

B. Mechanical energy.

C. Kinetic energy.

D. Chemical energy.

23 Which group consists of only types of radiant energy?

A. Radio waves, electric energy, nuclear energy.

B. Electromagnetic waves, ultraviolet rays, infrared rays.

C. Light energy, nuclear energy, sound energy.

D. Radio waves, electricity, chemical energy.

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24 Which are types of mechanical energy?

A. Nuclear energy, geothermal energy, gravitational potential energy.

B. Electricity, elastic potential energy, gravitational potential energy.

C. Elastic potential energy, gravitational potential energy, kinetic energy.

D. Velocity, kinetic energy, elastic energy.

Look at the nutritional information for a pot of yogurt and answer questions 25–28.

Nutritional Information A Portion = 1 unit (120 g)		
	100 g	1 portion
Energy (kcal)	45	54
Protein (g)	4.5	5.4
Carbohydrates (g)	6.5	7.8
Fat (g)	0.10	0.12

25 What information can you get from the table?

A. One portion contains 45 kcal of energy.

B. One portion contains 54 kcal of energy

C. One portion contains 6.5 grams of carbohydrates.

D. One portion contains 0.1 grams of fat.

26 What can you conclude about this yogurt?

A. It has less than 1 percent fat.

B. It has 10 percent fat.

C. It is high in saturated fat.

D. It is low in saturated fat.

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27 Which nutrient provides most of the energy in this yogurt?

A. Protein.

B. Carbohydrates.

C. Fat.

D. They each provide a similar amount.

28 How much of the energy in 100 grams of this yogurt comes from carbohydrates?

A. 1.4 kcal.

B. 16 kcal.

C. 18 kcal.

D. 26 kcal.

29 Which needs energy to function?

A. A chair.

B. A table.

C. A shelf.

D. A hammer.

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30 What form of energy does a steam train use and into what energy is it transformed?

A. Thermal into mechanical energy.

B. Chemical into mechanical energy.

C. Electric energy into mechanical energy.

D. Kinetic energy into mechanical energy.

31 Study the nutritional information and answer the questions. (Remember, fat provides 9 kcal/g, and protein and carbohydrates provide 4 kcal/g.)

Nutritional Information 1 Portion	
Protein (g)	5
Carbohydrates (g)	30
Fat (g)	3

How much energy does each nutrient in one portion of this food provide?

What is the total energy input of one portion?

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Test B

Unit 2 Evaluation

Name: _____ Class: _____ Date: _____

Mark the correct answers with a ✔.

1 Which are units of energy?

I. Calories.

II. Kilowatts.

III. Joules.

A. I and II.

B. I and III.

C. II and III.

D. I, II and III.

2 If a ball freely falls from a building, what happens to its gravitational potential energy while it falls?

A. It is transformed.

B. It is conserved.

C. It is stored.

D. It is transferred.

3 Does a lit lightbulb transform electric energy?

A. Yes, it transforms electric energy into light energy.

B. Yes, it transforms electric energy into light and chemical energy.

C. Yes, it transforms electric energy into light energy and heat.

D. Yes, it transforms electric energy into heat and chemical energy.

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4 What property of energy is associated with the image?

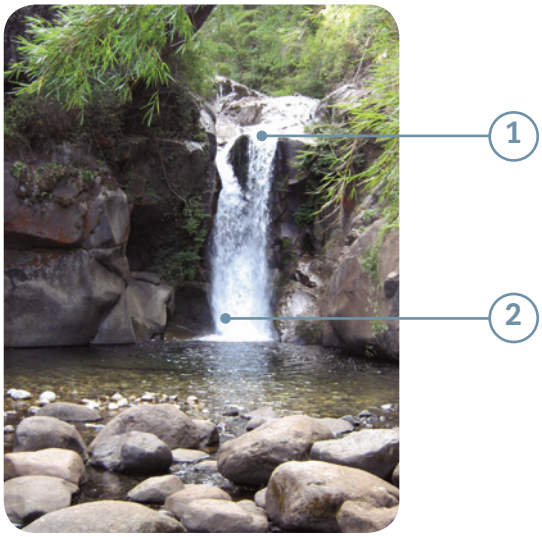
A. Storage.

B. Transformation.

C. Conservation.

D. Transference.

5 What is the value of the kinetic energy at point 2 compared with the kinetic energy at point 1?



A. It is equal.

B. It is greater.

C. It is less.

D. It is twice as much.

6 Carla and Mark are talking about the relationship between speed and energy. Carla says when a car moves faster, it also increases its energy. Mark says that the energy decreases as the car moves faster. Who is right?

A. Carla.

B. Mark.

C. Both.

D. Neither.

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7 When you put a hot cup on a table, the table's temperature rises. What explains this phenomenon?

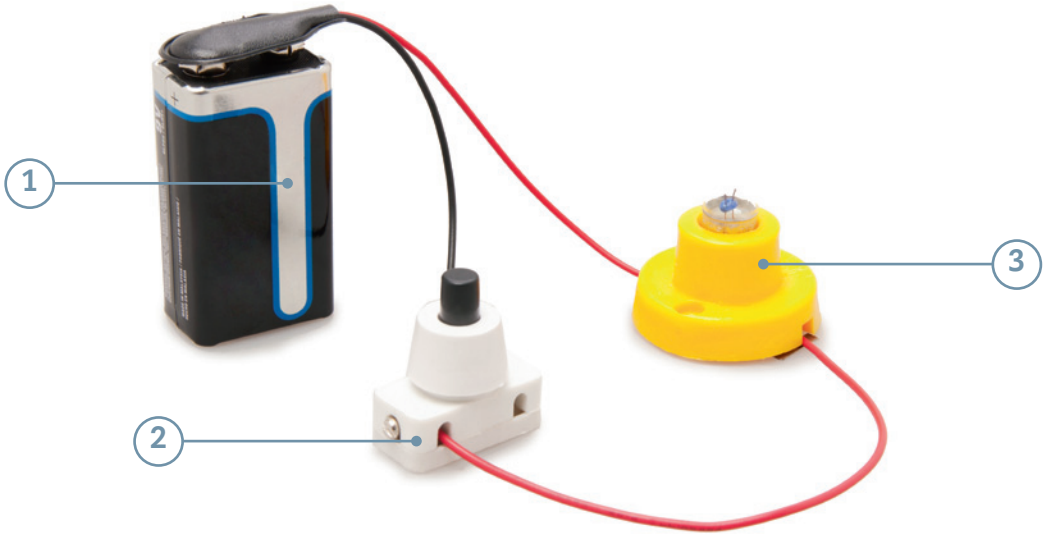
A. The cup transfers thermal energy to the table.

B. The table transfers thermal energy to the cup.

C. The table transfers energy in the form of heat to the cup.

D. The cup transfers energy in the form of heat to the table.

Look at the image and answer questions 8 and 9.



8 In the circuit, what lights the lightbulb?

A. Light energy.

B. Electric energy.

C. Radiant energy.

D. Chemical energy.

9 What energy transformation is produced by component 3?

A. Light energy into electric energy.

B. Chemical energy into electric energy.

C. Electric energy into radiant energy.

D. Light energy into heat.

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10 What is the relationship between temperature and thermal energy?

A. Both are related to the chemical energy of particles.

B. Both are related to the kinetic energy of particles.

C. Both are related to the potential energy of particles.

D. Both are related to the heat of particles.

11 Which object needs energy to function?

A. A chair.

B. A table.

C. A flute.

D. Glasses.

12 What is the main difference between thermal energy and heat?

A. Thermal energy is due to the movement of particles, while heat is the energy that is transferred between two bodies at different temperatures.

B. Thermal energy is due to the movement of particles, while heat is the energy that is transferred between two bodies at equal temperatures.

C. Heat is due to the movement of particles, while thermal energy is transferred between two bodies at different temperatures.

D. Heat stores matter, while thermal energy is the energy that is transferred between two bodies at equal temperatures.

13 Which is true?

A. Living things use energy only to produce heat.

B. Photosynthetic organisms transform light energy from the sun into chemical energy.

C. The heart uses 40 percent of the energy from the base metabolism.

D. The total energy contained in a food is obtained by adding the energy in proteins and fats.

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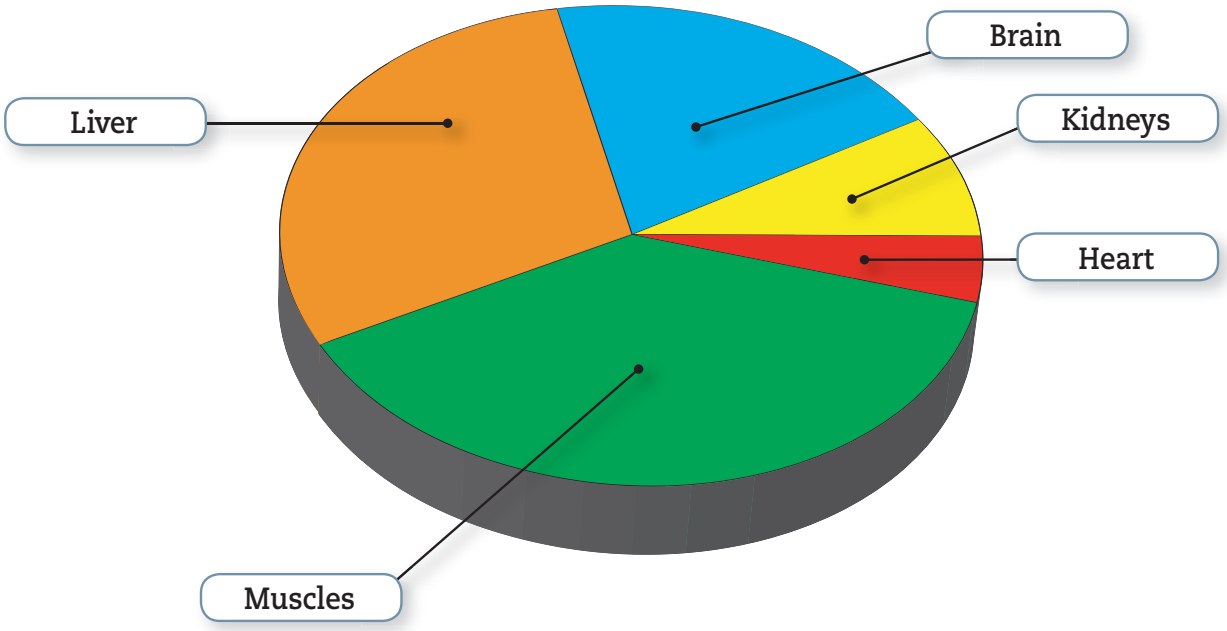
Look at the graph and answer questions 14–16.

Consumption of Energy in Base Metabolism



14 Which of the organs requires the smallest share of energy?

A. The brain.

B. The heart.

C. The kidneys.

D. The liver.

15 What type of energy does the liver need to function?

A. Heat.

B. Thermal energy.

C. Radiant energy.

D. Chemical energy.

16 Which uses more energy when you are sleeping?

A. The brain.

B. The heart.

C. The kidneys.

D. The muscles.

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17 How is the energy for a flashlight stored?

A. As chemical energy in the batteries.

B. As heat energy in the lightbulb.

C. As light energy in the lightbulb.

D. As electric energy in the batteries.

18 What do fossil fuels and food have in common?

A. Both contain chemical potential energy.

B. Both contain kinetic energy.

C. Both contain mechanical energy.

D. Both contain thermal energy.

Look at the table and answer questions 19 and 20.

Activity	Use of Energy Obtained from Food (%)
Base metabolism	60
Physical activities	30
Heat production	10

19 Which activity uses the least amount of energy?

A. Base metabolism.

B. Heat production.

C. Physical activities.

D. All of the above.

20 An incandescent lightbulb transforms 5 percent of the electric energy into light and the remaining 95 percent into heat. Comparing this data with the data in the table, what can be concluded?

A. The human body is less efficient than a lightbulb.

B. The human body is more efficient than a lightbulb.

C. The human body and a lightbulb have the same energetic efficiency.

D. Food converts energy more efficiently than a lightbulb.

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21 What energy do plants need to perform photosynthesis?

A. Heat energy from the sun.

B. Light energy from the sun.

C. Chemical energy from the sun.

D. Nuclear energy from the sun.

22 What energy transformation is carried out by a hair dryer?

A. Electric energy to light energy.

B. Electric energy to light and heat energy.

C. Electric energy to heat and kinetic energy.

D. Kinetic energy to electric energy.

23 Which is not a type of potential energy?

A. The energy in an object at altitude.

B. The energy in batteries.

C. The energy in a stretched rubber band.

D. The energy in a kettle on a stove.

24 From what substance can nuclear energy be produced?

A. Plutonium.

B. Carbon dioxide.

C. Oxygen.

D. All of the above.

25 What form of energy does a blender use and into what energy is it transformed?

A. Electric energy into mechanical energy.

B. Electric energy into sound energy.

C. Electric energy into mechanical and sound energy.

D. Electric energy into mechanical and kinetic energy.

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26 What is the energy contained in particles an example of?

A. Energy transformation.

B. Energy storage.

C. Energy transference.

D. Energy degradation.

Look at the nutritional information and answer questions 27–30.

Nutritional Information A Portion = 1 unit (120 g)		
	100 g	1 portion
Energy (kcal)	110	132
Protein (g)	3.0	3.6
Carbohydrates (g)	20	24
Fat (g)	2	2.4

27 What information can you get from the table?

A. One portion contains 2 grams of fat.

B. One portion contains 110 kcal of energy.

C. One portion contains 24 grams of carbohydrates.

D. One portion contains 2.4 grams of protein.

28 What can you conclude about the food?

A. Most of its energy is from carbohydrates.

B. Most of its energy is from fat.

C. Most of its energy is from protein.

D. It contains equal amounts of energy in the form of fats and proteins.

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29 What is the total value of energy input for a portion?

A. 100 kcal.

B. 110 kcal.

C. 120 kcal.

D. 132 kcal.

30 Which nutrient in this food provides the least energy?

A. Protein.

B. Fat.

C. Carbohydrates.

D. They each provide the same amount.

31 Study the nutritional information for a cereal. (Remember, fat provides 9 kcal/g, and protein and carbohydrates provide 4 kcal/g.)

Nutritional Information 1 Portion	
Energy (kcal)	125
Protein (g)	3
Carbohydrates (g)	24
Fat (g)	2

How much energy does each nutrient in one portion provide?

What is the total energy input of one portion?

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