2026

الصف الرابع الابتدائي
الفصل الدراسي الاول
4

اصحاب الأرض

فلسطين قضيتي

نسخة خاصة تضامنا مع القضية الفلسطينية

المتفوق

SCIENCE

4

إعداد

د / سالى احمد عرفة

د / سارة احمد عرفة

واتساب سلسلة المتفوق
01020508205

جروب المتفوق على فيسبوك

قناة المتفوق على يوتيوب

جروب المتفوق على تيليجرام

مراجعة الشهر

March revision

Write the scientific term:

1. Fuel formed from ancient marine organisms buried deep under the ocean. (…….)
2. Energy stored in food and batteries. (…….)
3. A device that converts kinetic energy into electrical energy in power plants. (…….)
4. The main source of energy for remote-controlled toys. (…….)
5. A diagram that shows how energy changes from one form to another step by step. (…….)
6. Energy that is wasted as heat or sound and does not contribute to the main function. (…….)
7. Fuel produced from plants such as corn, grass, and wood. (…….)
8. The law stating that energy cannot be created or destroyed. (…….)
9. The substance produced when water is heated in power plants to move turbines. (…….)
10. Technology that converts sunlight into electrical energy. (…….)
11. Natural materials used faster than they can be replaced. (…….)
12. The useful output energy from an electric blender. (…….)
13. The oldest biofuel used to produce heat. (…….)
14. The main source of energy on Earth's surface. (…….)
15. Fuel formed from ancient plant remains buried millions of years ago. (…….)
16. A well-known robot that explores the surface of Mars. (…….)

17. Energy that contributes to the main function of a device. (……)
18. Natural materials that can be renewed quickly after use. (……)
19. The increase of carbon dioxide in the atmosphere. (……)
20. Energy stored in water at a high level in rivers. (……)
21. The input energy for all electrical devices. (……)
22. Fuels made from living organisms that can be replanted. (……)
23. Fuels formed from the remains of plants and animals over millions of years. (……)

(Complete)

1. Solar cells convert sunlight into _____ energy.
2. The main source of energy on Earth is the _____.
3. Energy stored in food and batteries is called _____ energy.
4. A device that converts kinetic energy into electrical energy is called a _____.
5. The useful energy produced by an electric blender is _____ energy.
6. Energy that is not useful and lost as heat or sound is called _____ energy.
7. The law that states energy cannot be created or destroyed is the law of _____ of energy.
8. The diagram that shows energy transformations is called an _____ diagram.
9. Fuel produced from plants like corn and wood is called _____ fuel.
10. The oldest biofuel used for heating is _____.

11. Fuel formed from ancient plant remains is called _____.
12. Fuel formed from ancient marine organisms is called _____.
13. Fuels formed over millions of years are called _____ fuels.
14. Fuels made from living organisms are called _____ fuels.
15. Natural materials used faster than they can be replaced are called _____ resources.
16. Natural materials that can be replaced quickly are called _____ resources.
17. The substance produced when water is heated in power plants is _____.
18. The device used to generate electricity in power stations is a _____.
19. The input energy for all electrical devices is _____ energy.
20. A substance that releases heat when burned is called _____.
21. The increase of carbon dioxide in the atmosphere leads to _____ warming.
22. Energy stored in water at a high level is called _____ potential energy.
23. The main source of energy for remote-controlled toys is _____.
24. A famous robot that explores Mars is called a Mars _____.
25. Energy that contributes to the main function of a device is called _____ energy.
26. The Sun is the primary source of _____ energy on Earth.
27. Energy from moving objects is called _____ energy.

28. The process of converting energy from one form to another is called energy _____.
29. Heat energy is also known as _____ energy.
30. Wind and sunlight are examples of _____ energy sources.

Choose the correct answer

1. Which energy type is stored in food?

ⓐ Mechanical ⓑ Chemical. ⓒ Electrical ⓓ Sound

2. Which of the following is a renewable energy source?

ⓐ Coal ⓑ Natural gas. ⓒ Water. ⓓ Gasoline

3. What is the main energy source on Earth?

ⓐ Wind ⓑ The Moon ⓒ The Sun. ⓓ Electricity

4. What kind of energy do batteries store?

ⓐ Thermal ⓑ Chemical. ⓒ Kinetic. ⓓ Solar

5. Coal was formed from the remains of _____.

ⓐ Rocks ⓑ Ancient plants. ⓒ Marine animals ⓓ Sand

6. Which energy is needed to operate a TV?

ⓐ Sound ⓑ Light. ⓒ Electrical. ⓓ Kinetic

7. What type of energy does a kettle produce?

ⓐ Chemical ⓑ Thermal. ⓒ Light. ⓓ Electrical

8. Fossil fuels are found _____.

ⓐ In the air ⓑ Underground ⓒ In rivers ⓓ On trees

9. The Mars rover mainly uses _____ for energy.

ⓐ Fossil fuels ⓑ Solar panels ⓒ Wind ⓓ Wires

10. When using a blender, some energy is lost as _____.

ⓐ Sound. ⓑ Kinetic ⓒ Light. ⓓ Mechanical

11. Fossil fuels take _____ to form.

ⓐ Days. ⓑ Months ⓒ Millions of years ⓓ Weeks

12. Which gas increase causes global warming?

ⓐ Oxygen ⓑ Carbon dioxide ⓒ Nitrogen ⓓ Hydrogen

13. Which system is affected by smog?

ⓐ Digestive ⓑ Respiratory ⓒ Muscular ⓓ Skeletal

14. Oil is mainly formed from _____.

ⓐ Plants ⓑ Rocks ⓒ Marine organisms ⓓ Sand

15. The law stating energy is conserved is called _____.

ⓐ Energy loss. ⓑ Conservation of energy ⓒ Energy use ⓓ Energy change

16. Biofuel is produced from _____.

ⓐ Coal ⓑ Oil. ⓒ Living plants ⓓ Gas

17. Which energy is produced in a flashlight?

ⓐ Sound. ⓑ Light. ⓒ Thermal ⓓ Chemical

18. The energy needed for all devices is _____.

ⓐ Fuel ⓑ Energy. ⓒ Solar panels ⓓ Electricity

19. Which one is NOT used to make biofuel?

ⓐ Grass ⓑ Gasoline ⓒ Wood. ⓓ Paper

20. Burning fuels mainly produces _____ energy.

ⓐ Light ⓑ Chemical ⓒ Thermal. ⓓ Sound

21. Renewable resources are those that _____.

ⓐ End quickly ⓑ Renew quickly ⓒ Never exist ⓓ Cannot be used

22. What happens when fossil fuels are overused?

ⓐ Increase ⓑ Stay same ⓒ Run out ⓓ Become renewable

23. Which helps solar panels work efficiently?

ⓐ Shade ⓑ Rain ⓒ Direct sunlight ⓓ Wind

24. Where are solar panels usually installed?

ⓐ Underground ⓑ Roofs ⓒ Rivers ⓓ Rooms

25. Which energy change occurs in a mobile phone?

ⓐ Chemical → light & sound ⓑ Electrical → chemical

ⓒ Sound → light ⓓ Heat → motion

26. Which causes air pollution most?

ⓐ Water ⓑ Fuel burning ⓒ Soil. ⓓ Food

27. What is smog made of?

ⓐ Smoke + fog . ⓑ Dust + sand

ⓒ Air + insects ⓓ Water + smoke

28. Acid rain affects mainly _____.

ⓐ Lakes ⓑ Buildings ⓒ Both ⓓ None

29. Exhaust gases from cars make cities _____.

ⓐ Clean ⓑ Quiet ⓒ Polluted ⓓ Safe

30. Which fuel moves cars?

ⓐ Wood ⓑ Coal ⓒ Gasoline & natural gas ⓓ Water

31. Fossil fuels come from _____.

ⓐ Air ⓑ Dead organisms ⓒ Water ⓓ Sunlight

32. Which type of energy is kinetic energy?

ⓐ Stored ⓑ Moving ⓒ Chemical ⓓ Light

33. Non-renewable resources are those that _____.

ⓐ Renew fast. ⓑ Finish quickly

ⓒ Last forever. ⓓ Are unlimited

34. Which reduces pollution in cities?

ⓐ Factories ⓑ Cars ⓒ Green areas ⓓ Roads

35. Which organ is harmed by toxic food chemicals?

ⓐ Liver ⓑ Heart . ⓒ Brain . ⓓ Whole body

36. Acid rain is caused by burning _____.

ⓐ Wood ⓑ Coal & oil ⓒ Water . ⓓ Soil

37. Energy changes from one form to another is called _____.

ⓐ Transfer ⓑ Transformation ⓒ Creation ⓓ Destruction

38. Which energy is lost in most devices?

ⓐ Light . ⓑ Heat . ⓒ Sound . ⓓ Chemical

39. The greenhouse effect is mainly caused by _____.

ⓐ Oxygen . ⓑ CO_2 ⓒ Hydrogen . ⓓ Nitrogen

40. Renewable energy includes _____.

ⓐ Oil . ⓑ Coal . ⓒ Solar & wind . ⓓ Gas

True or False

1. Batteries store chemical energy inside them. ( )
2. In a toy car, electrical energy changes into kinetic energy. ( )
3. Missions sent to Mars include human astronauts. ( )
4. The Curiosity rover uses solar panels and batteries as energy sources. ( )
5. Electrical energy is an output of a hair dryer. ( )
6. The Sun is the main source of energy on Earth. ( )
7. Input energy is the energy needed for a device to work. ( )
8. Burning coal converts chemical energy into thermal energy. ( )

9. Electricity is transmitted to homes through copper wires. ( )
10. Most wasted energy in devices is released as heat. ( )
11. Energy cannot be created or destroyed, only changed from one form to another. ( )
12. Sound from a hair dryer is considered useful energy. ( )
13. In a lamp, electrical energy changes into light and heat energy. ( )
14. Wasted energy does not help the device perform its main function. ( )
15. The human body converts chemical energy into kinetic energy. ( )
16. In a handbell, kinetic energy changes into sound energy. ( )
17. Wood is one of the oldest fuels used by humans. ( )
18. Charcoal is made from wood and is a type of biofuel. ( )
19. Fossil fuels are renewable energy sources. ( )
20. Coal is formed from ancient plants buried millions of years ago. ( )
21. Oil and natural gas are formed from marine organisms. ( )
22. Plants like corn and grass can produce biofuels. ( )
23. Deforestation negatively affects the environment. ( )
24. Output energy is always equal to input energy in all devices. ( )
25. Generators convert kinetic energy into electrical energy. ( )
26. Energy can disappear completely. ( )
27. A hair dryer produces only thermal energy. ( )
28. In an electric iron, electrical energy changes into heat energy. ( )
29. A mobile phone stores electrical energy in its battery. ( )
30. In an electric bell, electrical energy changes into sound energy. ( )
31. Hydropower is a non-renewable energy source. ( )
32. A generator converts electrical energy into kinetic energy. ( )
33. Fossil fuels are used to generate electricity. ( )
34. Coal is the only fossil fuel. ( )
35. Heat alone forms fossil fuels from living remains. ( )

36. Water is a non-renewable energy source. ( )
37. Water behind a dam stores kinetic energy. ( )
38. Electricity can be transmitted through wires to cities. ( )
39. Electricity can be generated using wind and water. ( )
40. Electricity produced from water is called hydroelectricity. ( )

Give a scientific explanation for each of the following:

1. Using solar-powered calculators instead of batteries.
2. Coal cannot be replaced quickly.
3. Feeling warmth when rubbing your hands together.
4. The importance of generators in power stations.
5. Using batteries inside remote-controlled toys.
6. Fossil fuels are considered non-renewable resources.
7. The presence of wasted energy in most devices.
8. Sending rovers to explore Mars instead of humans.
9. Burning gasoline inside a car engine.
10. The Sun is considered a renewable energy source.
11. Turning off unused lights at home.
12. The occurrence of global warming due to increased CO_2.
13. Wind and water are renewable energy sources.
14. Feeling heat near an electric lamp.
15. Thermal energy in mobile phones is considered wasted.
16. Fossil fuels take millions of years to form.
17. Acid rain damages buildings.
18. Using wood as fuel harms the environment.
19. Using biofuels as renewable energy sources.
20. Smog is harmful to human health.
21. Decreasing the use of pesticides in agriculture.
22. Energy loss in machines during operation.
23. Movement of a toy car when using a battery.
24. Energy change when pressing a spring.
25. The importance of food for humans.
26. Hydropower stations generate electricity.

27. Carbon dioxide increase harms the environment.
28. Sound and heat in a blender are considered wasted.
29. Fossil fuels cause air pollution.
30. Energy is not destroyed but transformed.

What happens in the following cases:

1. If the batteries of a remote-controlled toy car run out

2. When rivers flow downhill?

3. If fossil fuels are used in large amounts?

4. When a piece of wood is burned?

5. If you place your hand near a lighted lamp?

6. If a mobile phone is used for a long time?

7. When solar calculators are exposed to sunlight?

8. If carbon dioxide increases and mixes with water vapor?

9. If fuel runs out in a car?

10. When coal is burned?

11. If water is polluted?

12. If trees are cut down excessively for fuel?

13. If dead organisms are buried underground for millions of years?

14. If sea organisms decompose under the Earth's surface?

15. If there is no heating of water in a power station?

16. If Mars rover Curiosity does not receive sunlight?

17. When an electric fan is switched on?

18. If Earth's temperature increases?

19. When fuels are burned?

20. How are fossil fuels formed?

Questions (Energy Transformations in Devices)

1. What energy transformation occurs in an electric fan?

2. Explain the energy changes in a hair dryer.

3. What type of energy conversion happens in an electric lamp?

4. Describe how energy is transformed in a mobile phone while working.

5. What energy transformations take place in a blender?

6. Explain the energy changes in a flashlight.

7. What happens to energy in an electric iron?

8. Describe the energy transformation in a television.

9. What energy conversions occur in a washing machine?

10. Explain how energy changes in a refrigerator.

11. What type of energy transformation occurs in a microwave oven?

12. Describe the energy changes in an electric bell.

13. What energy transformation happens in a calculator powered by solar cells?

14. Explain the energy changes in a battery-operated toy car

15. What energy transformation occurs in a water heater?

Match (A) with (B):

A	B
1. Electric fan 2. Hair dryer 3. Flashlight 4. Car engine (fuel) 5. Solar calculator 6. Electric iron 7. Blender 8. Burning wood (fuel) 9. Electric bell 10. Mobile phone	a. Chemical → Electrical → Light b. Electrical → Kinetic (+ sound) c. Chemical (fuel) → Thermal → Kinetic d. Electrical → Thermal e. Electrical → Kinetic (+ sound & heat) f. Electrical → Sound g. Solar → Electrical h. Chemical (fuel) → Thermal + Light i. Electrical → Thermal + Kinetic (+ sound) j. Chemical → Electrical → Light + Sound

A	B
1. Wind energy 2. Water energy 3. Turbines	a. Energy source that can be replaced quickly after use b. Energy obtained from moving

4. Natural gas 5. Renewable energy 6. Non-renewable energy 7. Hydropower 8. Fossil fuels	air c. Fuels formed over millions of years from buried organisms d. Devices that convert kinetic energy into electrical energy e. Energy obtained from flowing or falling water f. Energy source that cannot be replaced quickly g. A type of fossil fuel used for heating and electricity h. Electricity generated using water movement

Give the scientific definition of the following:

1. Renewable energy
2. Non-renewable energy
3. Wind energy
4. Water energy
5. Turbines
6. Natural gas
7. Fossil fuels
8. Hydropower
9. Biofuel
10. Generator

Answer

Write the scientific term:

1. Fuel formed from ancient marine organisms buried deep under the ocean. (Oil)
2. Energy stored in food and batteries. (Chemical energy)
3. A device that converts kinetic energy into electrical energy in power plants. (Generator)
4. The main source of energy for remote-controlled toys. (Batteries)
5. A diagram that shows how energy changes from one form to another step by step. (Energy chain diagram)
6. Energy that is wasted as heat or sound and does not contribute to the main function. (Wasted energy)
7. Fuel produced from plants such as corn, grass, and wood. (Liquid bio fuel)
8. The law stating that energy cannot be created or destroyed. (Law of conservation of energy)
9. The substance produced when water is heated in power plants to move turbines. (Steam)
10. Technology that converts sunlight into electrical energy. (Solar cells / Solar panels)
11. Natural materials used faster than they can be replaced. (Non-renewable resources)
12. The useful output energy from an electric blender. (Kinetic energy)
13. The oldest biofuel used to produce heat. (Wood)
14. The main source of energy on Earth's surface. (The Sun)
15. Fuel formed from ancient plant remains buried millions of years ago. (Coal)
16. A well-known robot that explores the surface of Mars. (Mars rover – Curiosity)

17. Energy that contributes to the main function of a device. (Useful energy)
18. Natural materials that can be renewed quickly after use. (Renewable resources)
19. The increase of carbon dioxide in the atmosphere. (Global warming / CO_2 increase)
20. Energy stored in water at a high level in rivers. (Gravitational potential energy)
21. The input energy for all electrical devices. (Electrical energy)
22. Fuels made from living organisms that can be replanted. (Biofuels)
23. Fuels formed from the remains of plants and animals over millions of years. (Fossil fuels)

Second: Questions with Answers

1. Solar cells convert sunlight into electrical energy.
2. The main source of energy on Earth is the Sun.
3. Energy stored in food and batteries is called chemical energy.
4. A device that converts kinetic energy into electrical energy is called a generator.
5. The useful energy produced by an electric blender is kinetic energy.
6. Energy that is not useful and lost as heat or sound is called wasted energy.
7. The law that states energy cannot be created or destroyed is the law of conservation of energy.
8. The diagram that shows energy transformations is called an energy flow diagram.
9. Fuel produced from plants like corn and wood is called biomass fuel.
10. The oldest biofuel used for heating is wood.
11. Fuel formed from ancient plant remains is called coal.

12. Fuel formed from ancient marine organisms is called petroleum (oil).
13. Fuels formed over millions of years are called fossil fuels.
14. Fuels made from living organisms are called bio fuels.
15. Natural materials used faster than they can be replaced are called non-renewable resources.
16. Natural materials that can be replaced quickly are called renewable resources.
17. The substance produced when water is heated in power plants is steam.
18. The device used to generate electricity in power stations is a generator.
19. The input energy for all electrical devices is electrical energy.
20. A substance that releases heat when burned is called fuel.
21. The increase of carbon dioxide in the atmosphere leads to global warming.
22. Energy stored in water at a high level is called gravitational potential energy.
23. The main source of energy for remote-controlled toys is batteries.
24. A famous robot that explores Mars is called a Mars rover.
25. Energy that contributes to the main function of a device is called useful energy.
26. The Sun is the primary source of most energy on Earth.
27. Energy from moving objects is called kinetic energy.
28. The process of converting energy from one form to another is called energy transformation.
29. Heat energy is also known as thermal energy.
30. Wind and sunlight are examples of renewable energy sources.

Choose

1. Which energy type is stored in food?

ⓐ Mechanical ⓑ Chemical ✔ ⓒ Electrical ⓓ Sound

2. Which of the following is a renewable energy source?

ⓐ Coal ⓑ Natural gas ⓒ Water ✔ ⓓ Gasoline

3. What is the main energy source on Earth?

ⓐ Wind ⓑ The Moon ⓒ The Sun ✔ ⓓ Electricity

4. What kind of energy do batteries store?

ⓐ Thermal ⓑ Chemical ✔ ⓒ Kinetic ⓓ Solar

5. Coal was formed from the remains of _____.

ⓐ Rocks ⓑ Ancient plants ✔ ⓒ Marine animals ⓓ Sand

6. Which energy is needed to operate a TV?

ⓐ Sound ⓑ Light ⓒ Electrical ✔ ⓓ Kinetic

7. What type of energy does a kettle produce?

ⓐ Chemical ⓑ Thermal ✔ ⓒ Light ⓓ Electrical

8. Fossil fuels are found _____.

ⓐ In the air ⓑ Underground ✔ ⓒ In rivers ⓓ On trees

9. The Mars rover mainly uses _____ for energy.

ⓐ Fossil fuels ⓑ Solar panels ✔ ⓒ Wind ⓓ Wires

10. When using a blender, some energy is lost as _____.

ⓐ Sound ✔ ⓑ Kinetic ⓒ Light ⓓ Mechanical

11. Fossil fuels take _____ to form.

ⓐ Days ⓑ Months ⓒ Millions of years ✔ ⓓ Weeks

12. Which gas increase causes global warming?

ⓐ Oxygen ⓑ Carbon dioxide ✔ ⓒ Nitrogen ⓓ Hydrogen

13. Which system is affected by smog?

ⓐ Digestive ⓑ Respiratory ✔ ⓒ Muscular ⓓ Skeletal

14. Oil is mainly formed from _____.

ⓐ Plants ⓑ Rocks ⓒ Marine organisms ✔ ⓓ Sand

15. The law stating energy is conserved is called _____.

ⓐ Energy loss ⓑ Conservation of energy ✔ ⓒ Energy use ⓓ Energy change

16. Biofuel is produced from _____.

ⓐ Coal ⓑ Oil ⓒ Living plants ✔ ⓓ Gas

17. Which energy is produced in a flashlight?

ⓐ Sound ⓑ Light ✔ ⓒ Thermal ⓓ Chemical

18. The energy needed for all devices is _____.

ⓐ Fuel. ⓑ Energy ✔ ⓒ Solar panels ⓓ Electricity

19. Which one is NOT used to make biofuel?

ⓐ Grass ⓑ Gasoline ✔ ⓒ Wood ⓓ Paper

20. Burning fuels mainly produces _____ energy.

ⓐ Light ⓑ Chemical ⓒ Thermal ✔ ⓓ Sound

21. Renewable resources are those that _____.

ⓐ End quickly ⓑ Renew quickly ✔ ⓒ Never exist ⓓ Cannot be used

22. What happens when fossil fuels are overused?

ⓐ Increase ⓑ Stay same ⓒ Run out ✔ ⓓ Become renewable

23. Which helps solar panels work efficiently?

ⓐ Shade ⓑ Rain ⓒ Direct sunlight ✔ ⓓ Wind

24. Where are solar panels usually installed?

ⓐ Underground ⓑ Roofs ✔ ⓒ Rivers ⓓ Rooms

25. Which energy change occurs in a mobile phone?

ⓐ Chemical → light & sound ✔ ⓑ Electrical → chemical ⓒ Sound → light ⓓ Heat → motion

26. Which causes air pollution most?

ⓐ Water ⓑ Fuel burning ✔ ⓒ Soil ⓓ Food

27. What is smog made of?

ⓐ Smoke + fog ✔ ⓑ Dust + sand ⓒ Air + insects ⓓ Water + smoke

28. Acid rain affects mainly _____.

ⓐ Lakes ⓑ Buildings ⓒ Both ✔ ⓓ None

29. Exhaust gases from cars make cities _____.

ⓐ Clean ⓑ Quiet ⓒ Polluted ✔ ⓓ Safe

30. Which fuel moves cars?

ⓐ Wood ⓑ Coal ⓒ Gasoline & natural gas ✔ ⓓ Water

31. Fossil fuels come from _____.

ⓐ Air ⓑ Dead organisms ✔ ⓒ Water ⓓ Sunlight

32. Which type of energy is kinetic energy?

ⓐ Stored ⓑ Moving ✔ ⓒ Chemical ⓓ Light

33. Non-renewable resources are those that _____.

ⓐ Renew fast ⓑ Finish quickly ✔ ⓒ Last forever ⓓ Are unlimited

34. Which reduces pollution in cities?

ⓐ Factories ⓑ Cars ⓒ Green areas ✔ ⓓ Roads

35. Which organ is harmed by toxic food chemicals?

ⓐ Liver ⓑ Heart ⓒ Brain ⓓ Whole body ✔

36. Acid rain is caused by burning _____.

ⓐ Wood ⓑ Coal & oil ✔ ⓒ Water ⓓ Soil

37. Energy changes from one form to another is called _____.

ⓐ Transfer ⓑ Transformation ✔ ⓒ Creation ⓓ Destruction

38. Which energy is lost in most devices?

ⓐ Light ⓑ Heat ✔ ⓒ Sound ⓓ Chemical

39. The greenhouse effect is mainly caused by _____.

ⓐ Oxygen ⓑ CO_2 ✔ ⓒ Hydrogen ⓓ Nitrogen

40. Renewable energy includes _____.

ⓐ Oil ⓑ Coal ⓒ Solar & **wind** ✔ ⓓ Gas

True or False (with answers)

1. Batteries store chemical energy inside them. **(True ✔)**
2. In a toy car, electrical energy changes into kinetic energy. **(True)**
3. Missions sent to Mars include human astronauts. (False)
4. The Curiosity rover uses solar panels and batteries as energy sources. (True ✔)
5. Electrical energy is an output of a hair dryer. (False)
6. The Sun is the main source of energy on Earth. **(True)**
7. Input energy is the energy needed for a device to work. **(True)**
8. Burning coal converts chemical energy into thermal energy. (True)
9. Electricity is transmitted to homes through copper wires. (True)
10. Most wasted energy in devices is released as heat. (True)
11. Energy cannot be created or destroyed, only changed from one form to another. (True)

12. Sound from a hair dryer is considered useful energy. (False ☐)
13. In a lamp, electrical energy changes into light and heat energy. (True ☐)
14. Wasted energy does not help the device perform its main function. (True ☐)
15. The human body converts chemical energy into kinetic energy. (True ☐)
16. In a handbell, kinetic energy changes into sound energy. (True ☐)
17. Wood is one of the oldest fuels used by humans. (True ☐)
18. Charcoal is made from wood and is a type of biofuel. (True ☐)
19. Fossil fuels are renewable energy sources. (False ☐)
20. Coal is formed from ancient plants buried millions of years ago. (True ☐)
21. Oil and natural gas are formed from marine organisms. (True ☐)
22. Plants like corn and grass can produce biofuels. (True ☐)
23. Deforestation negatively affects the environment. (True ☐)
24. Output energy is always equal to input energy in all devices. (False ☐)
25. Generators convert kinetic energy into electrical energy. (True ☐)
26. Energy can disappear completely. (False ☐)
27. A hair dryer produces only thermal energy. (False ☐)
28. In an electric iron, electrical energy changes into heat energy. (True ☐)
29. A mobile phone stores electrical energy in its battery. (False ☐)
30. In an electric bell, electrical energy changes into sound energy. (True ☐)
31. Hydropower is a non-renewable energy source. (False ☐)

32. A generator converts electrical energy into kinetic energy. (False ☐)
33. Fossil fuels are used to generate electricity. (True ☐)
34. Coal is the only fossil fuel. (False ☐)
35. Heat alone forms fossil fuels from living remains. (False ☐)
36. Water is a non-renewable energy source. (False ☐)
37. Water behind a dam stores kinetic energy. (False ☐)
38. Electricity can be transmitted through wires to cities. (True ☐)
39. Electricity can be generated using wind and water. (True ☐)
40. Electricity produced from water is called hydroelectricity. (True ☐)

Give a scientific explanation for each of the following:

1. Using solar-powered calculators instead of batteries.

→ Because solar energy is converted into electrical energy to operate the calculator.

2. Coal cannot be replaced quickly.

→ Because it is a non-renewable resource that takes millions of years to form.

3. Feeling warmth when rubbing your hands together.

→ Because kinetic energy is converted into thermal energy due to friction.

4. The importance of generators in power stations.

→ Because generators convert kinetic energy into electrical energy.

5. Using batteries inside remote-controlled toys.

→ Because batteries store chemical energy that is converted into electrical energy.

6. Fossil fuels are considered non-renewable resources.

→ Because they are used faster than they can be renewed.

7. The presence of wasted energy in most devices.

→ Because part of the input energy is lost as heat or sound.

8. Sending rovers to explore Mars instead of humans.

→ Because Mars is too far and dangerous for humans to travel to easily.

9. Burning gasoline inside a car engine.

→ Because chemical energy is converted into thermal then kinetic energy.

10. The Sun is considered a renewable energy source.

→ Because it can be replenished continuously.

11. Turning off unused lights at home.

→ To conserve electrical energy.

12. The occurrence of global warming due to increased CO_2.

→ Because CO_2 traps heat in the atmosphere.

13. Wind and water are renewable energy sources.

→ Because they are naturally replenished quickly.

14. Feeling heat near an electric lamp.

→ Because electrical energy is converted into thermal energy.

15. Thermal energy in mobile phones is considered wasted.

→ Because it does not help the phone perform its function.

16. Fossil fuels take millions of years to form.

→ Because they are formed under high pressure and heat over long periods.

17. Acid rain damages buildings.

→ Because it dissolves materials used in construction.

18. Using wood as fuel harms the environment.

→ Because cutting trees leads to deforestation.

19. Using biofuels as renewable energy sources.

→ Because they are made from living organisms that can be replaced.

20. Smog is harmful to human health.

→ Because it damages the respiratory system.

21. Decreasing the use of pesticides in agriculture.

→ Because pesticides pollute soil and water.

22. Energy loss in machines during operation.

→ Because some energy is wasted as heat or sound.

23. Movement of a toy car when using a battery.

→ Because chemical energy changes into electrical then kinetic energy.

24. Energy change when pressing a spring.

→ Because potential energy converts into kinetic energy.

25. The importance of food for humans.

→ Because it provides chemical energy for body functions.

26. Hydropower stations generate electricity.

→ Because moving water turns turbines to produce electricity.

27. Carbon dioxide increase harms the environment.

→ Because it causes global warming.

28. Sound and heat in a blender are considered wasted.

→ Because they do not help the blender perform its function.

29. Fossil fuels cause air pollution.

→ Because burning them releases harmful gases.

30. Energy is not destroyed but transformed.

→ Because of the law of conservation of energy.

What happens in the following cases:

1. If the batteries of a remote-controlled toy car run out?

   → The car will stop moving until the batteries are replaced or recharged.

2. When rivers flow downhill?

   → Potential energy is converted into kinetic energy.

3. If fossil fuels are used in large amounts?

   → Environmental pollution and global warming occur.

4. When a piece of wood is burned?

   → Chemical energy is converted into thermal and light energy.

5. If you place your hand near a lighted lamp?

   → You feel heat because electrical energy is converted into thermal energy.

6. If a mobile phone is used for a long time?

   → Some energy is lost as thermal energy (wasted energy).

7. When solar calculators are exposed to sunlight?

   → Solar energy is converted into electrical energy to operate them.

8. If carbon dioxide increases and mixes with water vapor?

   → Acid rain is formed.

9. If fuel runs out in a car?

→ The car slows down and eventually stops.

10. When coal is burned?

→ Thermal energy is produced.

11. If water is polluted?

→ Fish and marine life die, and water becomes unsafe to drink.

12. If trees are cut down excessively for fuel?

→ Deforestation occurs, harming the environment.

13. If dead organisms are buried underground for millions of years?

→ They form fossil fuels.

14. If sea organisms decompose under the Earth's surface?

→ Oil and natural gas are formed.

15. If there is no heating of water in a power station?

→ No steam is produced, so turbines do not move and electricity is not generated.

16. If Mars rover Curiosity does not receive sunlight?

→ It cannot operate because it depends on solar energy.

17. When an electric fan is switched on?

→ Electrical energy is converted into kinetic energy (and some sound as wasted energy).

18. If Earth's temperature increases?

→ Global warming occurs.

19. When fuels are burned?

→ Thermal energy is produced.

20. How are fossil fuels formed?

→ From the remains of plants and animals buried and decomposed over millions of years.

Questions with Answers

1. Electric fan → Electrical → Kinetic (+ sound as wasted energy)
2. Hair dryer → Electrical → Thermal + Kinetic (+ sound wasted)
3. Electric lamp → Electrical → Light + Thermal
4. Mobile phone → Chemical → Electrical → Light + Sound (+ heat wasted)
5. Blender → Electrical → Kinetic (+ sound & heat wasted)
6. Flashlight → Chemical → Electrical → Light
7. Electric iron → Electrical → Thermal
8. Television → Electrical → Light + Sound (+ heat wasted)
9. Washing machine → Electrical → Kinetic (+ sound & heat wasted)
10. Refrigerator → Electrical → Thermal (cooling inside + heat outside)
11. Microwave → Electrical → Thermal
12. Electric bell → Electrical → Sound
13. Solar calculator → Solar → Electrical
14. Toy car → Chemical → Electrical → Kinetic
15. Water heater → Electrical → Thermal

match Answers

1 → b 2 → i 3 → a 4 → c 5 → g 6 → d 7 → e 8 → h 9 → f 10 → j	**Match 2: With Answers** 1 → b 2 → e 3 → d 4 → g 5 → a 6 → f 7 → h 8 → c

Give the scientific definition of the following:

1. **Renewable energy**

→ **Energy sources that can be replaced naturally in a short time.**

2. **Non-renewable energy**

→ **Energy sources that cannot be replaced quickly and take millions of years to form.**

3. Wind energy

→ Energy obtained from the movement of air.

4. Water energy

→ Energy obtained from moving or flowing water.

5. Turbines

→ Devices that convert kinetic energy of moving fluids into mechanical energy.

6. Natural gas

→ A fossil fuel formed from the remains of marine organisms buried underground.

7. Fossil fuels

→ Fuels formed from the remains of plants and animals over millions of years.

8. Hydropower

→ Electricity generated from moving water.

9. Biofuel

→ Fuel made from living or recently living organisms such as plants.

10. Generator

→ A device that converts kinetic energy into electrical energy.