Sanai School System

Sargodha

LESSON PLAN

Month: March **Date:** 2nd March to 9th march **Teacher's name**: Maryam

Subject: Science **Topic:** Form of Energy and Energy Transfer

Date	Class	Single/Double Period
March, 2022	7	Double (2)
March, 2022	7	Double (2)
March, 2022	7	Double (2)

SUB TOPIC: 1) Energy and Transformation

2) Importance of Energy Conservation.

3) Role and Responsibilities of human to conserve energy resources.

LEARNING OBJECTIVES: Students should be able to:-

- Identify sources of energy
- Recognize that energy is needed to do work
- Understand the importance of energy

KEY WORDS:

- Conservation
- Transformation
- Energy

RESOURCE / TEACHING AIDS:

Textbook, video, worksheets

Date of submission: 2nd March, 2022. **Coordinator sign_____**

Date of return: _____ **Principal signature: _____**

DURATION (IN MINUTES)	STUDENTS AND TEACHER ACTIVITIES (double lessons)DAY :1
	Starter: Teacher will ask students what they know about energy. Where the energy comes from? What are the sources of energy? **Lesson Sequence:**
5 min	Learners will be shown video on the topic of energy. https://www.youtube.com/watch?v=Q0LBegPWzrg Learners will read the topic from book. They will be explained that energy is the ability to do work. We gain energy from natural sources of light. Energy changes from one form to another. we eat food and the food is transformed into energy we need. Likewise, wind energy which helps move the sailing boat is transformed into motion.
10 min	**CLASSWORK**
	Answer the questions.
15 min	**Q1: What is energy?** **Ans:** Energy is the ability to do work. We use energy to power our machines. **Q2: Name some natural sources of energy.** **Ans:** Sun, wind, flowing water, coal, oil and gas.
25 min	**Q3: Give one example of transformation of energy.** ● **Ans:** The Sun transforms nuclear energy into heat and light energy. ● **Q4: Why conservation of energy is important?** ● **Ans**: Energy conservation helps protect the environment. You can conserve energy by turning your heat and air conditioning down, taking shorter showers, and turning off anything that plugs in or uses batteries when you're not using it.
5 min	**Plenary:** Students will be asked to share their answers. Discussion will be done on their answers. **HOMEWORK: Answer the questions** **Q1: Name some man-made energy sources.** **Ans:** Batteries, solar panels, cells and nuclear power plant. **Q2: How energy is transformed inside the torch?** **Ans:** The energy stored in the batteries is transformed into light energy.

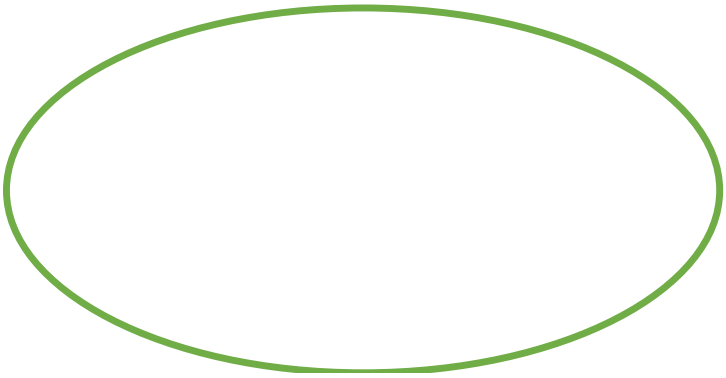
DURATION (IN MINUTES)	STUDENTS AND TEACHER ACTIVITIES (double lesson) DAY 2	Grouping (whole class p group of 3/ 4 Individuals etc.)
5 min	**Starter**: Learners will be asked questions for reinforcement of the previous topics. **Q1: Name some man-made energy sources.** **Ans:** Batteries, solar panels, cells and nuclear power plant. **Q2: What is energy?** **Ans:** Energy is the ability to do work. We use energy to power our machines.	
20 min	**Lesson Sequence:** After the reinforcement, learners will be explained about the importance of energy conservation and role of humans to conserve it. They will read the text from the book and give additional points of how humans can conserve energy in their surroundings.	
25 min	**CLASSWORK:** **Q1: What things in your classroom rely on electrical energy? What is the electrical energy transformed into?** **Ans: Fans:** electrical to kinetic energy **Lights:** electrical to light energy **Air conditioner:** electrical to thermal energy **Q2: Which steps can be taken to conserve energy sources?** ● **Ans:** Turn off the fan when you leave a room. ● Close your drapes or drop your window shades during the day. ● Wash your clothes in cold water. ● Wrap or cover foods and drinks in the refrigerator. ● Always use the cold water faucet, unless you really want hot water.	
5 min	**Plenary:** Students will be asked to share their answers. Discussion will be done on their answers.	
5 min	**HOMEWORK: Do reading of the topic: 'Heat energy and matter is made up of atoms.'**	

DURATION (IN MINUTES)	STUDENTS AND TEACHER ACTIVITIES (single lesson) DAY 3	Grouping (whole class p group of 3/ 4 Individuals etc.)
5 min	**Starter**: Reinforcement of the topic will be done by asking questions from the students. **Q1: Which steps can be taken to conserve energy sources?** • **Ans:** Turn off the fan when you leave a room. • Close your drapes or drop your window shades during the day. • Wash your clothes in cold water. • Wrap or cover foods and drinks in the refrigerator. • Always use the cold water faucet, unless you really want hot water. **Q2: How energy inside the torch is transformed?** • **Ans:** The energy stored in the batteries is transformed into light energy.	
25 min	**Lesson Sequence:** Learners will be given worksheet about energy and transformation. They will be explained about the worksheet. Learners will complete the worksheet and later paste it in their notebooks. **HOMEWORK:** **……**	

Name: _____ **Date:** _____

Topic: **<u>Forms of Energy and Energy Transfer</u>**

Q1: Tell some of the responsibilities of human to conserve energy. **/3**



Ways to conserve

Energy Resources

Q2: Choose the correct option./5

i. Energy is needed to

a. move things b. pull things c. perform work d. do all of the above

ii. To conserve resources we should

a. avoid using energy savers b. waste water c. turn off lights when not in use d. none

iii. In windmills, _____ energy is transformed into electrical energy.

a. mechanical b. kinetic c. wind d. solar

iv. Pick the example of natural sources of energy.

a. Sun b. coal c. natural gas d. all of the above

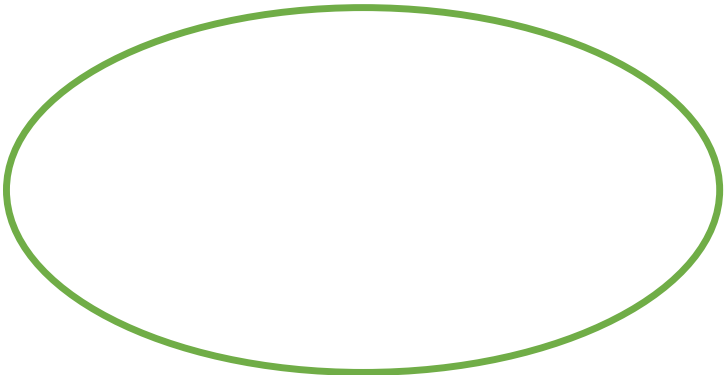
v. When liquid is heated, the particles _____.

a. gain heat energy b. lose heat energy c. become excited d. both a and c

Name: _____ **Date: _____**

Topic: <u>Forms of Energy and Energy Transfer.</u>

Q1: Tell some of the responsibilities of human to conserve energy.



Ways to conserve

Energy Resources

Q2: Choose the correct option.

i. Energy is needed to

a. move things b. pull things c. perform work **d. do all of the above**

ii. To conserve resources we should

a. avoid using energy savers b. waste water **c. turn off lights when not in use** d. none

iii. In windmills, _____ energy is transformed into electrical energy.

a. mechanical b. kinetic c**. wind** d. solar

iv. Pick the example of natural sources of energy.

a. Sun b. coal c. natural gas **d. all of the above**

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LESSON PLAN

Month: March **Date:** 10th March **to** 19th March **Teacher's name**: Maryam

Subject: Science **Topic:** Form of Energy and Energy Transfer

Date	Class	Single/Double Period
March, 2025	4	Double (2)
March, 2025	4	Double (2)
March, 2025	4	Double (2)

SUB TOPIC: 1) Heat Energy

2) Temperature

LEARNING OBJECTIVES: Students should be able to:-

- Identify sources of energy
- Recognize that energy is needed to do work
- Understand the importance of energy

KEY WORDS:

1) temperature 2) object 3) thermal energy 4) particles

RESOURCE / TEACHING AIDS:

Textbook, video, worksheets

Date of submission: 2nd December, 2024. **Coordinator sign_____**

Date of return: _____ **Principal signature: _____**

DURATION (IN MINUTES)	STUDENTS AND TEACHER ACTIVITIES (double lessons) DAY :1
5 min	**Starter:** Teacher will ask students questions from students for the reinforcement of the previous topics. **Q1: What things in your classroom rely on electrical energy? What is the electrical energy transformed into?** Ans: Fans: electrical to kinetic energy Lights: electrical to light energy Air conditioner: electrical to thermal energy **Q2: Give one example of transformation of energy.** ● Ans: The Sun transforms nuclear energy into heat and light energy.
10 min	**Lesson Sequence:** Video will be shown on heat energy and temperature. https://www.youtube.com/watch?v=2wqtK3GNFdQ Learners will read the text from the book that there is difference between heat and temperature. They will be told that temperature is the average energy of the particles. It does not depend upon the size of the object. They will be asked to takeout their notebooks and do written work.
15 min 25 min	**Classwork:** **Q: State whether the statements are true or false and also rewrite the wrong statements correctly.** **1**) Everything that has weight and occupies space is called matter. T 2) By conserving electricity, we are also reducing people's utility bills. T 3) Two objects at same temperature always have same amount of energy. F **(Different)** 4) When we heat an object, its particles start moving slower. **F (Faster)** 5) Matter is made up of tiny and visible particles called atoms. F (**Invisible)** 6) Temperature is the measure of average energy of the particles. T
5 min	**Plenary:** Students will be asked to share their answers. Discussion will be done on their answers. **HOMEWORK: Do reading of the topic: 'heat on page 66.'**

DURATION (IN MINUTES)	STUDENTS AND TEACHER ACTIVITIES (double lesson) DAY 2	Grouping (whole class p group of 3/ 4 Individuals etc.)
5 min	**Starter**: Learners will b**e** asked questions for reinforcement of the topic. **Q1: What happens to the particles during condensation?** Ans: Particles come closer to each other and move more slower. **Q2: How could people use evaporation and condensation to clean drinking water?** Ans: They use evaporation to separate the impurities and condensation to collect back the water**.**	
10 min	**Lesson Sequence:** After the reinforcement, brain storming activity will be done about conservation of energy resources. Teacher will write the points on the board given by the students. Learners will be explained that heat is the flow of energy from a region of hotter body to a region of colder body. They will be given examples of how heat transfers from one place to another.	
20 min	**CLASSWORK:** **Q1: Differentiate between temperature and heat.** **Ans:** The heat is the flow of thermal energy from a warmer object to a cooler object. Temperature is the measure of the thermal energy or average heat of the molecules in a substance.	
20 min	**Q2: What is the measuring unit of heat?** **Ans:** Joules. **Q3: Why does ice melt when it is taken out from a freezer?** **Ans:** This is because air around the ice is warmer and heat flows from the hot air to the cooler object i.e ice, therefore it melts.	
5 min	**Plenary:** Students will be asked to share their answers. Discussion will be done on their answers. **HOMEWORK:** **Do revision of the topic: 'Energy, heat and temperature.'**	

DURATION (IN MINUTES)	STUDENTS AND TEACHER ACTIVITIES (double lesson) DAY 3	Grouping (whole class p group of 3/ 4 Individuals etc.)
	Starter: Learners will b**e** asked to revise the topic for assessment. **Lesson Sequence:** Learners will be given time to revise the concept. Assessments questions will be written on the board. They will open their notebooks and complete the assessment. **ASSESSMENT QUESTIONS.**	
5 min	**Q1: Fill in the blanks. /5** **1)** The average energy of the particles in a substance is called **temperature.** **2)** The flow of thermal energy from a warmer object to a cooler object is known as **heat.**	
5 min	**3)** Solar panels transform solar energy into **electrical** energy. **4)** When we cool an object, particles move **slower.** **5) Atoms** are the tiny and invisible particles.	
20 min	**Q2: What happens when you add cold milk to hot tea? /1** **Ans:** The thermal energy is transferred to the particles in the cold milk, making the tea cooler. **Q3: Which of these do you think has more energy?** Container A **/2** **a. a glass of water in direct sunshine.** **b. a glass of water in the freezer.** **In which of the above containers are the particles moving faster?** Container A **HOMEWORK:** Do the reading of topic: Forms of Energy and Energy Transfer	

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LESSON PLAN

Month: March **Date**: 27th March **to** 31st March **Teacher's name**: Maryam

Subject: Science **Topic**: Form of Energy and Energy Transfer

Date	Class	Single/Double Period
March,2022	7	Double (2)
March,2022	7	Double (2)

SUB TOPIC: 1) Thermometer.

2) Reading the marks on the thermometer.

LEARNING OBJECTIVES: Students should be able to:-

- Know how to use a thermometer.
- Know about scales of thermometer.
- Know that normal body temperature is about 37℃.

KEY WORDS:

- Bulb
- Expand
- Digital thermometer.

RESOURCE / TEACHING AIDS:

Textbook, video, worksheets

Date of submission: 2nd December, 2024. **Coordinator sign_____**

Date of return: _____ **Principal signature:** _____

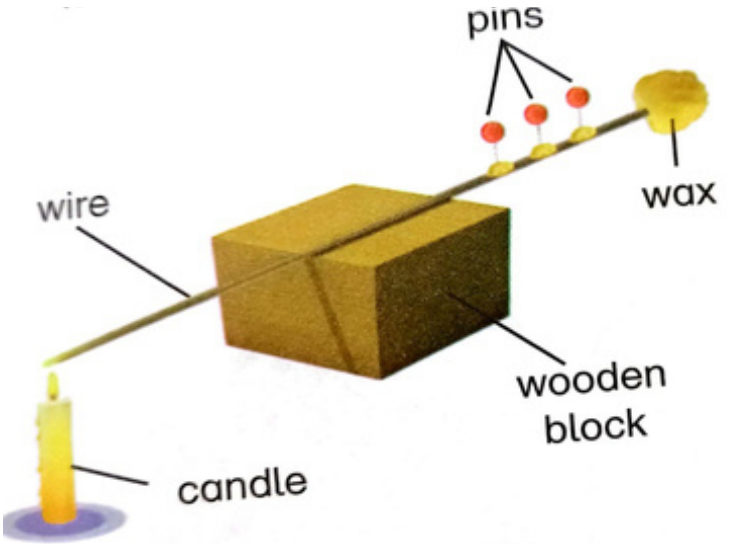
DURATION (IN MINUTES)	STUDENTS AND TEACHER ACTIVITIES (double lessons)DAY :1
5 min	**Starter:** Teacher will ask questions from students for the reinforcement of the previous topics**.** **Q1: Differentiate between temperature and heat.** Ans: The heat is the flow of thermal energy from a warmer object to a cooler object. Temperature is the measure of the thermal energy or average heat of the molecules in a substance. **Q2: What is the measuring unit of heat?** Ans: Joules.
10 min	**Lesson Sequence:** Learners will be shown video on the topic of thermometer and the scales. https://www.youtube.com/watch?v=K2CH1cUkMgs Learners will read the topic from book. They will be explained that there is bulb at one end of the thermometer and it contains liquid. There are markings on the thermometer. They will be informed about the precautions for using thermometer. **CLASSWORK** **Answer the questions.**
15 min	**Q1: What do you know about thermometer?** **Ans:** It is made up of transparent glass. There is bulb on its one end which contains liquid. It expands or contracts according to the outside temperature.
25 min	**Q2: What is scale?** **Ans:** The markings on the thermometer on the glass tube is called scale. Each mark is equal to one degree.
5 min	**Q3: What is the melting point of ice on Celsius and Fahrenheit scale?** **Ans:** Celsius: 0℃. Fahrenheit: 32℃.
	Plenary: Students will be asked to share their answers. Discussion will be done on their answers. **HOMEWORK: Do question 1 and 2 of text book in the books.**

DURATION (IN MINUTES)	STUDENTS AND TEACHER ACTIVITIES (double lesson) DAY 2	Grouping (whole class p group of 3/ 4 Individuals etc.)
5 min	**Starter**: Learners will be asked questions for reinforcement of the previous topics. **Q1: Name some man-made energy sources.** **Ans:** Batteries, solar panels, cells and nuclear power plant. **Q2: What is energy?** **Ans:** Energy is the ability to do work. We use energy to power our machines.	
25 min 25 min	**Lesson Sequence:** After the reinforcement, learners will be taken to the science laboratory. They will be doing experiment. Experiment is related to the transfer of heat energy from one place to another. They will require a rod, pins, burner and wax. After completing the experiment they will be able to know that heat travels from one place to another. Learners will be given lab sheet. It will about the experiment which they did.	
5 min	**Plenary:** Students will be asked about the conclusion of the experiments or what results can they draw after experimenting. **HOMEWORK: Do revision of the topic: 'Heat and Temperature.'**	

Name: _____ **Date:** _____

Topic: **Heat Travels.**

Lab Sheet.



You know that if you sit close to a fire you will begin to feel hot. If you move away from the fire, you will not feel so hot. The temperature in the fire is very high. The heat from the fire travels outwards through the air.

An experiment was set up as shown in the figure.

1. The purpose of performing this experiment was to know that _____ travels from one place to another.
2. During the experiment we observed that

   _____

   _____
3. Wax _____ as _____ reaches to it.
4. This experiment is the proof that _____.

Q1: What will happen if you use a thicker piece of wire?

_____

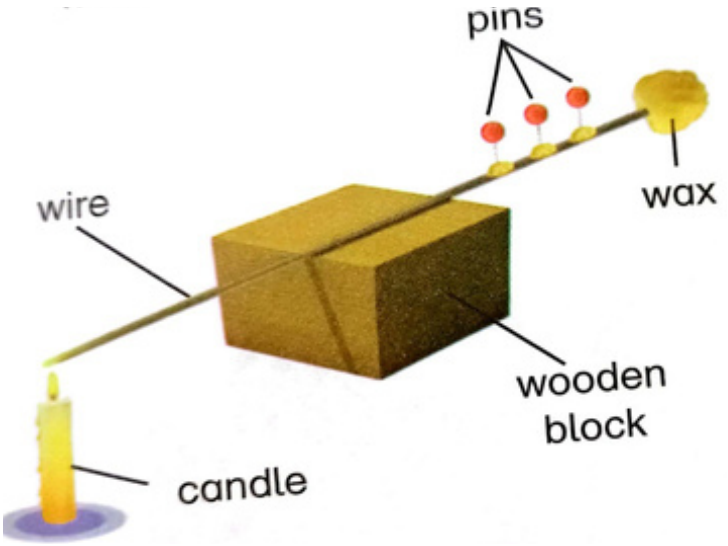
Q2: What will happen if you use lengthy piece of wire?

_____

Name: _____ **Date:** _____

Topic: **Heat Travels.**

Lab Sheet.



You know that if you sit close to a fire you will begin to feel hot. If you move away from the fire, you will not feel so hot. The temperature in the fire is very high. The heat from the fire travels outwards through the air.

An experiment was set up as shown in the figure.

1. The purpose of performing this experiment was to know that **heat** travels from one place to another.
2. During the experiment we observed that **heat travels and pins attached with wax will fell down as heat reaches to them and wax at the other end of the wire will also melt.**
3. Wax **melts** as **heat** reaches to it.
4. This experiment is the proof that **heat transfers from one place to another.**

Q1: What will happen if you use a thicker piece of wire?

It will take more time to reach on the other side.

Q2: What will happen if you use lengthy piece of wire?

It will take more time and wax will melt .

DURATION (IN MINUTES)	STUDENTS AND TEACHER ACTIVITIES
	(single lesson) DAY :3
5 min	**Starter:** Teacher will ask students questions from students for the reinforcement of the previous topics. **Q1: Give one example of transformation of energy.** ● **Ans:** The Sun transforms nuclear energy into heat and light energy. **Q2: What is the melting point of ice on Celsius and Fahrenheit scale?** **Ans: Celsius:** 0℃. **Fahrenheit:** 32℃. **Lesson Sequence:** Learners will be given 5 minutes to revise the topic. They will be asked to take out their notebooks and write question of the assessment.
5 min	**Assessment: /5** **Q: State whether the statements are true or false and also rewrite the wrong statements correctly.**
20 min	1. When an object hits the surface of the water, the waves travel inward in a circle. **F (outward)** 2. The liquid in the bulb of thermometer is water. **F (Alcohol or mercury)** 3. The liquid in the bulb contracts when the temperature falls. **T** 4. Thermometer is used to measure temperature. **T** 5. Particles of the air are squashed and then they again contract as they pass their energy to the next. **F (expand)**
	Plenary: Students will be asked to share their answers. Discussion will be done on their answers. **HOMEWORK: Do reading of the topic: 'Can sound be measured?'**