









**UCIWAI SANGAM SCHOOL****YEAR 8 – MATHEMATICS****WEEKLY HOME LEARNING PACKAGE NO. 6**

Strand 3	MEASUREMENT
Sub Strand	MONEY
Content Learning Outcome	Calculate and explain the concept of cost price, selling price and compound interest and other related financial transactions

**Hire Purchases:**

A **hire purchase** is an arrangement whereby a customer acquires an asset (item) by paying an initial installment (deposit) and repays the other part of the cost of the asset over a period of time or term for a contract.

Jack Polly wanted to buy a double bed from Courts. The Cash Price is \$750.00 but he can pay \$200.00 deposit and pay \$35.00 monthly instalments for 2 years.

If he takes the bed for monthly instalments, how much would he have to pay altogether for the bed after 2 years?

$$\begin{aligned} \$35 \times 24\text{months} &= \$840.00 + \$200 \text{ (deposit)} \\ &= \$1040.00 \end{aligned}$$

How much would he have saved if he bought it on cash?

$$\$1040.00 - \$750.00 = \$290.00$$

**Exercise**

- Mrs Ratu bought a Twin –Tub Washing Machine from M.H Homemaker in Suva. The washing machine's Cash Price is \$650.00. She paid a deposit of \$250.00 and agrees for a 24 monthly payments of \$25.50 per month.
  - Calculate the monthly instalment of 24 months.
  - How much would she have to pay altogether for the Washing Machine?
  - How much could she save if she had bought in cash?
- Mr Raymond bought an L.G 24 inch T. V screen from Courts. He paid cash for the T.V which is \$1270.00. On hire purchase it was offered on \$200 deposit and a monthly installment of \$55.00 for 24 months. How much did he save by buying cash?

3. The Cash Price for a 5 piece dining table is \$790.00 The deposit is \$120.00 with \$24.00 monthly payments for 3 years.

- a. Calculate the total amount used for monthly payments?
- b. How much could be saved for buying in cash?



4. Mr Zack Peters bought this car from Sakura Car Dealer in Samabula. He bought it by paying 10% of the cash price and agrees for a monthly payments of \$450 per month for 5 years.



Cash - \$24,000

Calculate the total amount of money he pays for the car after 3 years.

5. Calculate the amount you can save by paying cash for this Tablet.

Cash Price: \$1,980.00  
 Deposit: \$400.00  
 3 years monthly payments of \$50.00 a month



Write your answers here with all the necessary working.

No.	Working	Answer	
1.	(a)		
	(b)		
	(c)		

2.			
3.	(a)		
	(b)		
4.			
5.			

**BETTER BUYS**

These two advertisements were shown in the newspaper.



3 Shirts for \$66



4 Shirts for \$80

Which one is cheaper to buy?

$$\begin{aligned} \text{Three Shirts} - \text{One Shirt cost} &= \$66 \div 3 \\ &= \$22 \text{ each} \end{aligned}$$

$$\begin{aligned} \text{4 Shirts} - \text{One Shirt cost} &= \$80 \div 4 \\ &= \$20 \text{ each} \end{aligned}$$

Shop B is cheaper.

**Exercise.**

1. Calculate which of the following shops gives better price.

a.



4 L Cooking Oil  
\$13.80



2 L Cooking Oil  
\$8.20

b.

**Top Shop**



**3 for \$2.40**

**Corner Shop**



**2 for \$1.50**

2. Mr Etuate Toutou wanted to buy some bags of potatoes for a family function at home. He visited three supermarkets and he got these prices.



Which one do you think will be better for him to buy?

**UCIWAI SANGAM SCHOOL****YEAR 8 – HEALTHY LIVING****WEEKLY HOME LEARNING PACKAGE NO. 6**

Strand 3	SAFETY
Sub Strand	COMMUNITY SAFETY
Content Learning Outcome	<ul style="list-style-type: none"> <li>• Evaluate the consequences of disasters in the community.</li> <li>• Advocate community service which promote wellness.</li> </ul>

LESSON NOTES (Read them carefully and try to understand it)

**ASSISTING ACCIDENT VICTIMS**

**THEME:** Safety

**KEY WORDS:** trauma, proactive, powerless, victim

Recovering from a traumatic event such as an accident or disaster can be difficult. However here are some tips you can use if you become a victim or you can help those who have been involved in those traumatic events.

**1. Seek comfort and support**

Being proactive about your situation and well-being (rather than passively waiting for someone else to help you)

**Re-establish routine-** Do things that keep your mind occupied (read, watch a movie, and play with your friends), so you're not dedicating all your energy and attention to the traumatic event.

**Connect with others-** You may be tempted to withdraw from social activities and avoid others after experiencing a traumatic event. Support from other people is vital to recovery from traumatic stress, so lean on your close friends and family members during this tough time.

**Challenge your sense of helplessness-** Trauma leaves you feeling powerless.

One of the best ways to reclaim your sense of power is by helping others (comfort someone else, volunteer your time, give blood (for adults) etc)

**2. Acknowledge and accept your feelings**

Sadness, grief, anger and fear are normal reactions to the loss of safety and that comes in the wake of a disaster. Accepting these feelings as part of the grieving process, and allowing yourself to feel what you feel, is necessary for healing.

**Dealing with traumatic grief and other painful emotions-** Don't try to force the healing process. Be patient with the pace of recovery. Talk to someone you trust about what you're feeling. Give yourself time to heal and to mourn the losses you've experienced.

**3. Make stress reduction a priority**

Traumatic stress takes a heavy toll on your mental and physical health. Making time for rest and relaxation will help you bring your brain and body back into balance.

Do relaxing activities such as listening to soothing music, walking/travelling in a beautiful place, or visualizing a favorite spot.

Use your spare time to relax. Have a good meal, read a good book, take a bath, or enjoy a funny movie.

Schedule time for activities that bring you joy- a favourite hobby or pastime, a chat with a very good friend

**Activity**

1. Write an event or situation when you or your family members were traumatized.

---

---

---

---

---

2. Write three ways of overcoming these traumatic event(s).

---

---

---

---

---

---

---

---

3. What is traumatic stress?

---

---

---

4. Draw yourself playing with your pet.



5. Why is it important to overcome traumatic events?

---

---

---

---

---

6. Write some schedule of events that makes you feel happy.

---

---

---

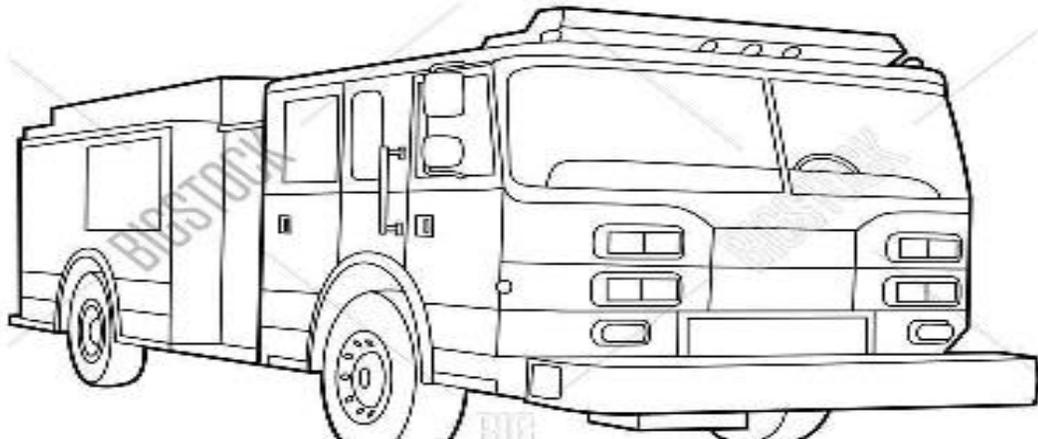
---

---

---

---

7. Colouring Activity – These are some vehicles or people that may assist you in case of an emergency.



**UCIWAI SANGAM SCHOOL****YEAR 8 – हिन्दी HINDI****WEEKLY HOME LEARNING PACKAGE NO. 6**

तत्त्व ४	संस्कृति
उप-तत्त्व	कला व शिल्प
विषय के अधिगम परिणाम	प्रथाओं और परंपराओं के माध्यम से प्राप्त किए गए सरल शिल्प टैकी / मूसल आदि का प्रतिमान तैयार करना

क. नीचे दिए गए चित्र का अच्छी तरह से अध्ययन कर के दिए गए शब्दों से लेबल कीजिए

रक्षा-बन्धन	पगड़ी	ढोलक	मिठाई	साड़ी
-------------	-------	------	-------	-------



ख. इन अंश को ध्यान से पढ़िए ।

### विद्यार्थी का कर्त्तव्य

भारतीय संस्कृति के अनुसार मनुष्य के जीवन का सबसे उत्तम समय - विद्यार्थी जीवन होता है । वह इस समय जैसे कार्य करता है वैसा ही उसका आगे का जीवन बनता है । स्कूल पढ़ने वाले बच्चों का यह कर्त्तव्य बनता है कि वे विद्यार्थी जीवन को व्यर्थ की बातों में बरबाद न करें । हर एक व्यक्ति सुखी रहना चाहता है और सुखी रहने के लिए सब को विद्यार्थी जीवन में कड़ी मेहनत करके अच्छे चरित्र का निर्माण करना चाहिए । अच्छे गुणों को सीखना चाहिए ।

बच्चों! क्या आप जानते हैं कि एक घर बनाने से पहले क्या किया जाता है ? सबसे पहले चारों तरफ जमीन खोदकर मजबूत नींव (foundation) डाली जाती है । यह नींव जितनी मजबूती से बनाई जाती है उतना ही मजबूत घर बनकर तैयार होता है । इसी तरह यह विद्यार्थी जीवन हमारे भविष्य की नींव है । इस समय हमें अपनी शारीरिक और मानसिक शक्ति को बढ़ाना चाहिए । अच्छे आचरण और चरित्र निर्माण की शुरुआत विद्यार्थी जीवन में कर देनी चाहिए । तब जाकर हमारा भविष्य उज्ज्वल और सुखमय होगा ।

प्यारे बच्चो! आप भी यदि अपना जीवन सुखी बनाना चाहते हैं तो आप मेहनत करने और अच्छे गुणों को अपनाने का प्रयास करते रहिए । विद्यार्थियों का कर्तव्य है कि वे इन बातों पर अवश्य ध्यान दें ।

१. शरीर को स्वस्थ रखने और हृष्ट-पुष्ट बनाने के लिए पौष्टिक भोजन का सेवन करना चाहिए ।
२. आस्तिक बनें । ईश्वर में विश्वास रखते हुए दुःख-सुख में सदा प्रार्थना करनी चाहिए ।
३. बुद्धि का विकास करने के लिए विद्या-अध्ययन मन लगा कर करना चाहिए ।
४. हमेशा सच बोलना चाहिए और अच्छे लोगों की संगत करनी चाहिए ।
५. सबके साथ प्रेम और दया का व्यवहार करते हुए मिल कर रहना चाहिए ।
६. माता-पिता और गुरु का आदर करना चाहिए ।
७. गुस्सा कभी नहीं करना चाहिए । गुस्सा करने से शरीर की ताकत घटती है और दूसरों को दुःख पहुँचता है ।
८. विद्यार्थी जीवन में कड़ी मेहनत करनी चाहिए । सब प्रकार के उत्तम कार्य करने के लिए तैयार रहना चाहिए ।
९. खेल-कूद और कसरत आदि पर खूब ध्यान देना चाहिए, इससे शरीर मजबूत बनेगा ।
१०. लालच, चोरी और जलन-भावना मन में कभी नहीं आनी चाहिए ।

### अभ्यास कार्य

१. शब्द और अर्थ - इन्हें पढ़िए और समझिए ।

उत्तम	-	सबसे अच्छा
व्यर्थ	-	बेकार
हृष्ट-पुष्ट	-	मजबूत, ताकतवर
पौष्टिक	-	बल वीर्य बढ़ाने वाला

सेवन	-	प्रयोग, खाना
आस्तिक	-	ईश्वर में विश्वास रखना
विकास	-	बढ़ाना

२. पाठ के अनुसार रिक्त स्थान को सही शब्द से पूरा करिए ।

- क. सबसे उत्तम समय ----- जीवन होता है ।  
ख. शरीर को स्वस्थ रखने के लिए ----- भोजन करना चाहिए ।  
ग. दुख-सुख में सदा ----- करनी चाहिए ।  
घ. माता-पिता और गुरु का ----- करना चाहिए ।

३. इन प्रश्नों के सही जवाबों को चुनिए और गोलाकार निशान बनाइए ।

1. गुस्सा करने से क्या होता है ?

- क. शरीर की ताकत बढ़ती है ।  
ख. दूसरों को सुख पहुँचता है ।  
ग. सिर्फ शरीर की ताकत घटती है ।  
घ. शरीर की ताकत घटती है और दूसरों को दुख पहुँचता है ।

2. विद्यार्थी जीवन में विद्या-अध्ययन करना क्यों जरूरी है ?

- क. विद्या हमारे भविष्य की नींव है ।  
ख. हमारा भविष्य सुखमय हो ।  
ग. शरीर की ताकत बढ़े ।  
घ. सब हमारा आदर करे ।

3. मिलकर रहने के लिए क्या जरूरी है ?

- क. गुस्सा और जलन  
ख. लालच और चोरी  
ग. प्रेम और दया  
घ. पैसा और बोली

4. शरीर मजबूत बनाने के लिए क्या करना जरूरी है ?

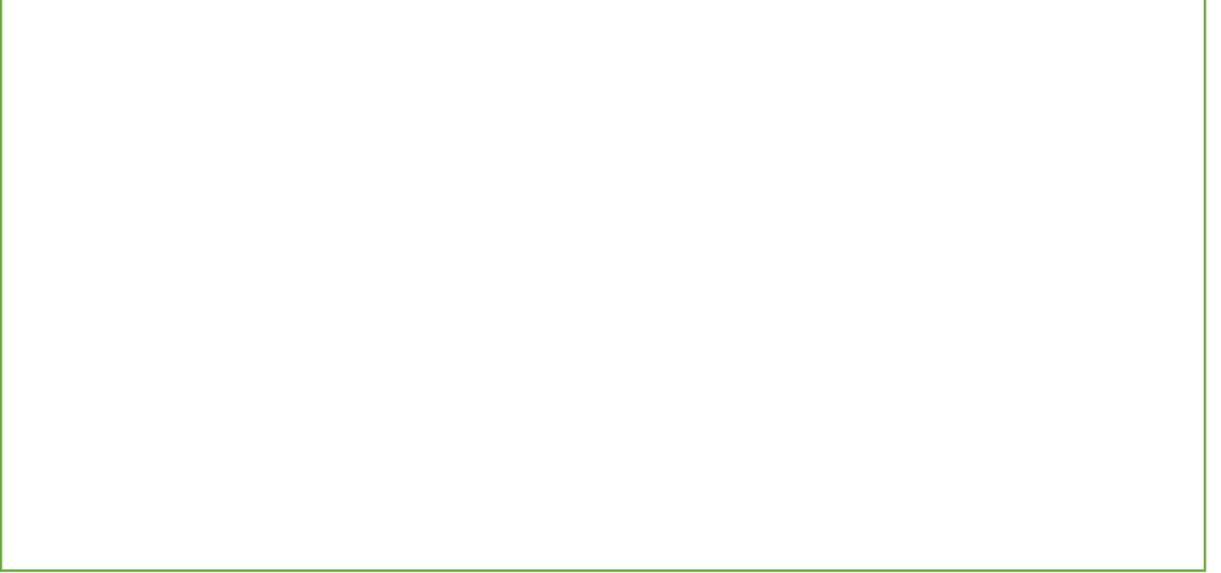
- क. आलस्य और अपौष्टिक भोजन  
ख. प्रेम और दया  
ग. खेल-कूद  
घ. खेल-कूद और कसरत

8. इन्हें मिलाओ ।

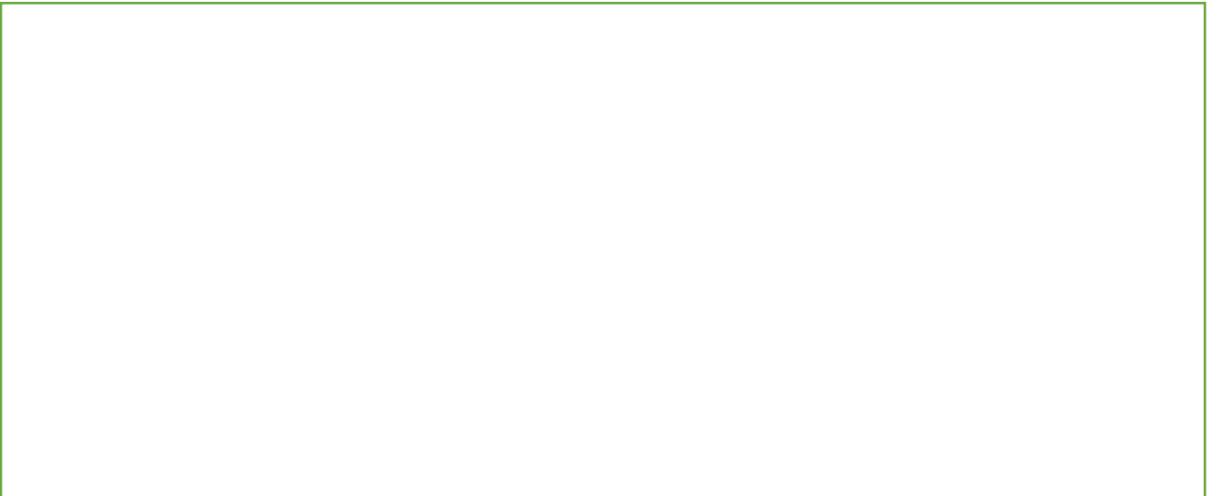
आस्तिक  
खेल-कूद, कसरत  
गुस्सा करने से  
लालच, चोरी  
सच, प्रेम और दया  
विद्यार्थी जीवन

शरीर मजबूत बनेगा  
ईश्वर में विश्वास  
बूरी आदत  
अच्छी आदत  
ताकत घटती है  
भविष्य की नींव

५. पौष्टिक भोजन के चित्र बना कर उनके नाम लिखिए ।



६. गुस्सा करते हुए व्यक्ति का चित्र बनाइए ।



**UCIWAI SANGAM SCHOOL**

**YEAR 8 – SOCIAL SCIENCE**

**WEEKLY HOME LEARNING PACKAGE NO. 6**

Strand 3	PLACE AND ENVIRONMENT
Sub Strand	PEOPLE AND CARE OF PLACES
Content Learning Outcome	Gather information on major Global Climatic issues affecting our world today and express advocating strategies to alleviate their impacts on our lives.

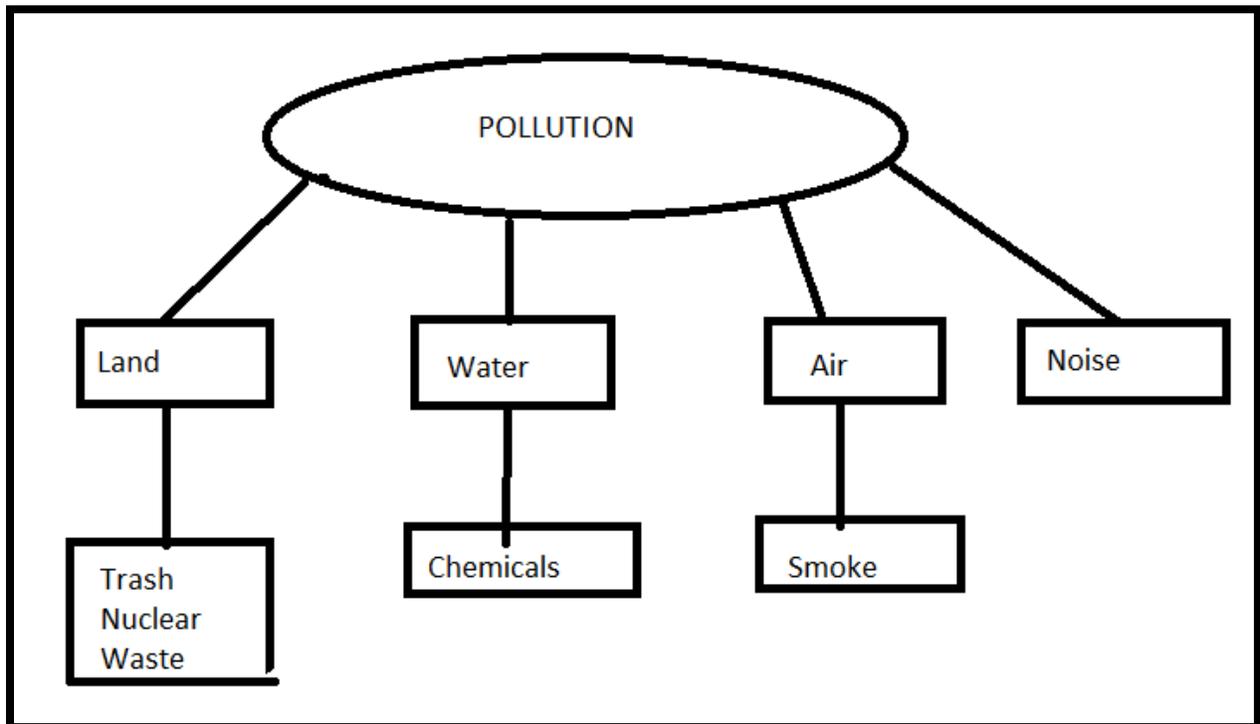
LESSON NOTES (Read them carefully and try to understand it)

**PEOPLE AND CARE OF PLACES**

**GLOBAL CLIMATIC ISSUES**

**POLLUTION**

The four different forms of pollution can be tackled if the people at the community level, with their leaders and the government can all join in to help tackle their respective pollution problems. The problems of pollution cannot be solved overnight. But will need the help of everyone to help get rid of the habits of people and encourage civic pride to take ownership of their locality so that they may clean up all the dirt, mess or noise that is an eyesore and disturbing the people that live in the affected areas.



TYPES OF POLLUTION	WAYS OF IMPROVING
Air	<ul style="list-style-type: none"> <li>• Replant trees because trees are air purifiers that is they take in carbon dioxide and give out oxygen</li> </ul>
Land	<ul style="list-style-type: none"> <li>• Avoid littering</li> <li>• Recycle, Reuse, Reduce and Refuse to waste</li> </ul>
Water	<ul style="list-style-type: none"> <li>• Avoid spillage of harmful chemicals</li> <li>• Recycle, reuse, reduce wastage</li> </ul>
Noise	<ul style="list-style-type: none"> <li>• Encourage noise free attitude</li> <li>• Sound proof your space</li> <li>• Keep noisy machines away</li> <li>• Plant more trees as they are good noise absorbers</li> <li>• Create healthy noise to replace unwanted noise</li> </ul>

**Activities**

1. Write down one example of each type of pollution in your community.

Air

---



---

Land

---



---

Water

---



---

Noise

---



---

2. Write down what you can do to help reduce each type of pollution mentioned above.

Air

---



---

Land

---



---

Water

---



---

Noise

---

---

3. What are the two effects of pollution?

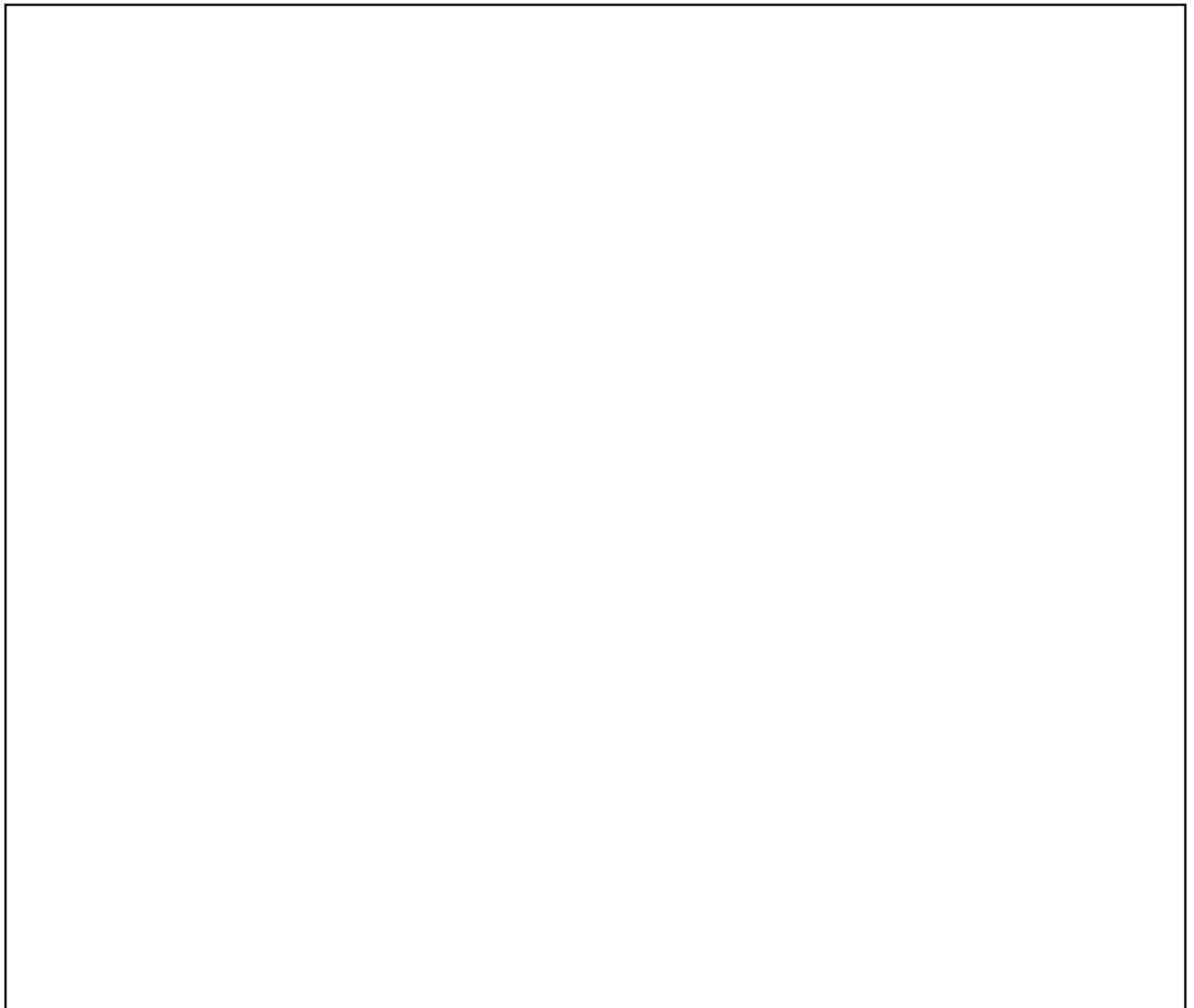
---

---

---

---

4. Creativity – Draw and label a diagram to illustrate the different types of pollution found in your area.



5. Cross-Word Puzzle

# Pollution

H G L M N C Y S J R S Q B D E T G O U G W V M H  
 D Y O C D U B V O P L A N D F I L L S N I Q V M  
 I N E A K B F Y Q D W X N A Z T J H K O J Y X U  
 M M Y R D K O A O C H E M I C A L S B I D I G Z  
 J E Q F U W R K M Y G L B Y O O L G R S H N N C  
 A A C U M G E X O L K O H M Y S Z Y G E P D W C  
 X F Z M P T S J U O W W D V S V Q H N G E U F V  
 A B S E I F T J J M C A P C O A L F J E Q S E T  
 G E V S N H F I D A Y S V S F O Q L Y B L T G J  
 W R D T G C I Q T L M T I R S T C Q J F Q R O P  
 N K S U H Y R O X V E E G W U T Y K B Q W I I D  
 I S H A V C E N R Z Y O D C B P Y V D Z C A L V  
 Y R N C E A S L O V Q F X Z L Q N M W X X L H P  
 T G L Z X A G X A I D E F O R E S T A T I O N C  
 A Y W B W I W V O Z O N E Y S G X Z B S X D V A  
 B E P Y U R R O Q X Y B R C H A X P D T M A R H  
 D L C S T E L X M W R T D T R S U I S W A T E R  
 A C I D R A I N N R R F O A E R O P L A N E S N  
 I Y P E S T I C I D E S L O R H T X L T Y Q S C  
 O A T S E W A G E D O S S M O G F Q M S V O T N  
 C F O G K H F Z G O K Q C N O Z G A M I N G N E  
 K T M Y S R G X Q K D C O N S T R U C T I O N J  
 N J C D A R P L K Z D V C N Q E E J I F O W Y K  
 T R A F F I C C B F E S P G B X D L A N D O X G

- |           |              |              |               |
|-----------|--------------|--------------|---------------|
| DUMPING   | SEWAGE       | WASTE        | INDUSTRIAL    |
| CHEMICALS | PESTICIDES   | LANDFILLS    | DEFORESTATION |
| GAMING    | AEROPLANES   | CONSTRUCTION | TRAFFIC       |
| OZONE     | ACID RAIN    | SMOG         | OIL           |
| GAS       | FOREST FIRES | COAL         | CAR FUMES     |
| NOISE     | WATER        | LAND         | AIR           |

**1078 UCIWAI SANGAM SCHOOL**

**CAKACAKA LAVAKI NI YABAKI 8-NA VOSA VAKA-VITI**

NA VAKACACALI

I. NA SEREKALI -Wilika na serekali e ra ka sauma na taro e rukuna.

1. Veigauna sa dau divi  
Na i vakarau ni bula e Viti  
Rui lagilagi qai kilikili  
E rui totoka qai uasivi
2. Na i tovo ni bula rui lagilagi  
Sa kena yavu na veilomani  
Duavata kei na veiyagani  
Qaravi na cakacaka ena solesolevaki
3. O ira na tukada era sa yali  
Ra veirokorokovi, ra veilomani,  
Veicakacaka kece e qaravi  
Qaravi ga na solesolevaki
4. Veika lelevu kece ra rawata  
Da sa qoroya na nodra cakacaka  
Isa! ra rawata beka vakacava  
Sa rawa ga ena duavata
5. Nodra teitei ra solevaka  
Marautaki na kena i cakacaka  
Era veiwali dredre ka lasa  
Na kena oco ra kania vata
6. Veivale e vakaitamera  
Era sautu ka levu na kedra  
Sega na dravudravua ka sega na leqa  
Sa dodonu meda liaci keda

Vurevure ni Serekali: Na Vakacacali , (A imatai) Bulicokocoko. S; 2010





9. E ravu na vosa ena i valu vosa. \_\_\_\_\_

10. Na solosolovi na i tuvaki ni bula ni gone ni sa dolo. \_\_\_\_\_

**III.** Vola na yacadra na veika era vakaraitaki e na i yaloyalo e koto e ra.



**UCIWAI SANGAM SCHOOL****YEAR 8 – BASIC SCIENCE****WEEKLY HOME LEARNING PACKAGE NO. 6**

Strand 3	ENERGY
Sub Strand	TECHNOLOGY AND THE DEMAND FOR ENERGY
Content Learning Outcome	Investigate ways in which energy appliances are used at home and Assess sources of non-renewable energy that are limited and appreciate the need to utilize renewable energy sources.

LESSON NOTES (Read them carefully and try to understand it)

**TECHNOLOGY AND THE DEMAND FOR ENERGY**

The increasing world population has brought an increasing demand for energy. The amount of fuel needed for cooking, heating and lighting has increased. More machines in use have also meant greater fuel consumption.

In this lesson, you will look at reasons why there is an increasing demand for energy; how new technologies have helped reduce energy costs for consumers; and the advantages of using alternative sources of energy.

**We Need More Energy**

Different appliances utilize different sources of energy. The appliances therefore can be classified according to the sources of energy they use. Some of the appliances that were used in the past are still being used today, while some of them were not available in the past.

**Activity 1: We Need More energy**

- This activity is aimed at making you aware of all the appliances used at home, their energy sources and energy consumption.
- You will have to find out from your parents or from grandparents in your community the appliances that were in use long time ago.
- You will need to discover why there is an increasing demand for energy now.

**Method:**

1. Discuss all the examples of appliances that are used at home for cooking, entertainment, cooling, transport, cleaning, lighting and heating.
2. Classify the appliances according to their sources of energy e.g. Electricity, gas oil.
3. Find out from your parents and elders the appliances that were most common 40 to 60 years ago.

**Exercise: We Need More Energy**

1. Complete the table below, by writing examples of appliances that we use under each heading. Some examples are already given.

<i>Cooking</i>	<i>Entertainment</i>	<i>Cooling</i>	<i>Transport</i>	<i>Lighting</i>	<i>Cleaning</i>	<i>Heating</i>
Gas stove		Fan			Vacuum cleaner	

2. Classify the appliances in 1 above, according to their sources of energy.

<i>Electricity</i>	<i>Gas</i>	<i>Solar</i>	<i>Biomass</i>	<i>Petrol</i>
Fan	Stove			
Vacuum cleaner				

**Activity 2: New Technologies and Energy Saving**

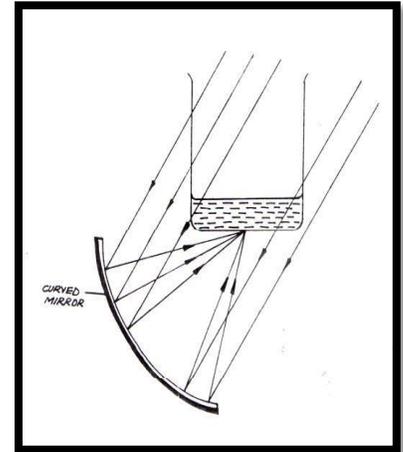
In this activity we will look at how technology is helping to reduce the cost of energy for consumers. Read the experiment below and answer the questions.

**Materials**

2 beakers, 40ml of water, a concave mirror or curved surface covered in aluminum foil and 2 thermometers.

**Method**

We filled each beaker with 20 ml of water and took them out in the sun. We held the curved mirror under one beaker so that sunlight is focused on the water. We left the second beaker in the sun as control. We left them for 5 minutes and measured the temperature of water in each beaker using the thermometer.



**Conclusion**

In conclusion, we can say that the water temperature held over the concave mirror went up whereas, the water left under the sun rose slightly. Sunlight can be used as a form of energy.

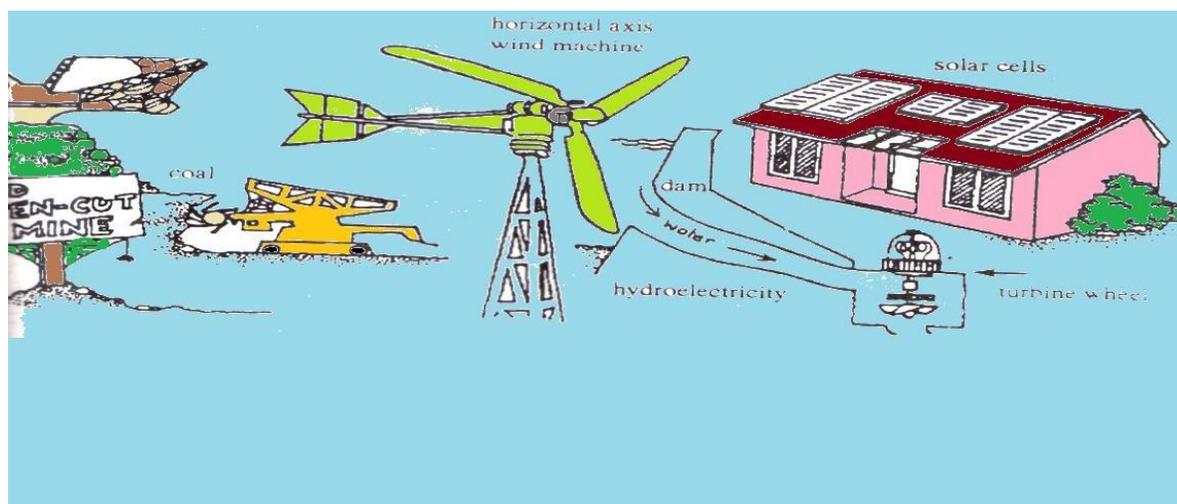
**Questions**

1. Is there any temperature difference in the two beakers? Yes / No
2. Which beaker of water is warmer?  
One left under the sun / One focused with concave mirror
3. Can solar energy be used to heat water? Yes / No
4. How would this technology help to reduce the energy cost for consumers?

---

---





### Non-Renewable Sources (Fossil Fuels)

Coal, oil and gas are referred to as fossil fuels because they are made from dead and decayed plants and animals. This process takes place over millions of years as layers of mud and sand build up over the animal and plant matter. Time and the pressure of the weight above change it to coal, oil or gas. Fossil fuels are non-renewable sources of energy because when they are used up they cannot be replaced.

1. **Coal:** This is the world's most plentiful fossil fuel. Although less important than oil, coal still supplies almost 30% of the world's commercially traded energy. Coal is mainly burnt in power stations to make electricity and in giant furnaces to make iron and steel. It can also be converted into gas or liquid fuels. South Africa produces its gasoline, and diesel oil from coal.
2. **Oil:** The technical name for the oil that comes from under the ground is "crude" oil. By heating, crude oil can be separated into a number of different products, such as petrol, kerosene, diesel fuel, lubricating oils and bitumen. This process also produces substances which are used to make plastics, paints and glues.
3. **Gas:** Gas is formed in the same way as crude oil, and trapped between layers of rock. Natural gas is a colourless, odorless mixture of gases made up mainly of methane ( $\text{CH}_4$ ). Other gases include small amounts of ethane, propane and butane. Gas is also available in bottles as LPG (liquid petroleum gas). It is non-toxic, non-corrosive, free of lead and heavier than air. LPG is produced when oil is refined. The main chemical species of those fuels are C, H, O and small quantities of S, N and other elements.

**Note:** Burning of coal, oil and gas releases carbon dioxide ( $\text{CO}_2$ ) and oxides of Sulphur (S) and Nitrogen (N) into the atmosphere and contributes to the greenhouse effect.

## **Renewable Sources of Energy**

### **1. Solar Energy:**

Ultimately most energy comes from the Sun. The food we eat and the wood which is the main fuel for over half the world's population comes from solar energy. The sun keeps the earth's temperature warm enough for life to exist. Even the fossil fuels that energize industrial society are forms of stored solar energy, concentrated over millions of years.

Solar energy is described as an alternative source of energy that might one day play a significant role in the energy scene. The reality is far from this, although the natural flow of solar energy on the earth is far larger than the amounts of fossil fuel used by humans. This is because using solar energy is still in many cases too expensive.

### **2. Hydropower:**

Hydropower stations have turbines which are connected by pipes below the dam, the higher the altitude difference between the dam and the turbine, the more water pressure in the dam pipes. When the pipes are opened, water rushes past the turbines which start spinning the generators. The more the water pressure the faster the turbines spin and the more electricity is produced.

As the water runs down pipes it loses potential energy and gains kinetic energy and therefore increases speed. Water rushes past the turbines at a high speed and pressure spins the turbines which spins the generators. – So the energy is converted to rotational mechanical energy. When the generator spin, the energy is converted to electrical energy. The energy conversion taking place is:

**Potential      ➡ Kinetic + Heat      ➡ Rotational + Heat      ➡ Electrical + Heat**

It should be emphasized that the heat that is generated when going from one form of energy to the next, is wasted.

### **3. Wind Energy:**

Wind Energy has been used for centuries as an energy source for sailing ships, pumping water and grinding grain. More recently, wind has become an important energy source for generating electricity, especially in remote areas. In many parts of the world it is also part of national electricity supply systems (grids). The use of wind energy is increasing because electricity can be generated at the same cost as from conventional power plants. Large wind generators have been developed in many countries, including U.S.A, Sweden, Denmark, West Germany, Netherlands and Canada. These generators with power outputs mainly in the 50kW to 600kW range supplement existing electricity supplies.

Like solar energy, wind can be considered to be free. However, special equipment is needed to extract the energy from the wind. Therefore although the energy supply may be free, the cost of using wind

energy isn't. The amount of energy that can be commercially extracted from the wind depends on the efficiency and setting of wind machines.

Wind-driven systems consist of a tower to support the wind generator, devices regulating generator voltage, propeller and hub system and tail vane. Very small wind turbines, as seen on sailing boats, store electricity they generate in a car battery for further use.

**4. Biomass:**

Biomass is defined as any organic matter, available on a renewable basis, a steam turbine can be as simple as cutting or chipping wood for direct combustion for conversion to energy. Forest residues, agricultural crops and waste, wood and wood waste, animal wastes and aquatic plants are all biomass.

Biofuels such as ethanol are derived from these biomass feed stocks. Conversion of the chemical energy in biomass to drive a steam turbine can be as simple as cutting or chipping wood for direct combustion as in ethanol production.

**5. Geothermal**

Geothermal energy is the heat generated by natural processes beneath the earth's surface. These natural processes include radioactive decay, chemical reactions, friction from the movement of crystal plates and heat present from the earth's formation.

Geothermal energy is recovered as steam and hot water. The steam is harnessed to run generators.

**Exercise: Renewable and Non-renewable Energy Sources**

1. Complete the following:
  - a. Energy which is irreplaceable is called \_\_\_\_\_.
  - b. Energy which is replaceable is called \_\_\_\_\_.
  - c. The unit of energy is \_\_\_\_\_ and the unit of power is \_\_\_\_\_.
  - d. \_\_\_\_\_ is a pollution free and renewable source of energy.
2. Complete the table by name some renewable and non-renewable energy sources

Renewable Energy Sources	Non-Renewable Energy Sources

3. Answer the following questions  
 a. What will happen to fossil fuel resources if we keep using them?

---



---

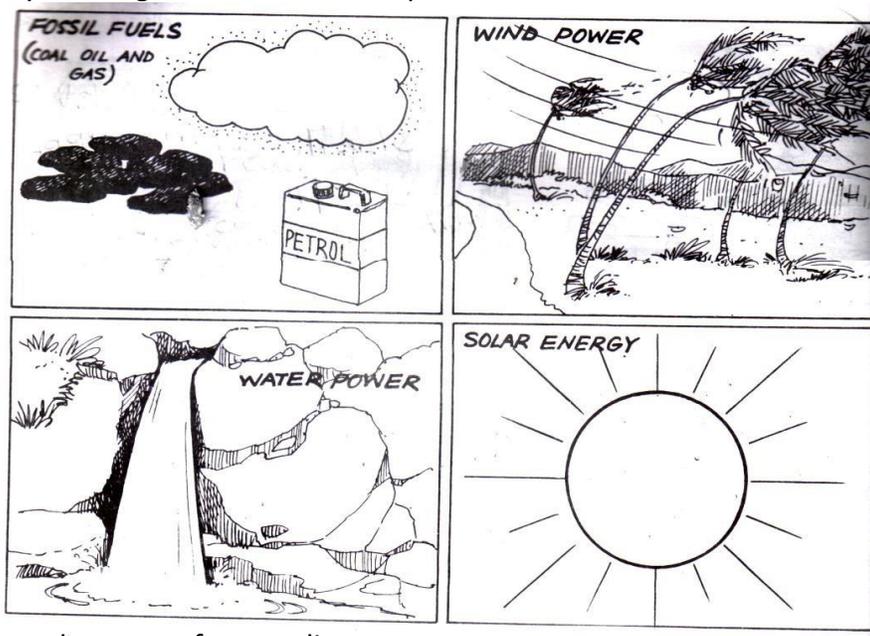
- b. If there is sufficient fossil fuel, how will we cope?

---



---

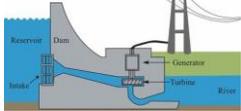
4. Study the diagram below and complete the table:



For each source of energy list:

- a. Some uses
- b. Advantages
- c. Disadvantages

Energy Source	Use	Advantages	Disadvantages
Fossil Fuels (Coal, oil and gas)  			

<p>Wind Power</p> 			
<p>Water Power</p> <p>Hydroelectric Dam Diagram</p> 			
<p>Solar Energy</p> 			