

World Around Us

For 8 to 10 year-olds

Screen-free learning activities that build multiple skills.



Diagnostic Test

Before beginning the workbook, answer the following questions in 20 minutes.

1. Are the following statements true or false?
 - a) Plastic is cheaper and more durable than most other materials.
 - b) If someone has a broken bone, we should move it slowly.
 - c) Vomiting is a symptom of food-poisoning.
 - d) Food is a non-essential expense.

2. Which of these items are biodegradable?



3. If you throw away a plastic bag in a forest, what will you find in the same spot after 1 year, assuming it has not been moved? Explain.
4. Circle the natural sources of light from the options below:



5. List 1 item of each type – transparent, translucent, and opaque.
6. List 2 ways to prevent the spread of COVID-19.
7. If Mary borrows \$1000 from Adam at a 5% interest rate, how much should she pay him back after 1 year?

Conduct the same assessment after you complete the workbook to check your progress!

Answer Key

Give the allotted marks for each correct answer.

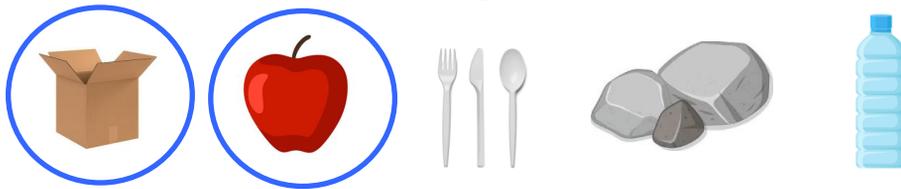
1. Are the following statements true or false?

0.5 marks each

- a) Plastic is cheaper and more durable than most other materials. **True**
- b) If someone has a broken bone, we should move it slowly. **False**
- c) Vomiting is a symptom of food-poisoning. **True**
- d) Food is a non-essential expense. **False**

2. Which of these items are biodegradable? Circle them.

0.5 marks each



3. If you throw away a plastic bag in a forest, what will you find in the same spot after 1 year, assuming it has not been moved? Explain.

1 mark

The plastic bag will remain as is because it is non-biodegradable.

4. Circle the natural sources of light from the options below:

0.5 marks each



5. List 1 item of each type – transparent, translucent, and opaque.

Transparent – Glass, Translucent – Sunglasses, Opaque – Wood
(Accept other correct responses.)

1 mark each

6. List 2 ways to prevent the spread of COVID-19.

0.5 marks each

Wash your hands regularly. Wear a mask at all times. (Accept other correct responses.)

7. If Mary borrows \$1000 from Adam at a 5% interest rate, how much should she pay him back after 1 year?

1 mark

$P = 1000, r = 5, t = 1$

Simple Interest = $Prt / 100 = 1000 \times 5 \times 1 / 100 = \50

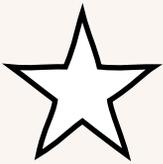
Total Amount to be paid = Principal + Interest = $\$1000 + \$50 = \$1050$

My Learning Journey

Name: _____

Draw a picture
or yourself here.

Week 1



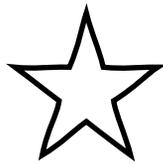
Day 1



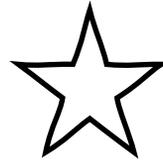
Day 2



Day 3



Day 4

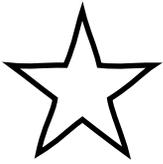


Day 5



DONE!

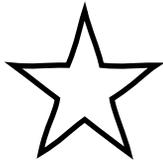
Week 2



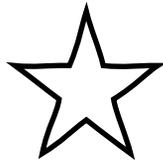
Day 6



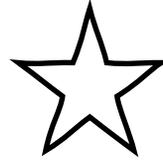
Day 7



Day 8



Day 9



Day 10

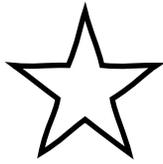


DONE!

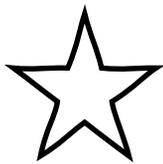
Week 3



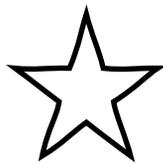
Day 11



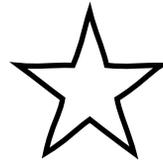
Day 12



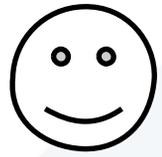
Day 13



Day 14

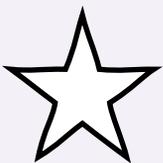


Day 15



DONE!

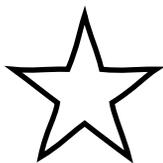
Week 4



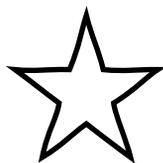
Day 16



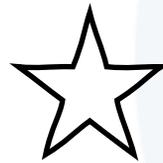
Day 17



Day 18



Day 19



Day 20



Daily Routine

My Emotions

Write how you feel **everyday** in your notebook. Think about why you feel a certain way.

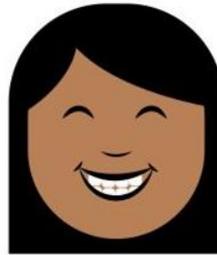
Today, I feel _____ because _____



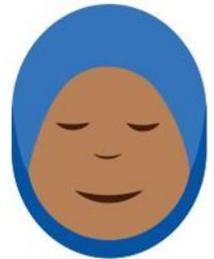
excited



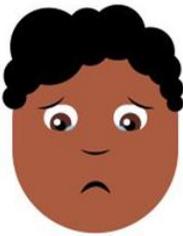
happy



joyful



calm



hurt



confused



nervous



lonely



frightened



annoyed



enraged

Week 1 Overview



Project

Health & Well-Being

Explore your relationship with a healthy lifestyle!

First Aid

Be prepared to respond to people who are injured or are not well.

Get Well Soon

Support a friend going through a tough time.

Become A Chef

Put together a healthy meal for lunch or dinner!

Keep COVID Away

Check out house rules to stay safe during the COVID pandemic.

Water And Us

Explore how water affects our health and well-being.

Materials Needed

- Paper
- Pencil/Pen





Health and Well-Being

What can I do to lead a healthy life?

1. Have you ever fallen ill (or experienced a disease)? Make a list of the changes you noticed. These are called '**symptoms**'.
2. What do you think caused the disease?

Microorganisms are living things that are too small to be seen with our eyes. Many of them make soil fertile and even help us digest food. Some are harmful to us and can cause diseases. Eg:



Bacteria

- Food Poisoning
- Tuberculosis
- Cholera



Virus

- Influenza (Flu)
- COVID-19
- Chicken Pox

4. How do you think these disease-causing microorganisms reach us? Below are some visual clues:



Do all diseases spread in the same way?

5. Do you think the weather affects our health? If so, how?

HEALTH POSTER

Think about a common disease people experience?

- What are the **symptoms** they experience?
How is the disease **caused**? How is it **spread**?
What can they do to **prevent** the disease in the future?
- Make a poster for a disease with your peers, to make people aware about the disease, cause, and its prevention.



FLU

CAUSES

Virus spread through

COUGH
SNEEZE




SYMPTOMS



SORE THROAT



COUGH



FEVER



CHILLS



WEAKNESS



PAIN IN MUSCLES



HEADACHE



RHINITIS

PREVENTION



EXERCISE



HEALTHY FOOD



FACE MASK



WASH HANDS



VACCINATE

When people with the flu cough, sneeze or talk, they send droplets with the virus into the air and potentially into the mouths or noses of people who are nearby.



KEEP COVID-19 AWAY

1. Discuss and note down what you know about COVID-19 with your peers:

Cause and Spread	Symptoms	Prevention

Is this information accurate? How do you know?

2. Together, make house rules that everyone must follow to keep COVID away. The plan should clearly mention who is responsible for what and include fines for violators. Example:

Category	Rule	Observer	Violation Fine
Coming back from outside	Take off shoes at the entrance	Ayesha	Wipe the entire floor where violator stepped with proper detergent + Wash all the dishes for one full day.

Categories can include: Going out, coming back from outside, and actions taken while in the house.

3. Put the house rules on a chart and stick it on the wall. Start following them right away!



Health and Well-Being

Discuss with your peers:

- What is the importance of drinking clean water?
- Which diseases are spread through unclean water? (Eg: Polio)

1. Pour dirty water in one cup and clean water in the other.
2. Ask a friend to identify which one is safe to drink.
Note down what helped them determine it (colour, smell, taste etc.)

3. Repeat the activity.

Make it harder for others to spot the difference!



Filtering Impure Water

1. What are some ways to ensure clean water at home? (Eg: Boiling)
2. Mix some dirt with water in a glass. Challenge yourself to obtain clean water from this mixture in different ways. Which method works best?

Try These!

1 Cloth Filtration:

Place a light piece of cloth on top of an empty cup.

Pour the dirty water into the cup through the cloth.



2 Sedimentation:

Stir an empty cup with dirty water and notice how the dirt settles to the bottom.

Decantation:

Wait for a few minutes and transfer the clean water to another cup.

WATER AND US

1. Have you noticed how people who are ill are asked to drink more fluids? Why do you think so?

*Most of the human body is actually made up of water! The human body is **60% water**. When we are attacked by harmful microorganisms, we generally get a fever. By increasing our temperature, our bodies try to kill them.*

However, we also lose water more rapidly through the lungs and the skin. This in turn can easily lead to dehydration and all body functions would become less effective.



2. What do you think happens if we do not drink enough water?

Create a table to track how many glasses of water each person living with you drinks. Present it as a pictogram. (Example below)

Member	No. of Glasses per Day
Aliya	
Kaneez	
Rahil	

- Who drinks the least amount of water?
- Who drinks the most amount of water?
- What is the average no. of glasses people drink in your house per day?

$$\text{Average} = \frac{\text{Total No. of Glasses}}{\text{Total No. of People}}$$

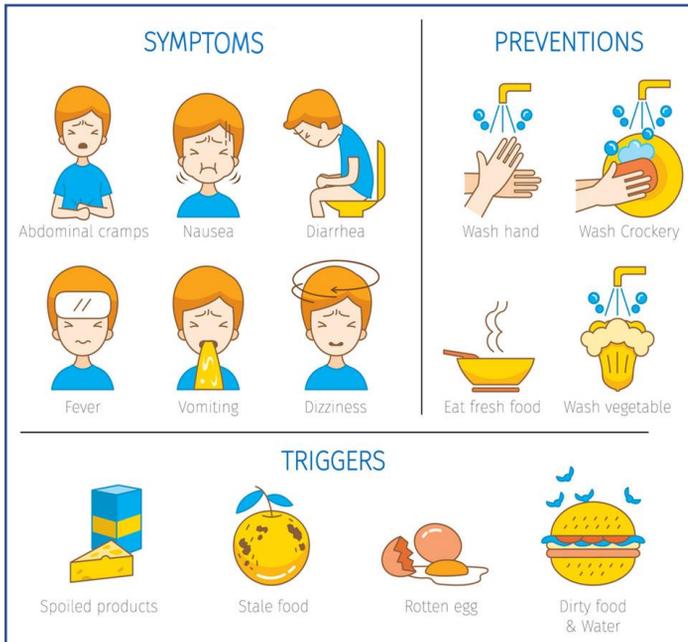
RECOMMENDED AMOUNT OF WATER PER DAY



Are people in your house drinking the recommended amount of water per day?

Health and Well-Being

1. Do you know any disease that can be spread through food?



- Observe the poster on 'Food Poisoning', a common disease caused by bacteria.
- Research or recall when you or someone else suffered from it.
- What are 3 things you can do to make yourself feel better when you have food poisoning?
(Eg: drink more water)

2. Discuss with your peers:

- How does food impact our health?
- How can you identify if food is spoilt or not fit for eating?

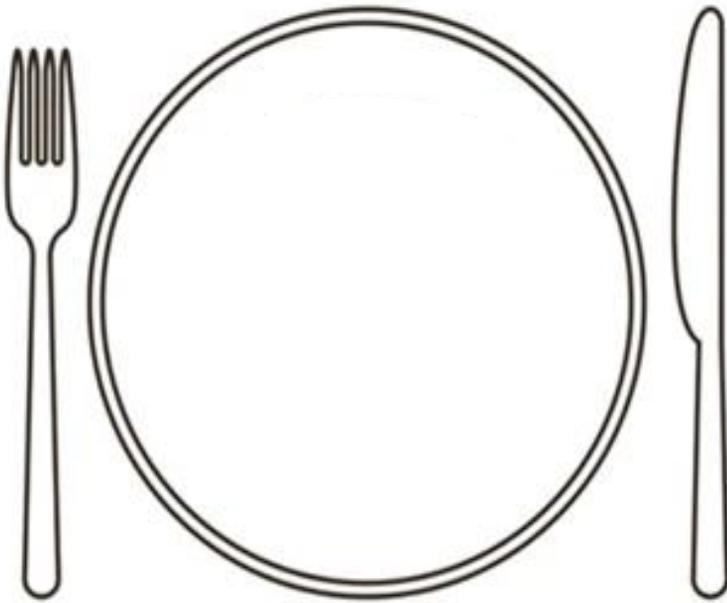
3. The pyramid shows what a healthy meal consists of.

Make your own 'healthy food' pyramid and draw your favourite food items in each category.

- Which foods are most healthy?
- Which ones are least healthy?
- What % of each of these should we have? Why do you think so?



- Put together a healthy meal for lunch or dinner. Explain to a partner why you think it is healthy. Identify the food groups (grains, fats, dairy, etc.)



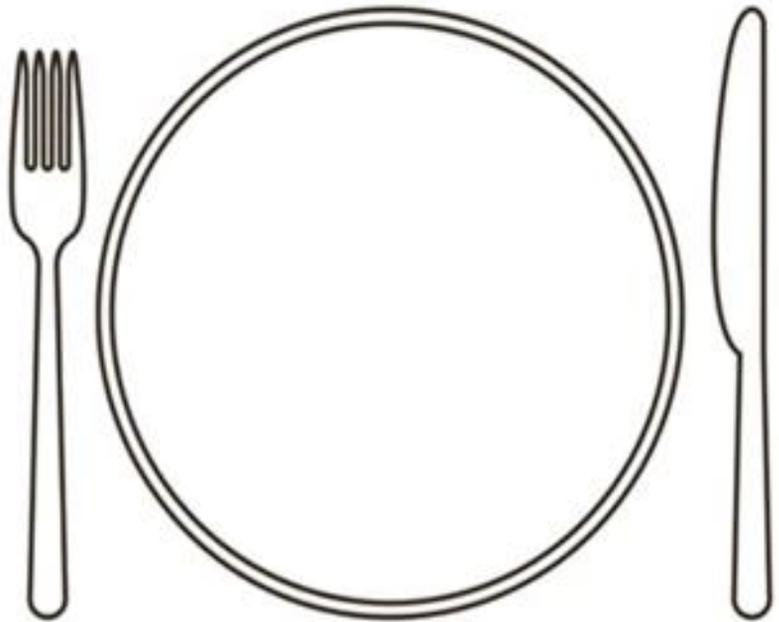
- Do they think it is tasty?
- Discuss how you can alter the recipe to make it tastier?

Chef's Special

Write your own recipe for a yummy, healthy, dish!

- Now, draw an unhealthy meal. Exchange it with your partner.

- What makes the meal unhealthy?
- Compare the amounts of the food groups with the healthy meal.
- How can you make the meal healthier, but still tasty? (Eg: Grill instead of fry to reduce fats)



Health and Well-Being

- How can diseases be spread through unclean surroundings?
- Observe the images below. For each, share two habits you can maintain a clean and healthy lifestyle.
- *Why do you think some people do not do this already?*

Example:
Brush your teeth daily.
Wash your mouth after having food.



Oral Hygiene



Bathing Ritual



Hair Care



Foot Hygiene



Toileting Hygiene



Hand Hygiene



Coughing and Sneezing Hygiene



Home Hygiene

- Using the table below, list and track 5 habits you want to build for better hygiene.

Add a ✓ or ✗ to track your progress

Habit	When will I do it?	Week 1	Week 2	Week 3	Week 4
Brush my teeth 2 times a day	Morning and Night	✓	✓	✗ missed 2 days	✓

4. Look at the equation below and discuss the following questions:



Discuss with your peers:

- Does 'health' only mean physical health? Why/Why not?
- What does a 'healthy mind' mean to you?
- Do you think you have a healthy body and a healthy mind? Explain.

5. Discuss some ways in which you can be physically fit. Which of these do you already follow? Which ones do you not?
6. Enact the following scenarios to show what happens to your mental well-being when you are:

- *Not getting enough sleep*
- *Not having social connections or friends*
- *Bottling up emotions and not expressing them in a healthy way.*
- *Eating too much junk food and feeling lazy/tired.*

What do you understand about the factors that affect your mental wellbeing? What can one do to maintain good mental health?



GET WELL SOON

- Think about a friend or a family member going through a difficult time. This can even be yourself!
- Write a letter to them (or yourself) encouraging them to get well soon.
- Decorate your letter with flowers and smileys!



Dear _____,

Health and Well-Being

Become A Doctor

Doctors are trained to keep people healthy and to heal the sick. They save lives!

1. Between you and a partner, choose who will be the doctor and the patient.
2. Enact one of the following scenes:



- Patient is suffering from common cold.
 - Patient thinks they have COVID 19.
 - Patient has a bad case of food poisoning (diarrhea).
 - Patient is experiencing bad moods and is feeling low.
- OR** Create your own scenario!

3. There are many parts to a doctor's job:



- Observing the **symptoms** of a disease.
- Identify the possible **causes** of the disease.
- Decide on a **treatment**.
- Provide steps to **prevent** illnesses.

Ensure all the steps are being followed while you role-play. The patients must explain their situation crisply and clearly.

4. Observers can share feedback to the doctor and the patient. *(Did they explain the symptoms correctly? Was the treatment right? Will the patient recover? Were they respectful in their tone?, etc.)*
5. Verify your answers by researching or asking an adult.

When a person is injured or is not feeling well, it is important for us to know what to do as an immediate response. Always call an adult in such situations. If it is a serious case, call your local Emergency Number to alert the police or medical emergency services.

Note down the **Emergency Number** and stick it on the wall.

Enact the situations below. Ask a partner to show what they would do as a first responder. Others must say if the response was effective. If it was not, what would they do differently? Repeat the same activity to show things NOT to do as a first responder for each scenario.

If someone has a bad bleed...



Press on the bleed tightly, with cloth.

If someone is choking...



- Hit their back firmly up to 5 times.
- Check their mouth
- If the object doesn't come out, call an adult.

If someone has an allergic reaction...



- Keep away from the cause of the allergy.
- Make them sit and give them their medication.

If someone is unresponsive and breathing...



- Turn them on their side.
- Tip their head back.
- Call an adult.

If someone is having an asthma attack...



Make them sit and make them use their inhaler.

If someone has a broken bone...



- Do not move the broken bone.
- Call for an adult.

If someone has a burn...



Cool the burn under running water for 10 minutes.

If someone has a nose bleed...



- Sit up straight
- Lean head forward
- Pinch the soft part of the nose for 10 minutes.

Weekly Reflection

Did I enjoy learning this week?



What are some new things I learned?

What did I do well?

What can I do better next week?

If you liked this, go to our IFERB website for hundreds of more such resources. Visit <https://resources.educationaboveall.org>

Week 2 Overview



Project

Less Is More

Learn how to budget effectively.

Solve It!

Solve word problems on simple and compound interest!

Interest

Learn about simple and compound interest.

20-Bean Salary

Explore your spending patterns through a fun activity.

Count Your Blessings

Reflect on the things in your life that you are grateful for.

Budget Advice

Help County Bank's budget advisor in giving financial advice to her customers!

Materials Needed

- Paper
- Pencil/Pen
- Small object such as small stones, leaves, counters, etc.



5

4

3

2

1



Less is More

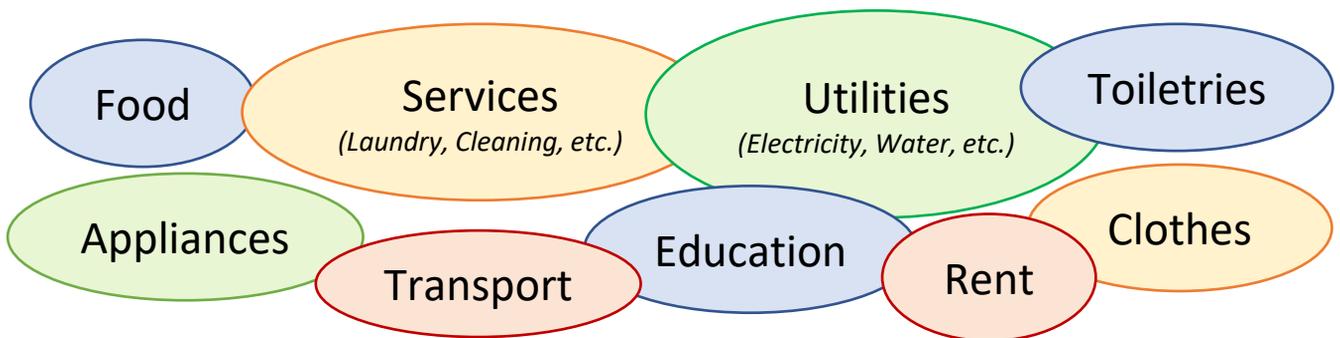
How can you get the most value from money?

Expenses refer to the money spent to buy the things we need.

Essential expenses are a set amount spent on important things or our needs (*Eg: rent, education, etc.*).

Non-essential expenses are the amount we spend on things we want and are not that important. (*Eg: gifts, toys, etc.*)

1. Identify 5 typical expenses in a month.
2. Interview adults to get estimates of different expenses. Explore the costs of different items using bills, price tags, etc.
3. Divide these expenses into categories. Examples:



4. Make an Expense Table with all the costs. Example:

Expense per month	Essential or Non-Essential?	Cost
Toiletries	Essential	QR 50

Discuss why each expense is essential or non-essential.

Calculate the total expenses per month.

COUNT YOUR BLESSINGS

Take a moment to note down 10 things or people you are thankful for. These are far more valuable than money!

The form consists of ten empty rectangular boxes with blue borders, arranged in two columns of five. At the bottom center, there is a glass jar filled with gold coins. A coin is falling from the lid of the jar, and another coin is shown floating above the second box in the second row. The background is white.

Less is More

Income refers to how much money we earn.

- Money left after paying for everything you need:

$$\text{Savings} = \text{Total Income} - \text{Total Expense}$$

- Money owed to others:

$$\text{Debt} = \text{Total Expense} - \text{Total Income}$$

1. Interview 2 to 3 adults in different professions. Ask them about their income and expenses to understand how they manage their money.
2. What do you want to be when you grow up? By asking an adult, estimate the average income you will earn per month in your profession.
3. Have a look at the expenses listed on the previous day. **Based on the average income, will you have savings or be in debt?** Find ways to reduce your expenses to save money!

From your savings, how much would you set aside to spend, save for the future, and share /donate)? Find the % for each option.

Discuss with your peers what you would spend on, what you would save for, and who would you share or donate to.



Add how much you would save and share to your Expense Table from Day 1!

BUDGET ADVICE

Help County Bank's budget advisor, Mrs. Trusty, give financial advice to her customers by calculating their incomes and expenses below.



1

Mrs. Tanya earns \$1000 each week and her husband earns \$750. Each week, they need to set aside \$200 for food, \$75 for gas, \$650 for the house rent, and \$350 for savings. How much money will they have left each week?

Total income: _____ Total expense: _____

Remaining amount: _____

Do you think it's better for Mrs. Tanya to invest in a car or buy a shop - one generates income while the other is an expense. Which one do you think is better? Why?

2

Moeen is going to school and working two part-time jobs. He works 20 hours for \$9.25 per hour at the grocery and 15 hours for \$11.50 per hour at Stellar Pizza Parlor. For all his hard work his mom gives him a monthly allowance of \$150. Moeen is responsible for his \$35 cell phone bill, \$50 gas bill, and \$200 car payment.



Total income: _____ Total expense: _____

Can he still save \$200 for college? _____

If so, does he have \$50 to hang out with friends? _____

Should Moeen try and save more money for college? If so, how? If not, why?

Less is More

- Do the following activity with 3 or more friends. Each person is given a ‘salary’ of 20 beans (or small stones, leaves, counters, etc.). **This is your budget – the amount you have to spend on things you need.**
- They must decide how they will spend their beans based on the options on the **NEXT PAGE**. Each item shows how many beans are needed to “pay” for it. Discuss the questions below after each round.

Round 1 Decide how you will spend your salary of 20 beans.

1. Why did you choose the items that you did?
2. Look at the top 3 categories where you are spending most of your beans. Why did you choose these categories?
3. Did you save any beans? Why or why not?
4. What similarities and differences did you notice with your friends?

Round 2 Your income has been cut to 13 beans. Make changes.

1. What kinds of items did you choose to give up? Why?
2. What did you learn about yourself and money in this process?
3. Compare your budget-cutting choices with another friend.

Round 3 Unexpected events occur! How will you address them?

1. You broke your leg! Take out 3 beans to pay for your treatment!
2. You got a 2 bean raise! Decide how you will spend it.

- What are your 3 learnings about budgeting from this activity?
- Revisit the **Expense Table** from Day 1. Would you make any changes to it based on your learnings? Prepare your final budget.

20-BEAN SALARY



HOUSING + UTILITIES

Living with family, sharing costs of utilities	DD
Share an apartment with roommates	DDDD
Rent your own place	DDDDD



FOOD

Cook at home	DD
Buy from fast food joints.	DDDD
All meals away from home.	DDDDD



TRANSPORT

Walk or cycle	No Cost
Ride a bus or carpool	D
Buy a used car + petrol	DDDD
Buy a new car + petrol	DDDDD



RECREATION

Parks, Visiting friends, Videos/ Music on phone	D
Movie Theatres, Gym, Classes, Hobby groups	DD
Concerts, Sporting Events, Short Trips	DD
Long Vacations / Trips	DDDD



GIFTS

Make your own	D
Purchase gifts sometimes	DD
Purchase gifts frequently	DDDD



FURNISHINGS / GADGETS

Second-Hand from Friends	No Cost
Buy used furniture	D
Rent furniture	DD
Buy new furniture	DDDD

EDUCATION

Free Public Schools	No Cost
Private School	DDDD
Additional Tuitions	DD



COMMUNICATION

No Phone	No Cost
Phone + Limited data	DD
Phone + Unlimited data	DDDD
Wi-Fi at home	DD
Laptop	DDDDD



CLOTHES

Wear present wardrobe	No Cost
Shop at discount stores	D
Shop for new clothes	DD
Shop for designer clothes	DDDD



PERSONAL CARE

Basics: soap, shampoo, etc.	D
Professional haircuts, branded products	DD
Regular visits to the salon	DDDD

Less is More

Have you heard the term 'loan'? What do you know about it?

How Loans Work

People borrow money (**loan**) from the bank or people for their essential expenses.



Borrowers

\$ 100



\$ 110



While returning the amount, they pay an additional fee called 'Interest'.



BANK



We earn interest!

Banks or people who give the money (Lenders) earn the Interest.

- Explain how loans work to your peers in your own words.
- *To borrow money from banks, one deposits some things as **collateral** (house, belongings, etc.). If the loan is not paid back, the collateral is taken by the bank. What is the risk in taking a loan from a bank?*

How Banks Work

1. People deposit money into a bank.



\$ 100



\$ 102



We earn interest too!

Depositors

Bank gives \$2 to the depositor.



BANK

Bank keeps \$8

2. Borrowers take a loan from the bank.

\$ 100



\$ 110



\$10 interest paid to the bank while returning the loan.

Would you keep the money you saved in a bank or at home? Why?

SIMPLE INTEREST

Principal (P): Amount of money deposited or borrowed

Rate of Interest (r): Percentage of the principal amount earned.

Time (t): For how long (in years) you borrow or invest

While taking a loan from a bank or depositing money into it, they tell us the rate of interest.

How to calculate simple interest



We earn or pay the interest on the principal amount based on the rates fixed by the bank.

This is called **Simple Interest**.

$$\begin{aligned} \text{Simple Interest} &= \underline{P \times r \times t} \\ &= 100 \\ &= \$100 \times \frac{6}{100} \times 1 \\ &= \$6 \end{aligned}$$

$$\begin{aligned} \text{Total Amount} &= \text{Principal} + \text{Interest} \\ &= \$100 + \$6 \\ &= \$106 \end{aligned}$$

- Find the simple interest and total amount to be paid for these loans:
 - $P = \$1800$ $R = 5\%$ $T = 1$ year
 - $P = \$2600$ $R = 12\%$ $T = 3$ years
 - $P = \$180$ $R = 3\%$ $T = 1\frac{1}{4}$ year
- A bank is offering 3.5% simple interest on a savings account. If you deposit \$7,500, how much interest will you earn in two years?
- Imagine that you take out a loan for \$6000 to start a business after high school. The bank charges you 8% interest for the loan. After 5 years how much interest will be added on to your loan?

Less is More

Become A Banker

1. Have 4 or more players for this activity. Assign the roles: **Depositors, Borrowers, Bankers** (Bank 1, Bank 2, etc.)
2. The Depositor and Borrower can choose the principal amounts based on their budget, expense, and income. (*You can have multiple customers with different amounts too.*)
3. The bankers must use **simple interest** in a way that helps the bank make money and also attract customers.

Borrowers must fill out a loan application form stating details of the amount, time, reason, personal details, income, etc.



Depositors must evaluate their options and see which interest rates give them the best returns.



Bankers must

- Check the worth of items borrowers give as security, in case they are unable to pay the loan (also known as **collateral**)
- Give financial advice to the customer (the best interest rates, how much to borrow, etc.)



WORD PROBLEMS



1. Use simple interest to find the ending balance.

- a) \$34,100 at 4% for 3 years
b) \$7,400 at 10.5% for 1 4 years

2. Pat borrowed \$2800 from her friend, Mark at a 5% interest rate per year. She plans to save the amount of the interest each year. How much should she save in:

- (a) 1 year (b) 2 years (c) 3 years (d) 4 years

What is the total amount she needs to pay Mark after 4 years?

3. Describe and correct the error in finding the balance of the simple interest account after two years.



Principal: \$700 Rate: 3% per year

t	Principal	Annual Interest	Balance at End of Year
1	\$700.00	\$21.00	\$721.00
2	\$721.00	\$21.63	\$742.63

4. In simple interest, a sum of money amounts to \$ 6200 in 2 years and \$ 7400 in 3 years. Find the principal.
5. Morgan has \$130,000 dollars in his bank account after 20 years. If he originally deposited \$50,000 in the bank, what must the interest rate have been?
6. Scott takes gets a student loan to go to college after high school. If he pays \$750 in interest at a rate of 3%, how much must the loan have been for originally?

Weekly Reflection

Did I enjoy learning this week?



What are some new things I learned?

What did I do well?

What can I do better next week?

If you liked this, go to our IFERB website for hundreds of more such resources. Visit <https://resources.educationaboveall.org>

Week 3 Overview



Project

Shadow Play

Create your own
Shadow Puppet Theatre!

Story Time

Discover plants and animals that
produce lights in water!

5

Travelling Light

Answer questions on sources of light
and how it travels through objects.

4

You're A Star!

Express gratitude to a person
who is a star in your life.

3

Light Games

Play games to explore your
senses in darkness!

1

2

Tracking the Sun

Explore how shadows change based
on the sun's position.

Materials Needed

- Paper
- Tape
- Thin Cloth
- Pencil/Pen
- Stick / toothpick



Shadow Play

Can you create a puppet show with shadows?

What is light?

1. Draw a scene in the daylight and one in the night.
2. What are different things we do when it is light or dark?
Why do you think we do different things at these times?
3. What comes to your mind when you think of 'light'?

Write or draw your responses to the following:

Colour of light

Where do we see light?

Words that describe light

How does light feel?

Sources of Light

1. Identify 3 to 5 sources of light and make a list. Draw the examples.
2. Are these sources of light natural or artificial?

Natural Sources of Light

The universe is filled with objects that emit light. Some light from these sources reaches the earth. (Eg: Sun, stars, etc.)

Artificial Sources of light

We can produce light artificially too – by heating objects or through electricity. (Eg: Torch, candle, etc.)



LIGHT GAMES



1 Dark Room

Play a game of dark room:

- Turn off the room's lights to make it dark (or blindfold a player)
- Get out of the room. Meanwhile, your family or friends will hide in the room and make noises.
- Enter and try to find them based only on their voices.

Did you know that your hearing abilities heighten when you can't see?

DID YOU KNOW?

Bats that are blind but they follow sounds and echoes to hunt their prey!



2 Find the Objects!

- All the players should be blindfolded and stand in line.
- Place 4 to 5 objects with strong smells in different places
(Eg: flowers, candle, burnt paper, talc, burnt paper, etc.)
- Ask players to identify as many objects as possible. They can walk around the room.

FUN FACT

Foxes are mostly nocturnal. They use their large wet noses to follow scent trails of prey, predators or their family.

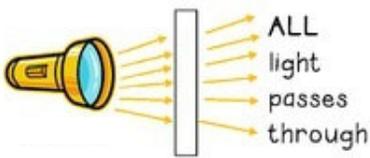


- The player who identifies the highest number of objects correctly wins!

Which senses did you use to identify objects when you couldn't see?

Shadow Play

1. Collect different objects around the house.
2. Hold them against a source of light.
3. Identify 4 transparent, 4 translucent and 4 opaque materials.



Transparent



Translucent



Opaque

Exploring Shadows

1. A shadow is made when an object blocks light. Make your own shadow art by placing objects in the sun and tracing their shadow on paper.



Get your peers to guess the object from looking at its shadow!

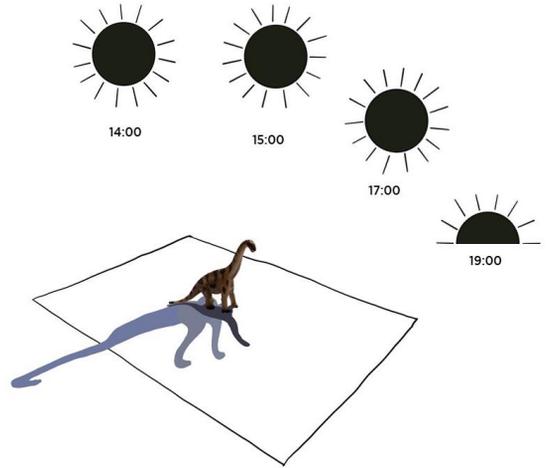
2. Try and create shadows with your own body and move around to see how your shadows move along with you! Discuss:

- *Can you have a shadow without a source of light?*
- *Can a shadow show the object's shape?*
- *Can it show the colour of the object or other details?*
- *Can you cast a shadow on a mirror?*
- *Can transparent and translucent materials form shadows?*



TRACKING THE SUN!

1. Place a toy on a piece of paper facing the sun.
2. Trace the toy's shadow and note down the time.
3. Note down where the sun is in the sky.
4. Repeat this every 2 to 3 hours during the day.



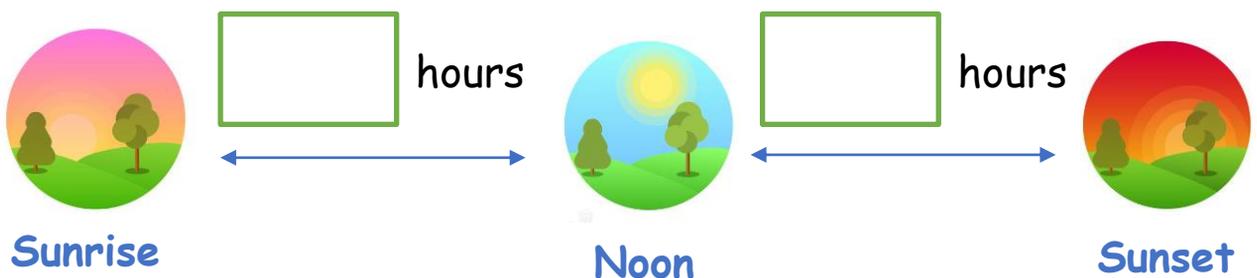
- What happens to the shadow with time?
- How does the position of the sun affect the toy's shadow?

Draw what sunrise, noon, and sunset look like in your area.

Think about the following while drawing:

- *What is the position of the sun?*
- *What is the time?*
- *How bright is the sun? How big is it?*
- *What is the color of the sky around it?*

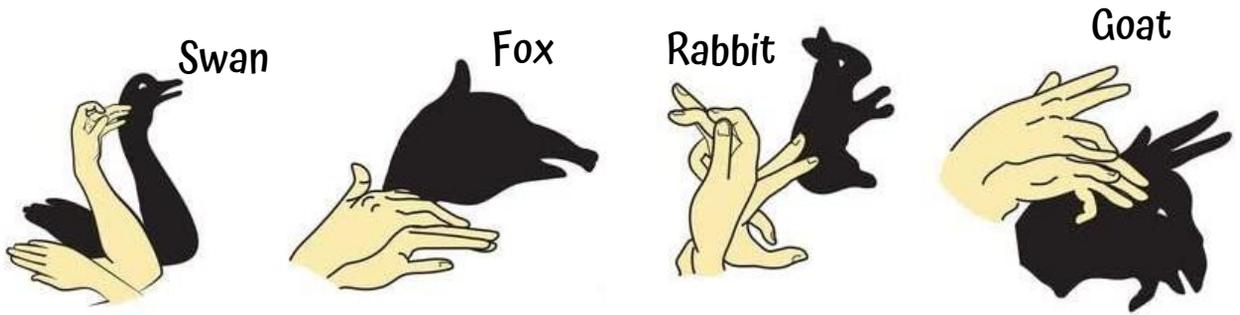
Conduct subtraction to calculate the number of hours between the following:



Shadow Play

Playing with Shadows

1. Use a torch, a flashlight, or sunlight to create shadows with your hands.
2. Form at least 10 different animals, objects and characters.
3. Get your family and friends to guess what these different shadows represent.



Writing a Story

A **shadow theatre** has figures that are placed between a light and a screen. Moving them creates the illusion of moving images on the screen and stories are told through it!



1. Think of a basic story that you will tell the viewers through the shadow theatre.
2. Pick a simple story with no more than 2 or 3 characters.
3. Draw or write the story.
Think of a fairytale - Tortoise and the Hare, Three Little Pigs, etc.
4. Tell your story to a peer. Use dialogues for the characters too!

Did they like your story?

How can you make it more interesting? (*Sound effects, emotions, etc.*)

YOU ' RE A STAR!

Stars are natural sources of light in the night.

Who brings light to your life?

Think about a person who cheers you up when you feel low.

Note down or draw at least 5 reasons why they are a star below and show it to them if you can!



Shadow Play

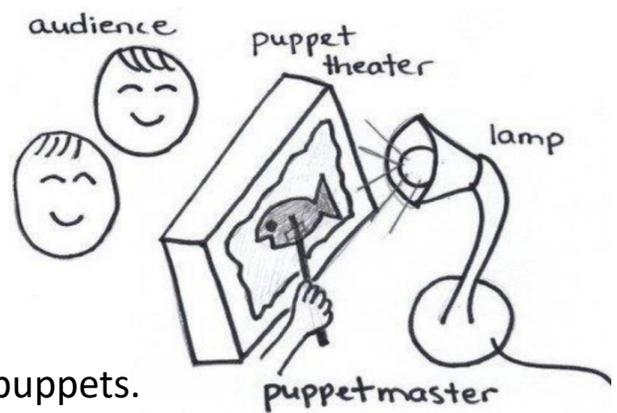
Making the Characters

1. Design the main characters of your story as 'shadow puppets'.
2. Draw the main outline of the character on paper or cardboard and cut it out.
3. Stick a toothpick or twig behind it using tape.



Designing the Stage

1. Find a place to hang a large white bedsheet or paper (this will be the shadow screen) and pin it.
2. Ensure there is space behind the screen for you to stand and hold the puppets.



Should the screen be transparent, translucent, or opaque? Why?

3. The bottom half of the screen can have a desk or table for you to hide behind while operating the puppets
4. Find a good source of light (*Ex: Sunlight, lamp / torch behind the screen*)
5. Make space in front of the screen for the audience to sit.

Play with light and experiment with it until you discover its effects on the shadows your puppets make.

When do the shadows grow bigger?
How do you can you make them smaller?

TRAVELLING LIGHT

Draw a box around opaque objects, a circle around translucent objects and underline transparent objects.



Identify whether each of the following sources of light are natural or artificial. Draw another natural and artificial source of light not given below.



Artificial

Natural

Shadow Play

Practice Time

1. "Act" out the story using your puppets.
2. Try to simultaneously narrate the story.
3. You can also add music or sound effects.

(Ex: plastic bottle with stones as a shaker for rain, animal noises, etc.)

4. Practice until you are ready to present your Shadow Theatre!



Shadow Theatre



Invite your family and friends to watch the shadow theatre and present the play to them.

Ask them for their opinion about the play:

- Did they identify the characters based on the shadows?
- Did they like the story?
- Did they enjoy any additional sound effects or the narration of the story?



**Let's
Review!**

- Do you know how shadows are formed?
- Can you predict the position of shadows based on where the sun is in the sky?
- Can you create your own shadow theatre for any story?

LIGHTS IN WATER

Written By Shreya Yadav



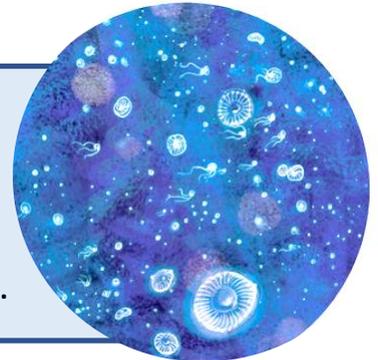
Maisha goes to the beach. She visits Flyman. Flyman is a flying fish. "Do you want to come meet my friends?" asks Flyman.

"Why not!" said Maisha, "But how will we see? It is dark in the night".

Then, Flyman sees a light in the water. It glows and fades and glows again.

Flyman shouts: "I have an idea! Get on my back.." They swim to the lights. Maisha takes a breath. They go under the water. Maisha gasps. Tiny animals glow in the sea. It is like a sky of stars. Who are these tiny animals? "These planktons can help us see," says Flyman.

Plankton are plants that glow when there is movement in the water. This helps to scare away predators that might eat the plankton. Sometimes the movement of boats can cause these sparks too.



Maisha hears a deep voice. It is a Firefly Squid. The squid has blue spots of light. "I can help, too," says the squid. They all swim down. Down, down, where it is very dark. But the plankton and the squid give light.

The **firefly squid** has special organs called photophores. The photophores make light to scare away the squid's predators or attract food.

LIGHTS IN WATER



They meet an Anglerfish. This fish has sharp teeth! But Maisha feels brave. “I can help you see too. I have a bulb of my own!” said the Anglerfish.

Anglerfish make their light from the glowing bacteria inside them. When a plant or animal makes light, that is called **bioluminescence**.

“It was wonderful meeting all of you,” said Maisha.

“See! you do not have to worry about light in the sea”, exclaimed Flyman.

Flyman and Maisha wave goodbye to the fish and swim back to the beach.

Maisha sees the moon and stars in the sky. Now she knows there is also light in the water too!

Based on your understanding of the story, answer the questions below.

1. Who is the main character of the story?
2. List the aquatic animals you come across in the story.
3. When plants and animals give off light, is it a natural or an artificial source of light? What is this type of light called?
4. If you could be any of these fish or plants, which one would you be? Why?
5. Create and draw your own aquatic animal that gives off light!

How does it look?
What is it called?

Where does it
give off light
from?

How does
the light help
them?

Weekly Reflection

Did I enjoy learning this week?



What are some new things I learned?

What did I do well?

What can I do better next week?

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Week 4 Overview



Project

Why all the Plastic?

Learn all about plastic – its uses and dangers.

Read an Article

Read an article about how plastic harms the oceans.

Let's Upcycle!

Learn about upcycling and get creative with plastic wastes!

Marine Voice

Write a speech as a marine animal to express your concerns regarding plastic pollution.

In Numbers

Reflect on some facts and figures about plastic.

Sort it Out

Differentiate between biodegradable and non-biodegradable objects.

Materials Needed

- Paper
- Pencil/Pen
- Colours (optional)



5

4

3

2

1

Why All the Plastic?

Can you find alternatives to plastic?

Plastic is a man-made material, made using certain types of chemicals, that can change its shape easily when soft.



- Which plastic items do you use every day?
- Make your **Home Plastic Diary** as shown below with an example:

1 Identify the 5 most commonly used plastic items, by exploring your home, discussing with family members, etc.

2 Mark tallies depending on how many of each plastic item were used each day of the week.

Item	No. of uses /day	Single Use	Total Usage in a Week	Suggested alternative
Plastic Bag 	Monday: = 4 Tuesday: Wednesday: Thursday: Friday: Saturday: Sunday:	✘	My guess: 15 Family: 10 Actual: 7	

3 Is it discarded after one use? If yes, it is a 'Single Use' item. Tick (✓) or cross (✘) accordingly.

4 Guess how many times the item is used in a week. Interview family members to discuss and make the same guess.

Record your observations for a week and check if you guessed correctly. We will explore alternatives in the upcoming days.

Look at the infographic below and answer the following questions.

2050

is the year experts think the amount of plastic in the ocean will weigh more than the amount of fish



Imagine what this would look like.

- How will it impact our lives?
- Why do you think plastic gets dumped in the oceans?

- Why do you think people use plastic bottles?
- What can be used instead?



1 MILLION

plastic bottles are bought around the world every minute

Plastics can now be found on every beach in the world



LAND & SEA



Plastics have been consumed by land based animals, as well as marine life



Over the last 10 years we have made more plastic than during the last...

100 YEARS

How do you think plastic reaches the food of animals?

- Give 3 examples of single-use plastics.
- How can we avoid using it?

500 - 1,000

years is how long it could take for some plastics to break down



Not ALL plastics are recyclable

Single-use plastics make up 40% of the plastic made every year



Why All the Plastic?

Our environment has micro-organisms such as bacteria that break down substances which go back into the soil. However, not all materials undergo this process.

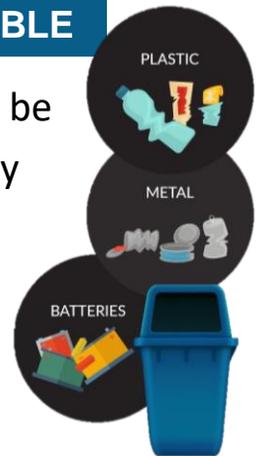


BIODEGRADABLE

Materials that can be broken down naturally in the environment.

NON BIODEGRADABLE

Materials that cannot be broken down naturally in the environment.



Observe what your family throws into the trash can for a day. Segregate the wastes as biodegradable and non-biodegradable.

Experiment Time

1. Dig two small holes in the soil of the garden/plant pots.
2. Put any plastic trash in one and fruit core/green leaf in the other.
3. Cover both the holes with soil.
4. Insert a stick to mark the plastic hole.

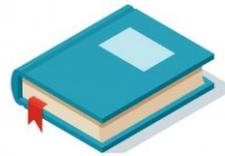
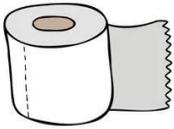


Think about what you think you will find when you return to these items after a week and explain why you think so.

1. Go through your Home Plastic Diary. How do you dispose of these plastic items?
2. What do you think happens to the items after disposal?
3. Draw places in your area where you see plastic being thrown.
4. Since plastic is non-biodegradable, how do you think it affects the environment?
(Think about the oceans, soil, animals, etc.)

SORT IT OUT!

Circle the items that are non-biodegradable.



Make a similar graph to show how long an item will take to decompose, for any 6 items that you threw today.

Is there any item you could have re-used, donated or repaired?



Train Tickets



Orange Peel



Milk Cartons



Tin Can



Batteries



Plastic Bottles



HOW LONG DOES IT TAKE FOR GARBAGE TO DECOMPOSE?

Why All the Plastic?

1. Interview older members of your home/community to understand how much they have used plastic in the past. Sample questions:

- Did you have as much plastic at home when you were growing up?
- What did you use instead of plastic?

2. Draw the things in your Home Plastic Diary, that you use in the present and what people used instead in the past, based on the interviews.

PAST		PRESENT	
Eg:  Cloth Bag			

For each item,
discuss:

- Is this plastic item important?
- Can we use other materials for this item instead of plastic?
- Can we reduce the use of this plastic item?

MARINE VOICE

Imagine you are an animal living in the ocean.

Write a speech, addressed to human beings, expressing how much damage they are causing to the oceans and your lives. Use the template below.



Hello, world!

I hope all of you are enjoying your morning. We, however, do not get to enjoy ours. The plastic you use kills millions of us every year.

It _____
and _____.

My question for you is this: _____?

I feel that _____.

We all share our planet Earth and we all deserve to live. So, I urge you to think about _____.

There is still hope. Let us discuss some actions we can take towards this.

First, _____.

Next, _____.

Lastly, _____.

Let us hope for a brighter future for my friends in the ocean and for you.

Thank you!

Why All the Plastic?

1. Collect a few items that are stored in plastic packaging.
(*Eg: Shampoo bottles, chips, etc.*)
2. How else can you package these items? Try using different materials and see if they work! (*Eg: using cloth, glass, metal, etc.*)

- Do the other materials get wet? Do the items inside get wet?
- Do these materials get torn or destroyed as easily?
- Are they heavy or easy to carry?
- Can all materials be made into any shape?
- Is it cheaper than plastic?



3. Why do you think plastic is so commonly used?
4. Which plastic items cannot be replaced with alternatives?

We can reduce, re-use, or recycle such items.

Recycling is the process of taking materials ready to be thrown away and converting (changing) them into reusable materials. (*Eg: Used plastic bottles can be broken down in factories to make new plastic bottles.*)



REDUCE

Which plastic items can you use less?

RECYCLE

Which plastic items can you recycle?
Are there Recycling Bins in your area?



From your Home
Plastic Diary...



REUSE

Which plastic items can you use again?

REPLACE

Which plastic items can be replaced with something biodegradable?



Write the suggested alternatives in your Home Plastic Diary.

LET'S UPCYCLE!

To **recycle** something means to completely break something down and make something new out of it. To **upcycle** means to use old things creatively and make something new out of them without changing its state too much.



Waste plastic
bottles

RECYCLE



Road made
using plastic

UPCYCLE



Toy cars from
plastic bottles.

Think of 3 ways you can upcycle a plastic bottle?
Try them out. Below is an idea:

Plastic Bottle → Money Bank

1. Clean and dry the bottle. On the side of the bottle, cut a slot big enough to send a coin through.
2. Seal the edges with glued paper or tape to prevent any tearing.
3. Cover the bottle with the paper and paint it. You can even make it look like an animal with basic paper sticking. **Your money bank is ready!**



How can you use this money bank?
How much money will you save every week?

Why All the Plastic?

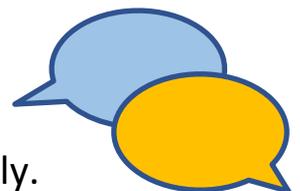
1. Check the status of the plastic and food waste you buried on Day 2.
 - What will happen to it in the next few days, weeks, and months?
 - How long will it take for each of the items to decompose completely?
2. Compile all of the work from the week to make a **poster** to convince family members to reduce, reuse or replace plastic. Include:

- How much plastic do we use per day?
- Why is plastic bad? What makes plastic special?
- What can we reduce, reuse, recycle, or replace?



3. Present your argument to the family using the poster.

- How many were convinced with the suggestions?
- Reflect on why other family members were not convinced and discuss what they could do differently.
- What is one change you and your family pledge to make to be more plastic-free?



SAVE THE OCEAN

Written By Allyson Shaw



A sea turtle swims through the water and spots a white blob floating near the surface. “Yum!” it thinks. “A jellyfish!” Chasing after its dinner, the turtle swallows the item.

But the floating blob isn’t a jelly—it’s a plastic bag that could make the sea turtle sick. This sea creature isn’t alone: Over 700 species of marine animals have been reported to have eaten or been entangled in plastic. Scientists think that the amount of plastic in the ocean might triple by 2050—and that would mean seriously bad news for the ocean and the creatures that live there. But by understanding the issue and taking action, you can help stop that from happening.

How does plastic waste end up in the sea?

Scientists think that a whopping 8.8 million tons of plastic end up in the ocean every year. That’s the same as stacking five plastic shopping bags of rubbish on top of each other on every meter of coastline in the world! But how does it all get there?

One way is through ‘ocean dumping’, when people illegally tip large amounts of waste directly into the sea. But not all plastic in the ocean is dumped there on purpose.



In fact, around 80% plastic in the sea comes from the land. Much of it is blown into rivers, streams and sewers from overflowing rubbish bins or landfill sites, and from streets and parks where people litter. Another way is through our drains.



Lots of our clothes contain tiny plastic fibers, called **microfibers**, which enter our water ways from washing machines when people do their laundry. And believe it or not, toiletries such as toothpaste and face wash can contain minuscule bits of plastic, too! These “microbeads” get flushed down the drain and, eventually, into the sea ocean.

Why is plastic waste dangerous?



Animals and birds can get trapped, tangled and even strangled by all kinds of plastic waste, such as discarded fishing nets and six-pack rings from drinks cans. They also mistake small bits of plastic, such as bottle tops and wrappers, for food and gobble them up – leaving no room in their swollen tummies for real food.

The problem doesn't end there. Plastic doesn't break down in the ocean completely – it just gets smaller and ends up being swallowed by fish and other marine animals and birds. The tiny particles of plastic absorb toxic industrial chemicals which, when eaten by fish, are absorbed into their tissues and are eventually eaten by humans.

Revise the speech you wrote on Day 3, as a marine animal based on any new information you learned in this article.

Weekly Reflection

Did I enjoy learning this week?



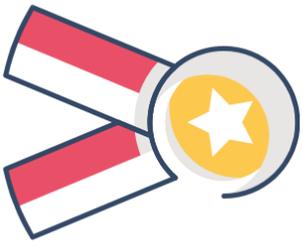
What are some new things I learned?

What did I do well?

What can I do better next time?

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Pg. 41, 42: Lights in Water, re-written from the original story ‘The Night the Moon Went Missing’ (English), written by Shreya Yadav, illustrated by Sunaina Coelho , supported by Oracle, published by Pratham Books (© Pratham Books, 2018) under a CC BY 4.0 license on StoryWeaver.

Pg. 54, 55: Text by Allyson Shaw, NG Staff, paraphrased from <https://www.natgeokids.com/uk/kids-club/cool-kids/general-kids-club/plastic-pollution/>

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