



# **Student Workbook**

# WORKBOOK

This document will help you practice what you learn in the videos

## Instructions

- Discuss the workbook pages related to the videos you watched and clear all doubts with your teacher before doing it.
- The workbook is to be done as a team.
- If you don't have the printed workbook, refer to the workbook on an electronic device and do the activities on a blank page. Number the pages properly and keep them safe.
- You should try to do the workbook whenever the video questions remind you to.

STATE

DISTRICT

SCHOOL NAME

TEAM NAME

TEAM MEMBERS

1.

2.

3.

4.

# What is GLOBAL WARMING

Irresponsible human activities around the world



Increase in pollution, waste and overuse of natural resources..



Global Warming and many man-made disasters.

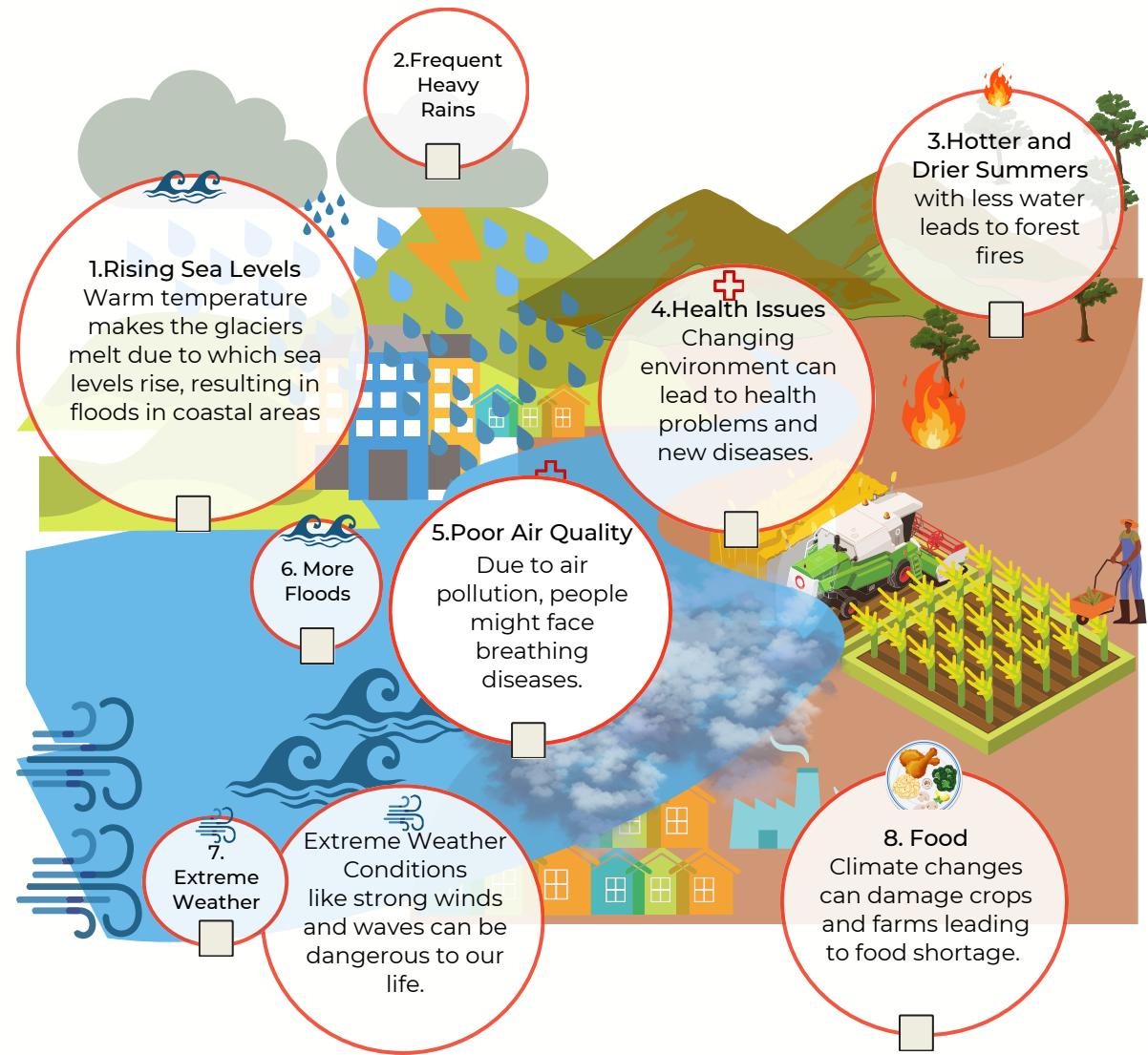


Harms our planet, life and future



**GLOBAL WARMING**

Look at the effects of Global Warming below. Tick / note down the ones that you have seen in your surroundings or community.



# Taking SMALL ACTIONS

There are big and small things we can do to reduce climate change.

Fill in the blanks with small actions you can take and where you want to practice them.



## 1. Save Water

A dripping tap can waste up to 90 liters of water per day, that's almost 100 bottles!

I will save water in school by checking if taps are closed

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## 2. Plant More Trees

Forests cover 31 % of the land on earth but almost 2,400 trees are cut down each minute!



## 3. Create Less Waste

Every year, the average person throws away about 540 kg of waste, about the weight of a small car!



## 4. Save Electricity

According to a study by the Centre for Science and Environment (CSE), India wastes around 17% of the total electricity it makes.



## 5. Use Eco-friendly Products

Simple things like using a reusable water bottle instead of disposable ones can save up to 1,460 plastic bottles per person each year!



## 6. Speak Up

The first Earth Day, a global awareness drive for environmental issues, was celebrated on April 22, 1970. It wanted to raise awareness about climate change.

# Let's READ ABOUT INNOVATORS !

MBA

Multipurpose Bag for Agricultural Utility

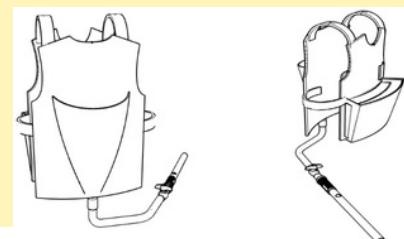
## Meet the innovators

Students Rajesh, Abhishek and Venu from Telangana, India found a Multipurpose Bag for Agricultural Utility (MBA) for farmers and workers in the fields.



## What did the innovation do ?

Multipurpose Bag for Agricultural Utility (MBA) A low-cost bag for farmers that allows various physical work together. The bag has shoulder pads and multiple pockets to carry tools, collect cotton, chilly, vegetables or spray fertilizer using the pipe attachment.



## What problem did they identify ?

Farmers and agricultural laborer strain themselves physically while working in fields to perform different tasks like plucking cotton, fruits, vegetables and spraying fertilizers. This leads to body pains and numerous diseases for people working in the fields.



## How did they do this ?

They observed their parents while working on the fields.

They also interviewed other farmers and agricultural labourers in the community.

Once they made the product, they shared it with users to get their feedback on the product

# Let's READ ABOUT INNOVATORS !

## SOLAR SCHOOL BAG from used plastics

This is Thato, a student from South Africa.



Thato observed that students used to walk to school with books in their hand or plastic covers. It was so difficult!

She spoke with kids and got to know that a lot of power-cuts happened and there were no lights to study.

She decided to help them by making something that will solve both of these problems and save the environment.

Solar light to study when there is a power cut



Bag to carry books to school easily

She took used plastic covers and made a new school bag! The bags also had a solar lamp that would charge when they walked to school.

The solution solves a problem and is useful for many people, it is called an INNOVATION.

Which of these things do you think Thato did?

- 1. She observed what was happening to students in her community.
- 2. She spoke with students to understand the problems more.
- 3. She wanted to sell school bags to students.
- 4. She spoke with fashion designers to make nice bags with lots of colors.
- 5. She thought of ideas that did not harm the environment.

# SUSTAINABLE DEVELOPMENT GOALS

In 2015, people from different countries around the world decided to work on these goals and help everyone. Read more about them!



Your solutions can also help in achieving these SDGs, sometimes more than just 1 goal!

# SUSTAINABLE DEVELOPMENT GOALS



Look at the solutions given below.  
Which SDGs do you think these solutions helps in?  
Match or note the solution to the related Goals.

A. Solar School Bags



Which SDG is it related to?

Goal 12 Responsible Making & Using

Goal 7 Clean Energy for all

B. Flash Forest uses drones to plant lots of trees



Which SDG is it related to?

C. Smart Pill automatically gives old people medicines on time



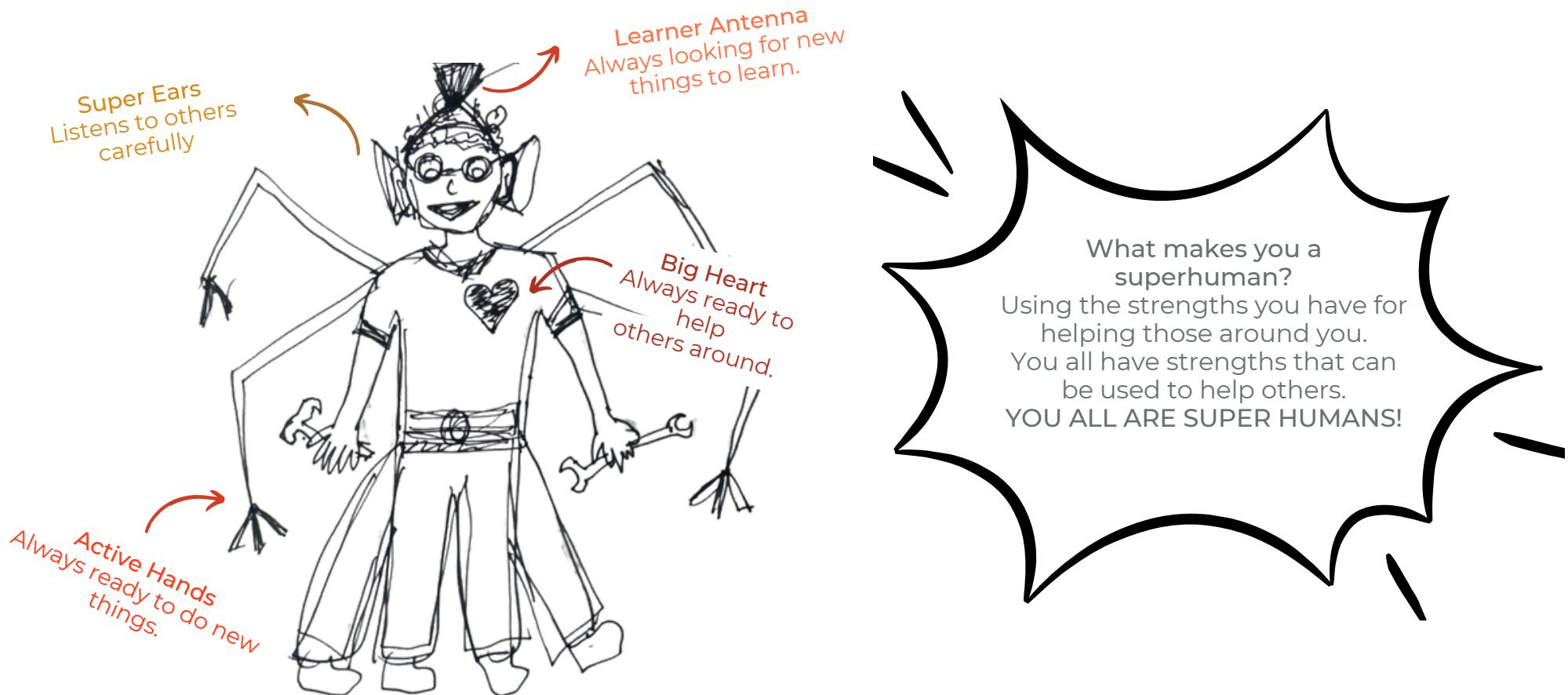
Which SDG is it related to?

\*These are only some of the goals

\*If you are doing it on a blank sheet, just write the ideas and the GOAL number beside it

# Let's learn what our TEAM DOES WELL !

Strengths are what someone is really good at!  
Let's us look at the superhuman with different strengths.



**Confident Mouth**  
Clearly say thought and inspire others.

**Fast Legs**  
Always ready to explore and learn more things

**Creative Mind**  
Has lot of different and interesting ideas.

**Sharp Eyes**  
Sharp eyes to find new things very quickly.

• Some other strengths •

## Let's create your SUPERHUMAN TEAM !

1. Take time to find out each other's strengths and together make a superhuman drawing for each of the team members.

Superhuman #1

Superhuman #2

2. Talk and think of their actions to find strengths. Also think of other strengths to add

3. Don't forget to label their strength so others will also understand!

4. Each one of you should circle one strength that you don't have but you look upto in a team member.  
Try to learn these strengths from them in the coming weeks as you do the course.

## Let's create your SUPERHUMAN TEAM !

1. Take time to find out each other's strengths and together make a superhuman drawing for each of the team members.

2. Talk and think of their actions to find strengths. Also think of other strengths to add

Superhuman #3

Superhuman #4

3. Don't forget to label their strength so others will also understand!

4. Each one of you should circle one strength that you don't have but you look upto in a team member.  
Try to learn these strengths from them in the coming weeks as you do the course.

If there are more team members, use a blank sheet and stick it here.

# TEAM LOGO

Logo is a symbol or a design, used as an identity for a team, idea or company.  
Sometimes they visually show a name just like in the SDG's!

1. Look at the logos given below carefully. Each of them uses different creative ways of logo design.



Can you guess what the organization does?



Can you guess what this logo stands for?

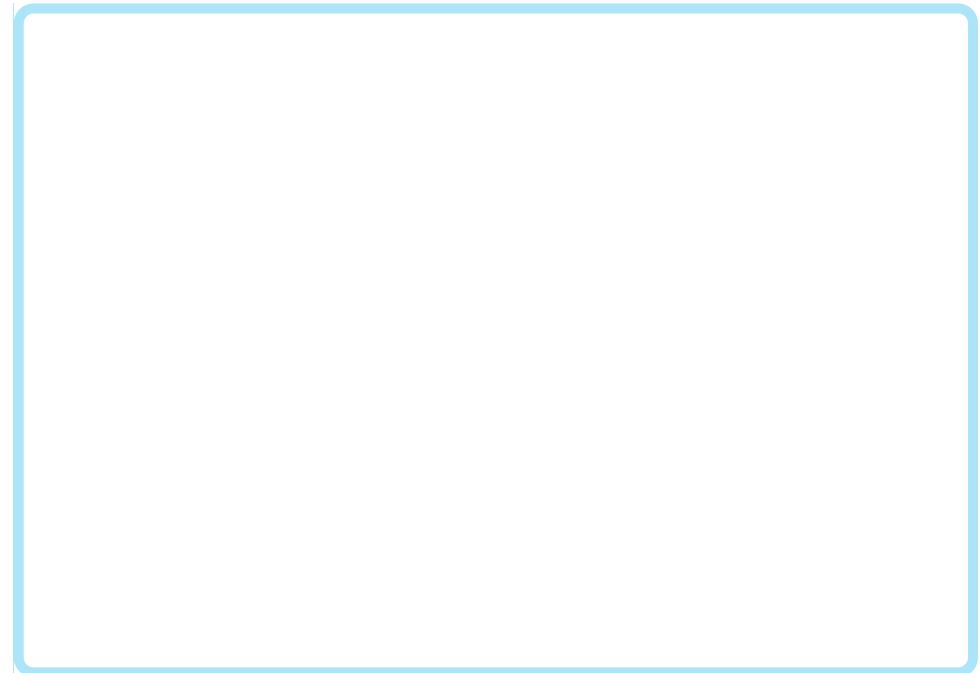


Can you guess how the logo of this company shows what it does?

4

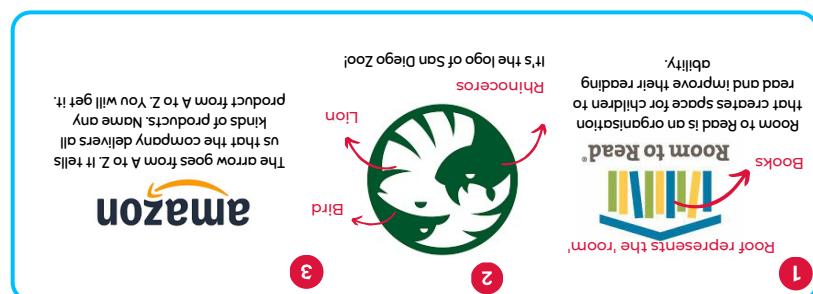
What is an interesting logo you have seen?  
Why was it interesting

2. Give your team a unique identity with a logo of your own!  
Draw it below!



Let's discuss as a team and check.

- Did everyone in the team agree to the logo?
- Did someone else's idea help you think better?
- Do you think you could have made the same logo alone?



# PROBLEM FINDING QUESTION

## When does something become a problem?

3 questions you need to ask!

### 1 Is it wasting or polluting any resource on the planet?

Earth has very limited resources and it has to be protected for future. If we see resources being wasted, we have to take actions to stop wastage and solve the problem.



### 2 Is it causing harm to any living being?

All living beings, humans plants and animals are dependent on each other. If they are being harmed in anyway, it is a problem that has to be solved. We have to protect them and take action.



### 3 Is it creating difficulty or stopping any member of the community from leading a better life?

Everybody is different and some people need the help to do things. We have to solve the problems they face to make sure that everyone is living well in an equal, fair society.



**WHEN OBSERVING SOMETHING, IF THE ANSWER TO ANY ONE OF THE ABOVE QUESTIONS IS A 'YES', THERE! YOU HAVE IDENTIFIED A PROBLEM WAITING TO BE SOLVED !**

Look at Riya, a Problem Solver.

Riya saw that her friend's grandmother who was blind, found it difficult to go around using a normal walking stick.



Which of the PROBLEM FINDING QUESTIONS helped Riya understand if her friend's grandmother is actually facing a problem? Tick the right option/s.

- 1. Is it wasting or polluting any resources on the planet?
- 2. Is it causing harm to any living being?
- 3. Is it creating difficulty or stopping any member of the community from leading a better life?

After deciding it is a problem to be solved, Riya created the Smart Cane that vibrates to alert its user of any obstacles , wet surfaces and other hazardous situations on their way .



1.Experience

2. Observation

3. Interviews

4. Research

**Finding problems using EXPERIENCE**

Experience is something you have already faced, things that have happened to you.



Think about your home.  
You do a lot of activities at home such as cooking, studying, playing outside.  
What problems did you face at home?



Think of everyday activities  
Your day starts by getting up, going to school and many other activities.  
Thinking about the day can help you remember the different problems you faced.

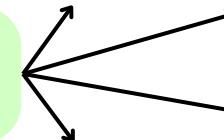


Think about different places you go to in your community, whenever you go to different places like schools, markets, parks, think of the problems you faced there.

Fill in the blanks. Think about the problems you face when :

I find it difficult to walk because shoes get wet.

1. It rains very heavily



2. There is no electricity



3. Don't know the language in a new place



1. Experience

2. Observation

3. Interviews

4. Research

## Finding problems using OBSERVATION

Observation is looking at things carefully with full attention and concentration.

**Use your senses**

Observe by seeing, feeling, hearing, tasting, or even smelling !



**There is so much to observe.**  
Observe different places and people. See what is happening to the places, how people are reacting, etc.

**Do not disturb**

Take your time to observe and understand, and try not to disturb places & people when you are outside.

A.Think of places where you observed these situations happen. Fill in the boxes.

Home

1.Rusted furniture

Road

Think of all the possible places you will see these problems!

B.Think of people whom you've observed facing these situations. Fill in the boxes.

Students

1.Chalk pieces breaking while writing



2.Carrying heavy bags for long distances



Think of all the possible people who face these problems!

# HOW TO FIND PROBLEMS?

1. Experience

2. Observation

3. Interviews

4. Research

## Finding problems using INTERVIEW

Interviews help us know about the problems that others faced by talking to them.



### Be prepared

- Keep your questions ready.
- Ask about resource wastage, problems they face, or any other difficulties



### Be sensitive

- Listen patiently to what people are saying, do not keep stopping them.
- People think differently, do not judge them.



### Start with an introduction

- Introduce yourself and your team
- Tell why you want to conduct this interview



### Divide the work

- Interview includes different tasks like asking questions, taking notes, listening to the conversation.
- Each team member can take up a task.

### Let's practice taking an INTERVIEW

Select and circle one of these people:

Cook

Police

Driver

Look at the person you circled, write down questions that you will ask them during an interview to know about any problem they are facing.

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

4) \_\_\_\_\_

5) \_\_\_\_\_

You can ask them about their home, their work and their surroundings.

1. Experience

2. Observation

3. Interviews

4. Research

**Finding problems using RESEARCH**

Research includes looking for correct information.

**Always look for information**

- Read newspaper articles, magazines, textbooks to get information about the problem
- Look for pictures and videos to understand the problem
- Search on internet [like Google] by taking help from your teacher.

**Use reliable sources**

- Always use reliable and safe sources
- Not everything you get to read on internet is correct!
- Search for more than 1 explanation when you can.
- Seek for help from elders to identify trusted and reliable internet sources

Look at the source's below and find information using the sources?

1. Write the problems that you found from there.



Newspaper or Magazine



Television



Internet

# COMMUNITY MAP

Create a map of your own community and mark the various problems your team found at various places. Where are the other places the same problem was observed?

- 1 Draw a Map of your community/ surroundings



- 2 Mark the problems your team found



- 3 Discuss with others if they have seen these problems in more places



- 4 Mark problems again to show the problems in the new places



This map can help you see how badly each of the problems are affecting our community/surroundings

# PROBLEM SELECTION - PEAK

It's time for your team to select a final problem you'd like to solve during this course!

## PREFERENCE



I wanted to solve the walking stick problem, but my team members were more interested in other problems. So, as a team, we gave a low PREFERENCE score.

## EFFECT



I thought the walking stick problem should get a high score as it affects many elder people, but the other problems needed to be solved immediately, so we lowered our rating

## ACHIEVABILITY



All of us in the team wanted to solve the problem of Plastic bottles. But we felt we cannot solve it unless we find an alternative to it. We were not very confident, and so we rated it low

## KNOWLEDGE



Plastics in the sea was a big problem and all of us in the Team had a good understanding of the problem. So, rated that highly

You can use the PEAK Table below to rate the problems you found on a scale of 0-5 under each column. Add the scores and fill in the final score. [0 being the least and 5 being the most]

PROBLEM TITLE Details of the problem	PREFERENCE Are all members excited about the problem?	EFFECT How badly is it affecting people/planet around you?	ACHIEVABLE Are you confident about achieving a solution to this problem?	KNOWLEDGE How well do you know the problem?	FINAL SCORE Total added score

Look at the Final Scores to select the problem your team wants to solve!  
Any of the higher scoring problem can be selected.

# STAKEHOLDER MAPPING

Make a stakeholder map for your team's chosen problem.

A problem will have different people (stakeholders) involved in it. Identifying the different stakeholders and talking to them will help us to get more information about the problem.

## 1. Direct Stakeholders:

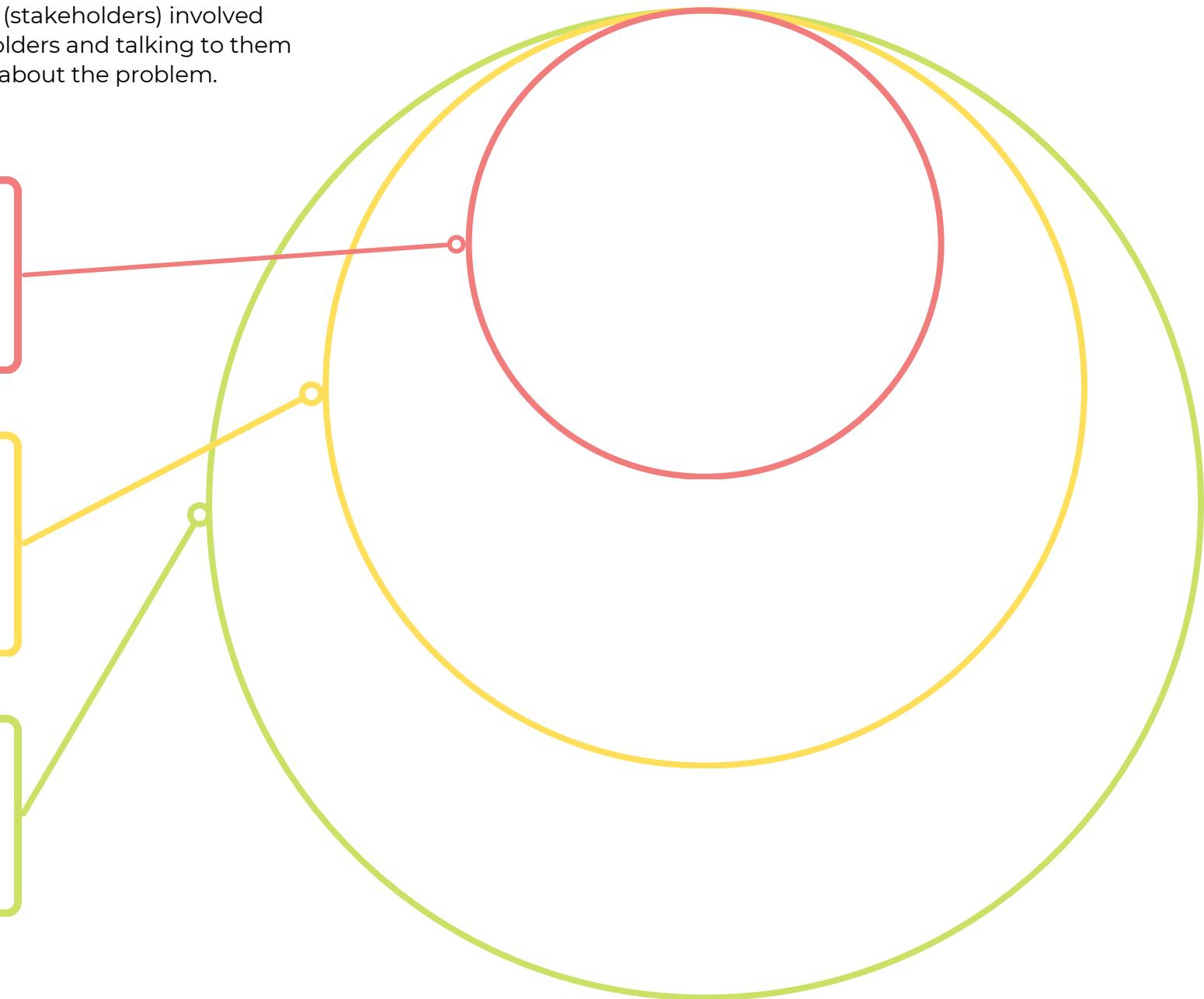
- Directly experience the problem you have identified.
- Group for whom we are creating the solution.

## 2. Indirect Stakeholders:

- Have close contact with people directly affected by problem.
- They may not face the problem directly but have more information about the problem.

## 3. Other Stakeholders:

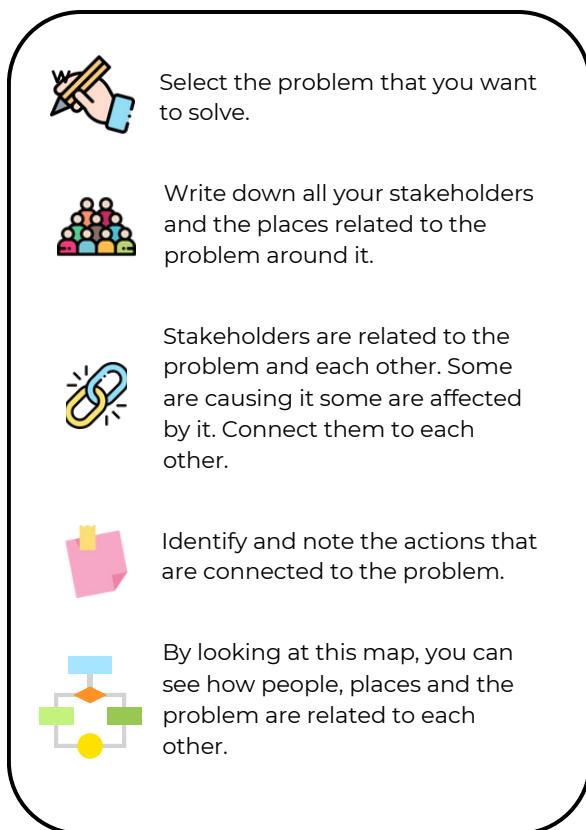
- Have more resources to support your solution.
- People who are solving or are trying to solve a similar problem.



## Module 4 : Video 2

In your problem-solving journey, creating a mind map can help you understand the problem and help you look for more information.

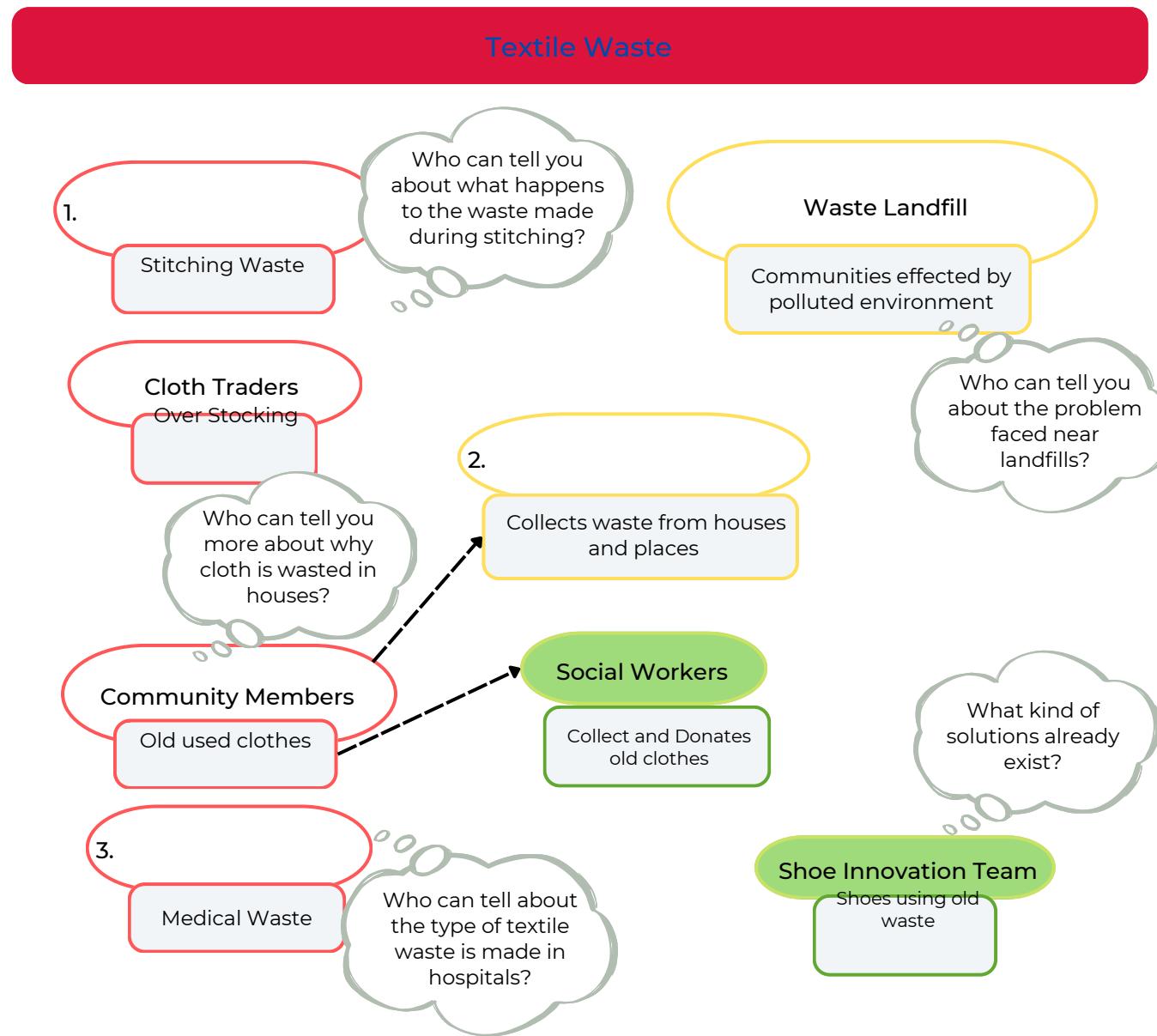
How to make your mind map and use it.



# MIND MAP

19

1. Look at the Mind Map given below. Can you fill the empty spaces and draw the links based on the videos you watched. Use the questions hints.



Making a Mind-Map for your selected problem will help you understand how much you know about the problem.

This will also help you understand what more information you need to collect and who you should talk to .

# INTERVIEW SHEET

## HOW TO TAKE INTERVIEWS TO UNDERSTAND YOUR PROBLEM DEEPER

Remember? You had taken Interviews previously to FIND problems in your community where you talked to anyone.

Well! You can take interviews once again to EXPLORE your selected problem much deeper but here you'll talk to stakeholders.

Let us look at a few things to prepare for this Interview !



Try to find out their experience of the problem ["When it happens...?", "What happens...?", etc]

- 1 =
- 2 =
- 3 =

Try to find out what they think / feel when the problem is there.



Try to find out why they think the problem is there [what actions, whose actions, ...].



Try to find out more about the effects and causes.



Try to find out who else can give you more information about the problem [direct, indirect, other stakeholders, ...].



Try to find out if they or others have done anything to solve the problem [have they tried, what they learnt, etc].

1. Remember and write down the problem you are trying to understand.

2. Think of some general questions you can ask to make each other feel comfortable.

- Hello. We are \_\_\_\_\_.
- We are try to understand about \_\_\_\_\_
- Will you be okay sharing a few things about it?
- \_\_\_\_\_
- \_\_\_\_\_

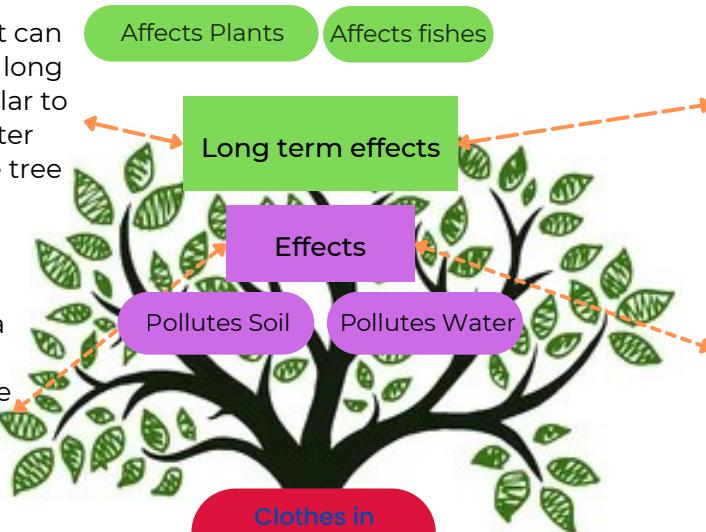
3. Think about the stakeholder you want to interview and write down questions to ask.

- When did you \_\_\_\_\_
- Can you tell me about \_\_\_\_\_
- What do you do when \_\_\_\_\_
- Who else \_\_\_\_\_
- What is happening to you because of \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

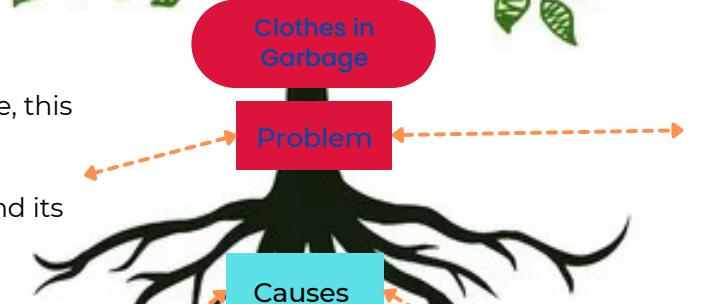
Make sure to note down the information you collected on a sheet!

## WHAT IS IN A PROBLEM TREE

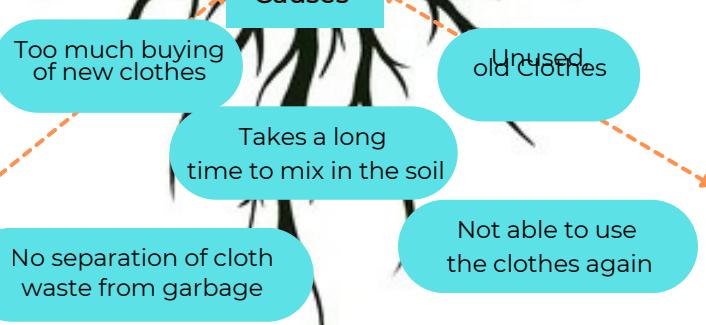
Effects of a problem that can be observed only after a long period of time. Very similar to how we can see fruits after months and years of the tree getting planted.



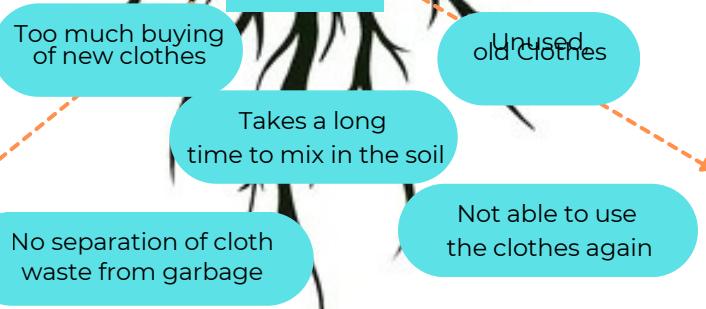
Immediate results of a problem that we could see. Like how we can find the leaves as soon as the plant starts growing.



Like the trunk of the tree, this is the main part of your problem. It describes the problem and helps to find its causes and effects.

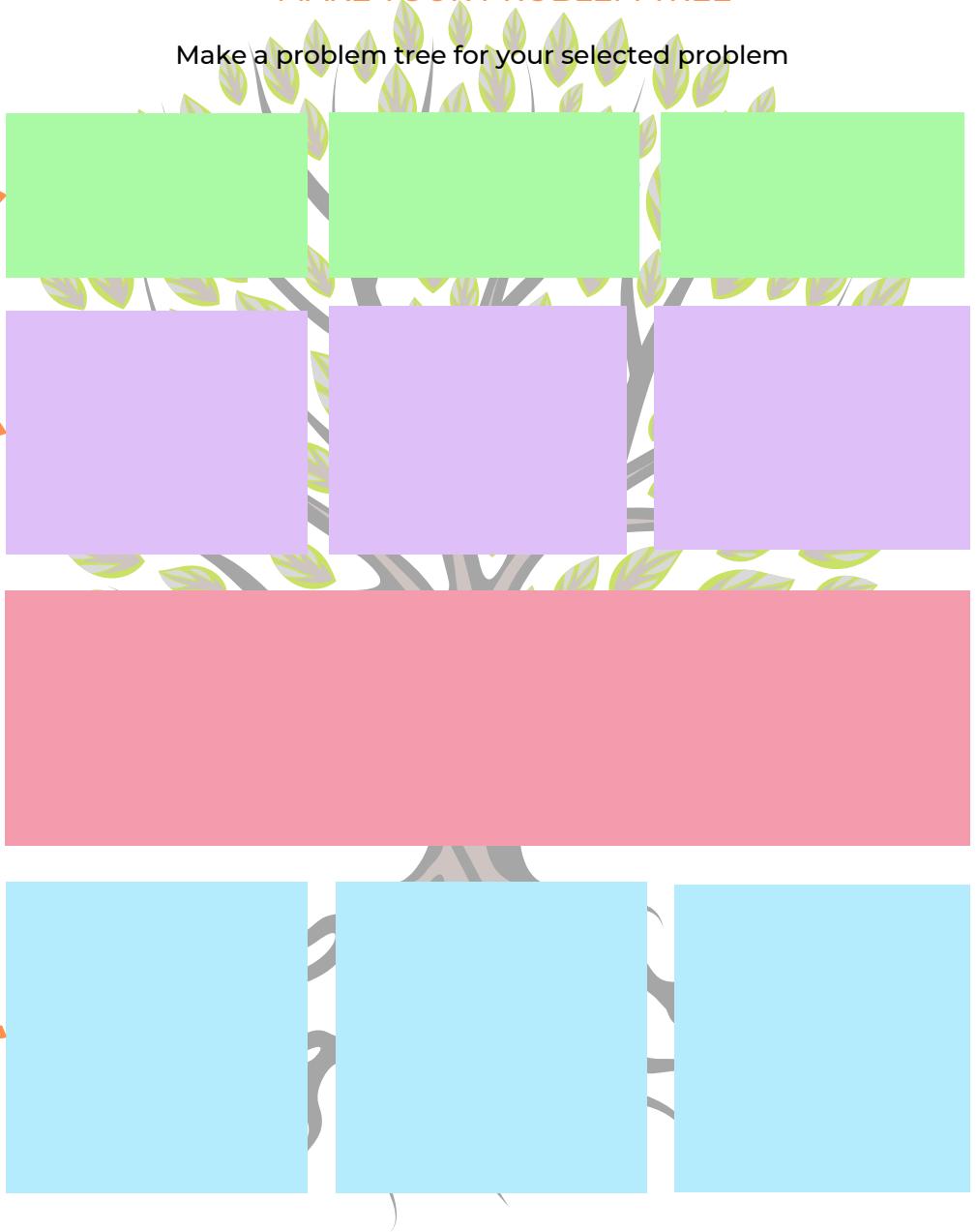


This is the reason why the problem exists just like how the trees survive and grow because of the roots.



## MAKE YOUR PROBLEM TREE

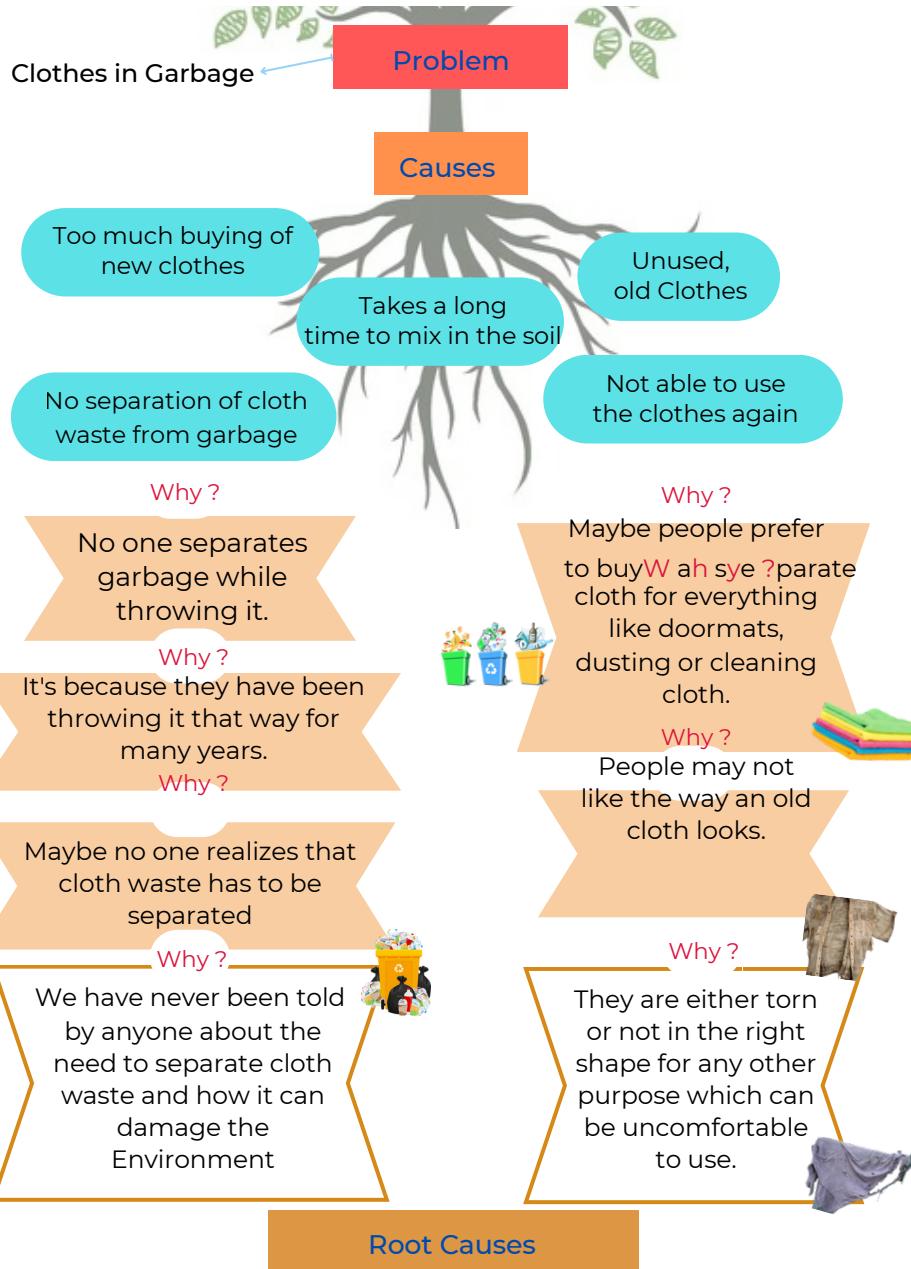
Make a problem tree for your selected problem



# WHY'S TECHNIQUE

## HOW TO USE 'WHY'S' TECHNIQUE

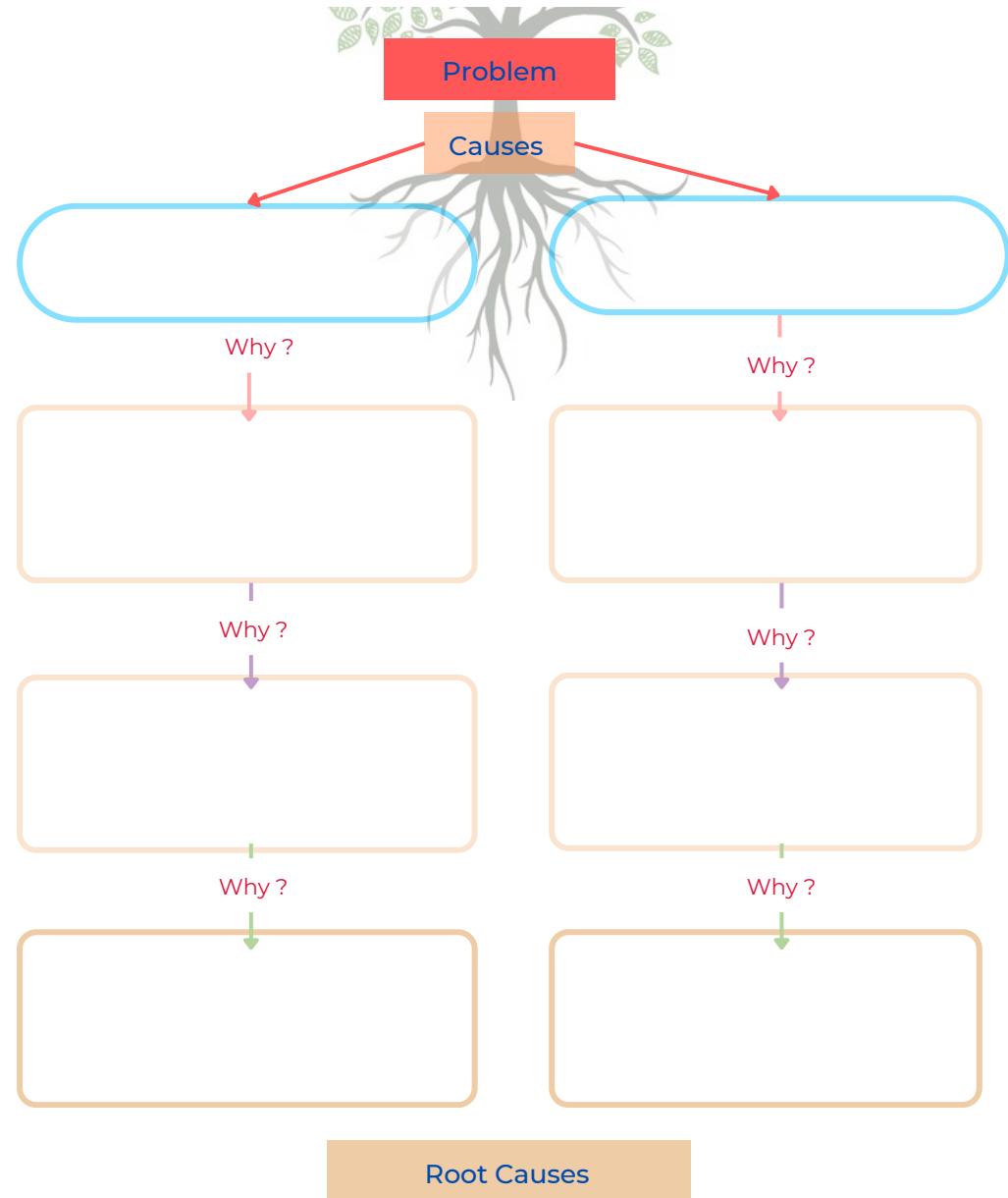
Just keep asking Why?



## 'WHY'S' TECHNIQUE

Now do it for the Causes from Your Problem Tree!

Pick 2 important ones to do you Why's and get to the root causes.



# PROBLEM STATEMENT

Let's look at a problem statement for the idea of making shoes from waste material.

A problem statement has many pieces put together so you can explain your problem and your understanding clearly.



Can you match the above PIECES with the correct pieces in the PROBLEM STATEMENT below?

1. \_\_\_\_\_ STATE

2. \_\_\_\_\_

3. \_\_\_\_\_ STATE

4. \_\_\_\_\_

**Large amounts of waste being dumped into water** is a problem caused by **not having a way to properly dispose waste**. This can lead to **pollution of soil and harm aquatic life**. **Handling the waste responsibly and creatively** will help us address the problem in a better way.

1.What is the problem that you are going to solve? Write down your FINAL Problem Statement after discussing as a team. Use your problem tree and roots causes on #21 and #22 to include all the pieces!

Does your Problem Statement

Defines your problem clearly?

Understandable to others?

States the current state of the problem?




Includes the root causes and effects?

States the desired state you are trying to achieve with your solution?

# LET'S GET CREATIVE

1. Think of what you will do in these situations. Write your ideas below

- a. You want to make a new snack with filling.  
What different things will you put inside?



- b. You forgot to do your homework.  
What funny excuses can you give to your teacher?



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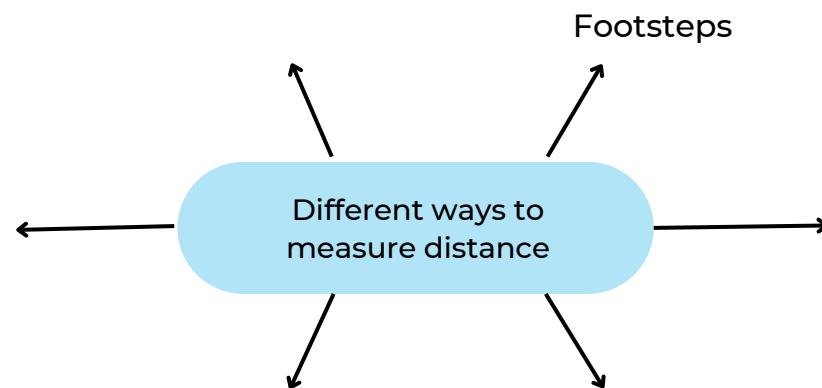
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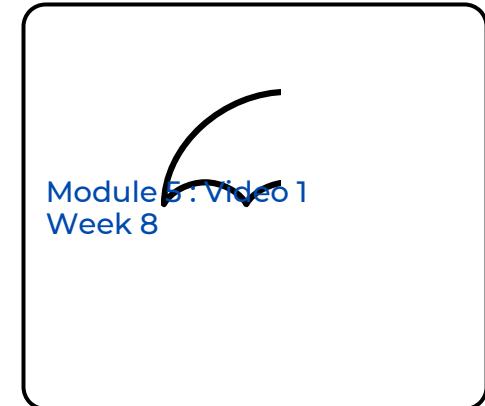
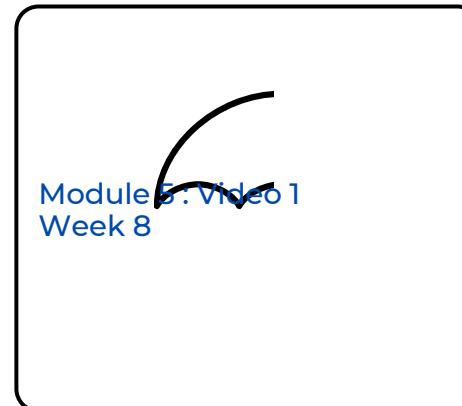
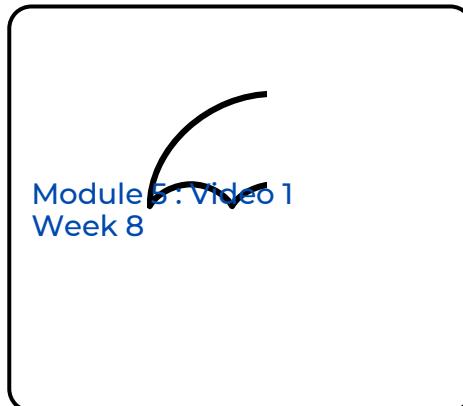
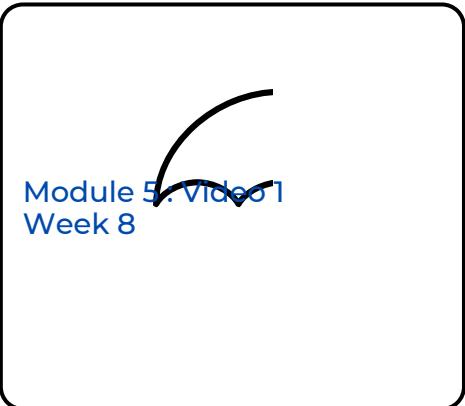
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2. Think of different ways in which you can measure the distance between two things.



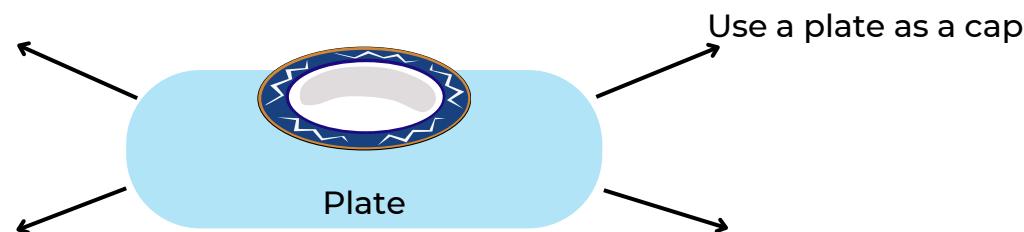
# LET'S GET CREATIVE

3. Complete the drawing. Each of you in the team completes the drawing in different ways.



Hint : This is an incomplete umbrella. While drawing you can draw anything but NOT an umbrella.

4. A plate has been given to you. Think of NEW and DIFFERENT uses for the plate



You can write/draw your answers.



# PRODUCT vs PROCESS BASED SOLUTIONS

## What Is The Problem?



Students are not keeping their shoes in order while entering their computer lab

### Product Based Solution

Solution that is physical and can be made using materials.



Shoe rack with numbers



Shoe rack with old carton

### Process Based Solution

Follows a set of instruction or communication to solve.



Giving Points



Shoe Monitor

1.Let's see if these solutions are Product based or Process based. Mark the answers below.



1.Umbrellas that can be worn on head

- Process Based   
Product Based



2.Having a Traffic Police to control traffic

- Process Based   
Product Based



3.Notebooks from old ones to reduce wasting unused paper

- Process Based   
Product Based

# BRAINSTORMING



Think about this problem:

"Old unused tyres lying around in parks causing mosquitoes"

## 1. Brainstorming : First Idea Crazy Idea

Draw or write the first idea that comes to your mind to solve the problem of old unused tyres.

Write your ideas here!

## 2. Brainstorming : Open Storming

Keep sharing more and more ideas. You can even add ideas together or improve your First Ideas!  
Discussing freely with each other can improve & give many ideas!

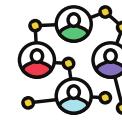
Write your ideas here!

Now let's try another method!

# BRAINSTORMING

## 3.Brainstorming : What - If

3.You can use the 'What If' method to think of other types of ideas! To find a direction to think, you can put a 'What if' condition



What-If the solution is a process?

Appoint a person who can be called to pick up old tyres and deliver it to those who needs them in return for some money.



What - If the Solution was a \_\_\_\_\_?

Fill in the blank and think of related ideas.  
Hint : a person, a different material, a communication, or something else?

Now let's try one last method!

## 4.Brainstorming : Rolestorming

4.Look at the following problem and solution. Step into the role of a person and you might be able to think like them. How would a gardener and furniture shopkeeper solve the problem of old tyres?



What ideas will a Gardener think of?

What ideas will a Furniture Shopkeeper think of ?

A tyre that works like a pot -can be used in gardens to plant plants.

Write your ideas here!

Do you see how your solutions can change for the same problems depending on who you are thinking like!

# SOLVE YOUR PROBLEM

Now you are ready to work on your problem! Let's find solutions!

1.What was your selected problem? (Check pg .....

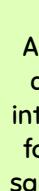
Use the different brainstorming techniques to get different ideas.

2.Write down all the ideas you can think of for your selected problem. Make sure all teammates add atleast one idea.

From here you can work of choosing, discussing, combining and improving various ideas!

# SOLUTION SELECTION - FUSE

It's time for your team to select a final problem you'd like to solve during this course!

FEASIBILITY	USABILITY	SUSTAINABILITY	EFFECTIVENESS
 <p>After I heard Adila and Aryn, I too felt that though exchanging clothes is easy to implement. But for Feasibility, we rated it at a 4.</p>	 <p>Though all our solutions are easy to use, Aryn is right that our users may not like exchanging clothes or wearing others clothes. So we decided to rate its usability at 3.</p>	 <p>Aryn suggested rating keychains and dolls as low. People will lose interest quickly and it will not work for a long time. The team felt the same and rated sustainability as 2.</p>	 <p>I thought creating an awareness is an effective solution but Shama made me realize that not everyone might listen to us to take action. And hence, we decided to rate it at a 4.</p>

Rate the solutions you found on these criteria from 0-5. 0 being the least and 5 being the most. Just like you used PEAK to select your final problem, you can use FUSE to select your final and best idea.

Solution and Description	Feasibility How effectively can it be implemented? (time, cost, materials)	Usefulness Will users find it useful?	Sustainability Will the solution last long?	Effectiveness Is it helping achieve the desired state in the problemstatement?	FINAL SCORE Total added score

You can use the internet, talk to your teachers and find out if your idea is new or better than what is already there!

# WHOM TO ASK FEEDBACK?

The team had found a solution to taps leaking in their bathrooms.

Let's see who gave feedback for the team on their solution and helped them make their selected idea better..

Feedback helps to make your idea better. Think of people who can give you some feedback !



## PEOPLE CLOSE TO YOU WHO FACE THE PROBLEM



Let's get feedback from our classmates first? They use the taps daily just like us.



## PEOPLE WHO FACE THE PROBLEM AND HAVE MORE INFORMATION



Let's talk to our teachers. They have been here for a long time and must have seen the problem and other solutions before.



## PEOPLE WHO CAN SOLVE PROBLEMS LIKE THIS

2



We can get feedback from other people who are part of the school. Like our watchman uncle, our school helper, or plumbers!



## PEOPLE WHO CAN MAKE DECISIONS ABOUT THE PROBLEM AND SOLUTION



Don't forget our School Principal! They can tell us about the difficulties in implementing our solution.



Remember Thato's solution of Schools bags with Solar lamps for students in areas with electricity shortage?

Think of atleast 5 people she could have talked to for feedback when she thought of the idea at first!

Now think of people who can give feedback for your own solution!

# FEEDBACK AND REFINE

32

SELECTED IDEA:

TITLE OF YOUR IDEA:

(Think of a nice name  
for your idea)

Write down the feedback you got for your idea and how you'll use them to improve the solution.



## USER FEEDBACK

Whom did you speak to?  
What did they say?



## IDEA IMPROVEMENT

What will you change in your idea,  
will you add or remove anything?


\*Create your own table and Add more columns if needed

## PHYSICAL PROTOTYPES

VS

## MOCK UPS

How do you choose between Physical and Mock-up Prototype?

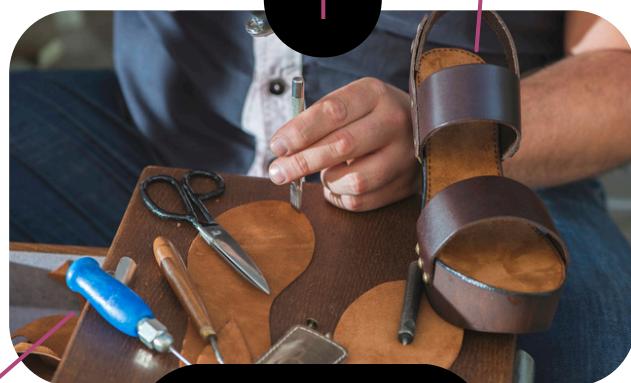
Let us look at 2 prototyping methods of ideas we have seen so far and how they decided on the prototype

Real materials can be used in physical prototype as they are affordable and easily available



1

Used when prototyping can be made as per real size or function



**PHYSICAL  
PROTOTYPE**



Is used to test usage and functions with users. You can test comfort, usage, ease to handle in different terrains etc.

Other materials that are easily available and not costly like cardboard, clay etc are used instead of real material that are costly



2



**MOCK UP**

Used when prototyping cannot be made as per real size or function (real idea may be big)

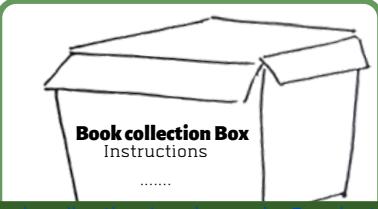


Is used to show the look, design and style of an idea to the users when it is not necessary to show its functions.

Each prototype method has its own advantages and disadvantages. Similar to the above examples, we must choose the prototype based on resources and the parts of the idea we want to test and get feedback on !

**STORY BOARDING****VS****ROLEPLAY**

In Story Boarding you draw rough sketches



A book collection box is made. Few instructions will be added on the box like 'Drop books that have unused papers'

On different panels show how process or product based ideas will be used or how it works.



Once the box is filled, unused paper will be taken and same sized papers will be put together.



Act out or use dialogues to show situations how the solutions will work/be used. Use props or materials where needed.

**STEPS TO FOLLOW :** Story board and Roleplay have similar first steps. You think of a story where you show how the solution is used. In storyboard you draw it out and in roleplay you act it out.

1.Think of situations where your idea will be used and develop a story.

2.Split the story into different pieces

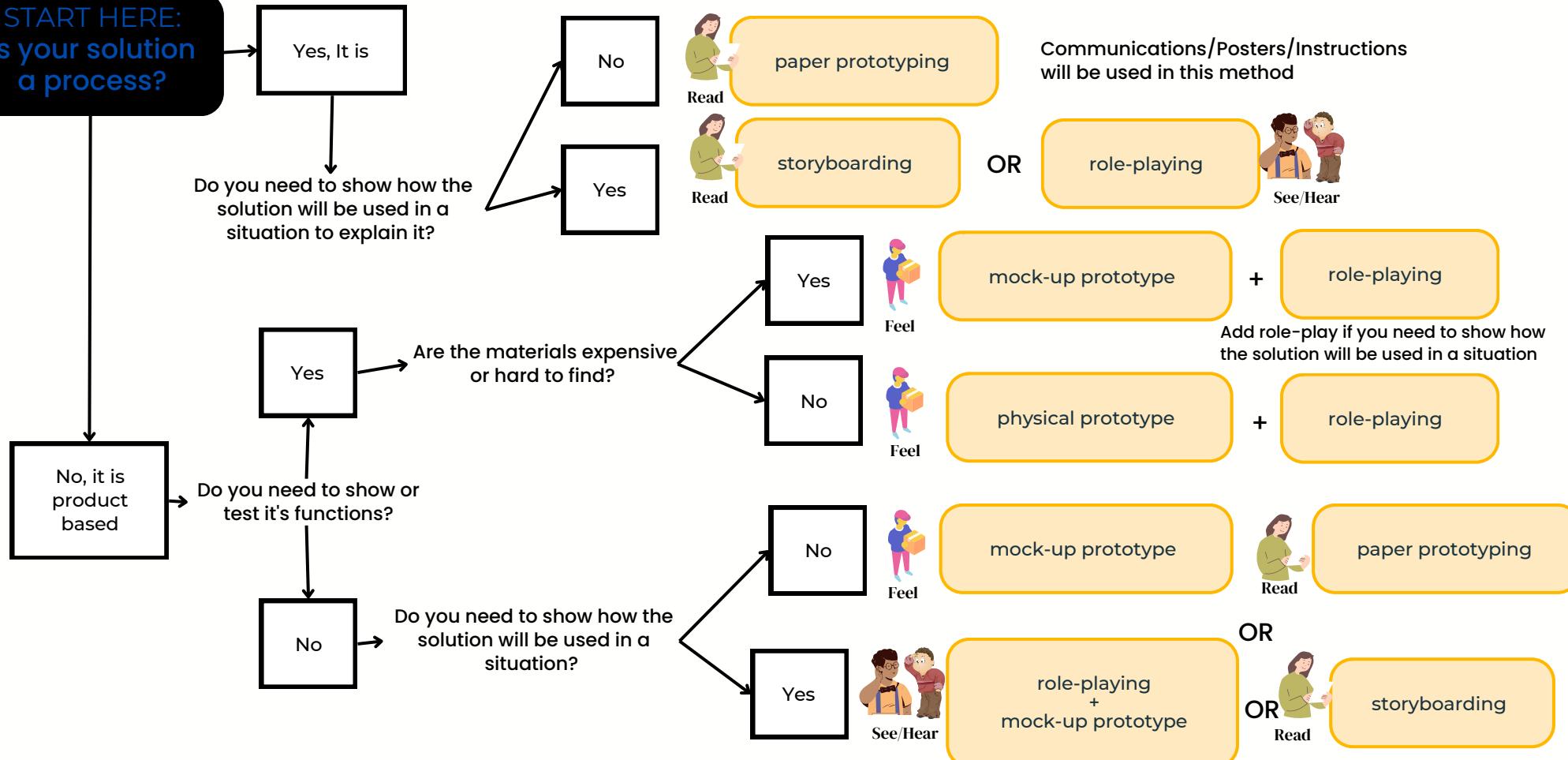
3.Add different dialogues and characters based on how the solution might be used.

These prototypes methods are mostly used if the solution is a process. You can also use it if you want to show others how a solution works in a situation.

# CHOOSING THE BEST PROTOTYPE METHOD

Use the following question map to find out the best prototype method for your solution.

**START HERE:**  
Is your solution  
a process?



Discuss and tick the prototype method you want to use in order to test your idea.

Idea title :

physical prototype

paper prototyping

role-playing

storyboarding

mock-up prototype

Look at the physical prototype given below. The prototype was made to check if it will work properly.

1. Discuss and make a list of materials or any support from people or permissions you might need to make and test the prototype.



Tools and Materials

People and Permissions

Think about your own solution. Discuss and make a list of materials or any support or permissions you need to make your own prototype.

Tools and Materials

People and Permissions

Other things to keep in mind

Remember YOU CAN USE SIMPLE MATERIALS like CHARTS, PENCILS, PAPER and other things in your surroundings to make a prototype.

Next few days you can spend on making your prototype !

Write down the user you will be testing with.

After testing and feedback, tick the changes you want to make to each solutions

			
Who are you testing with?	What do they like?	What do they not like?	How can you improve/change your solution

# 6

## Things to do after USER TESTING

Different people will give you different ideas and feedback. Let's see how can you use them?



1. Go through the feedback given for your solution by different stakeholders as a team.



3. At times, you might get suggestions that make you feel bad. Take it as a learning to improve your idea rather than getting disappointed.



2. Discuss with your team and decide on what are all suggestions you want to use from the feedback to improve your idea.



4. If you need guidance, seek help from your teacher/mentor on how to use the feedback.



5. Now, decide whether you want to make changes to your existing solution or think of a new solution altogether.



You are almost ready with your final solution. Now you can submit your final idea!

# FINAL IDEA SUBMISSION

Tell us about the problem!

1.Which Sustainable Development Goal (SDG) are you targeting with your solution? \_\_\_\_\_

2.Think about your team's final problem statement. ( Remember that your problem statement Should have the current state, cause and effect of the problem and a desired state(goal)).

a.Write down the Current State and Desired State related to the problem.

b.Write down the Effects and Causes of the problem.

3.Which of the problem finding techniques were difficult to use. (Tick)

- a. Observation
- b. Interview
- c. Experience
- d. Research

4.Which of the following activities/ techniques did your team use to EXPLORE the problem deeper(you can tick multiple options)

- a.Problem Tree
- b.Why's Techniques
- c.Mind map
- d.Stakeholder Map

## Tell us about how you found the problem

5.Which of the following activities / techniques used to EXPLORE a problem were difficult to do and took a lot of time. (tick all that apply)

- a. Problem Tree
- b. Why's Techniques
- c. Mind map
- d. Stakeholder Map

6.What did you feel/think after talking to stakeholders (tick all that apply)

- a. Learnt something new about the problem
- b. Realized we made some wrong guesses/assumptions about the problem
- c. Felt confident about solving the problem
- d. Did not talk to stakeholders

## Tell us about your solution and how you found them!

1.Title/Name of your team's idea (Not more than 100 characters)

2.Wrtie your teams idea/solution for the problem identified above. Give as much as detail possible and explain your solution clearly. (not more than 3000 characters)

3.Which of the following IDEATION TECHNIQUES did your team make use of to come-up with a solution?  
(You can choose multiple options)

- a.First - Idea Crazy Idea
- b.Open Brainstorming
- c.What - If Technique
- d.Role - Storming

4.Which of the following IDEATION TECHNIQUES were difficult to use/took a lot of time while thinking of solutions?

- a.First - Idea Crazy Idea
- b.Open Brainstorming
- c.What - If Technique
- d.Role - Storming

Tell us about the feedback and prototype of your solution!

1.Mention at least one feedback that your team found most helpful in creating the final solution to your problem (not more than 500 characters)

2.Pick actions that your team did in your problem solving journey (you can choose multiple options)

- a.We did the full problem solving journey by ourselves
- b.We got feedback on our problem
- c.We got feedback on our idea
- d.We got feedback on our prototype

3.Which Prototyping Method did you choose to test your solution? (You can choose multiple options)

- a.Physical Prototype
- b.Mock-Up Prototype
- cStoryboard
- d.Role-play
- e.Paper Prototype

4.Add images/sketches of your prototype (you can add videos on the platform)

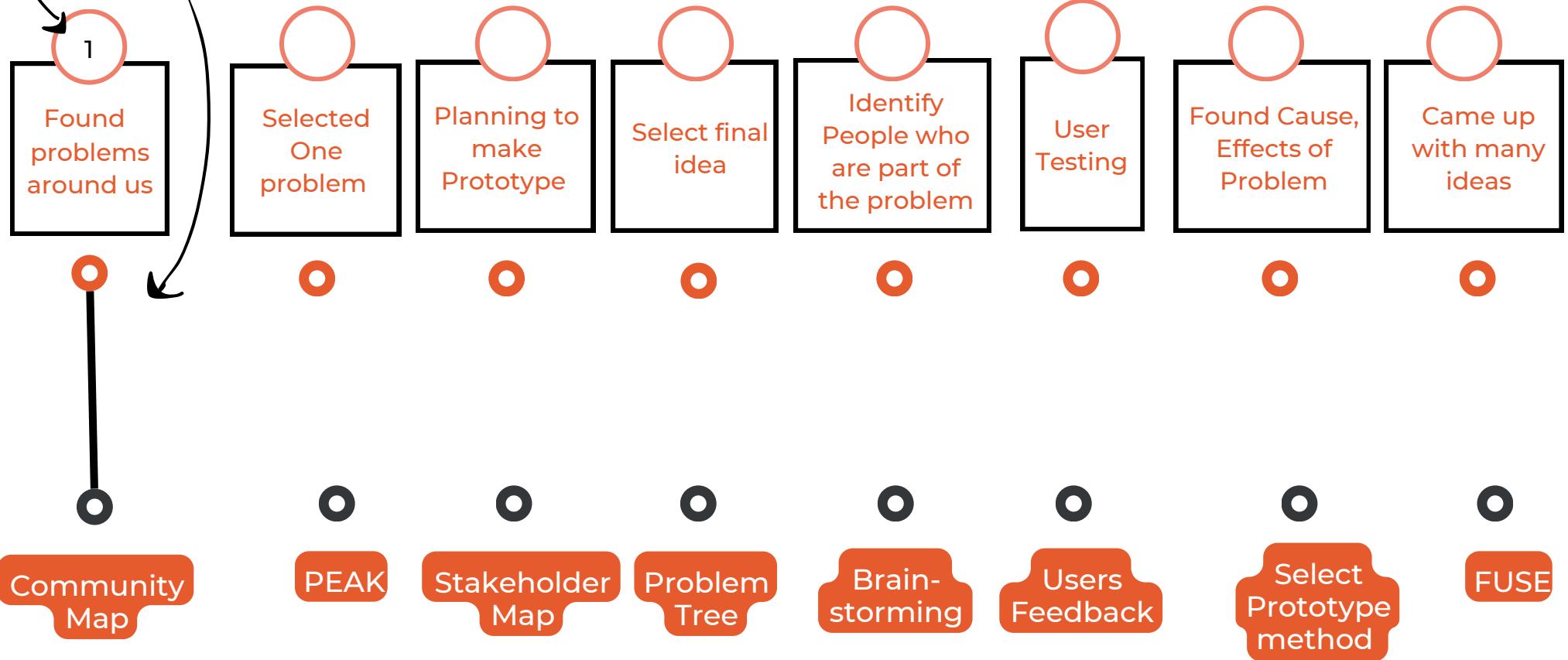
5.What are the materials you'll need to make a working model of your solution?

6.Did your team complete and submit the workbook to the SIDP guide teacher?

- a.Yes
- b.No

There are many stages to solve a problem! Let us recall the steps once again.

- 1.Number the steps below in order according to your understanding of a problem-solving journey.
- 2.Connect the different steps to the keywords below.



An idea goes through many stages before it becomes an effective solution to a problem!

**CONGRATULATIONS!**

You have just finished the course!

As a team you found a problem and gave ideas to solve it!

Take a minute to think about how you feel and what you liked about the course. Discuss and write as a team.

**1.Things you liked about the program**

Write here

**2.New things you learnt in the program**

Write here

**3.Things you didn't like in program**

Write here

**4.Things you will continue to do.**

Write here

Remember you had found your strengths and circled what you wanted to learn from your teammates in pages 8 & 9

1. Write down if you improved any of your strengths.

Add your names and your thoughts

2. Write down if you learnt any new strengths.

Add your names and your thoughts

#### Sources used in workbook :

Sustainable Development Goals, Pg (#5) : <https://sdgs.un.org/goals>

Flash Forest, Pg 6 - <https://flashforest.ca/tech>

Smart Pills, Pg 6 - <https://www.jamesdysonaward.org/en-IN/2023/project/smарт pills/>

Thato's School Bag, Pg 4 - <https://africa-me.com/thato-kgatlhanye-upcycled-solar-powered-schoolbags/>

Room To Read, Pg 10 - <https://www.roomtoread.org/>

San Diego Zoo, Pg 10 - <https://zoo.sandiegozoo.org/tickets>

Amazon, Pg 10 - <https://www.designyourway.net/blog/amazon-logo/>

Riya's Smart cane, Pg 11 - <https://www.cbc.ca/news/canada/toronto/smart-cane-company-1.480671>

Small Acts, Pg 2- <https://www.tonerbuzz.com/blog/deforestation-facts-and-statistics>