

# WHAT IS GLOBAL WARMING

Irresponsible human activities around the world have led to increase in pollution, waste and overuse of natural resources. As a result, our earth's climate is changing and temperatures are rising. Leading to Global warming and many man-made disasters.



How can we go from 'What I SEE' to 'What I WISH to see'?  
Let's follow Farah and her 10 everyday actions to reduce global warming.



While bathing and brushing, she **turns off the tap when not needed and tightly shut the taps after use** to avoid dripping. This saves water and the electricity used to fill water tanks.



For any waste and broken things, she thinks of other **creative ways to reuse** it. She recently used old plastic bottle for growing plants at home.



She **cycles to work** to reduce pollution and not waste fuel. It even reduces traffic jams!



She goes to the shop **using public transport** – public buses and trains to reduce pollution and wastage of fuel.



At work, she makes sure to carry the right amount of food so that she **doesn't waste food**. She shares excess food with her friends.



While shopping, she carries **paper bags or cloth bags instead of buying plastic bags**.



At work, she makes sure to **switch off unused lights, fans and other appliances** to not waste electricity.



When she gets time, she **plants trees** in her neighborhood. They reduce pollution and gives shade from heat. She loves sitting under them!



She **carries her own water bottle and refills** water to not produce single use plastic waste.



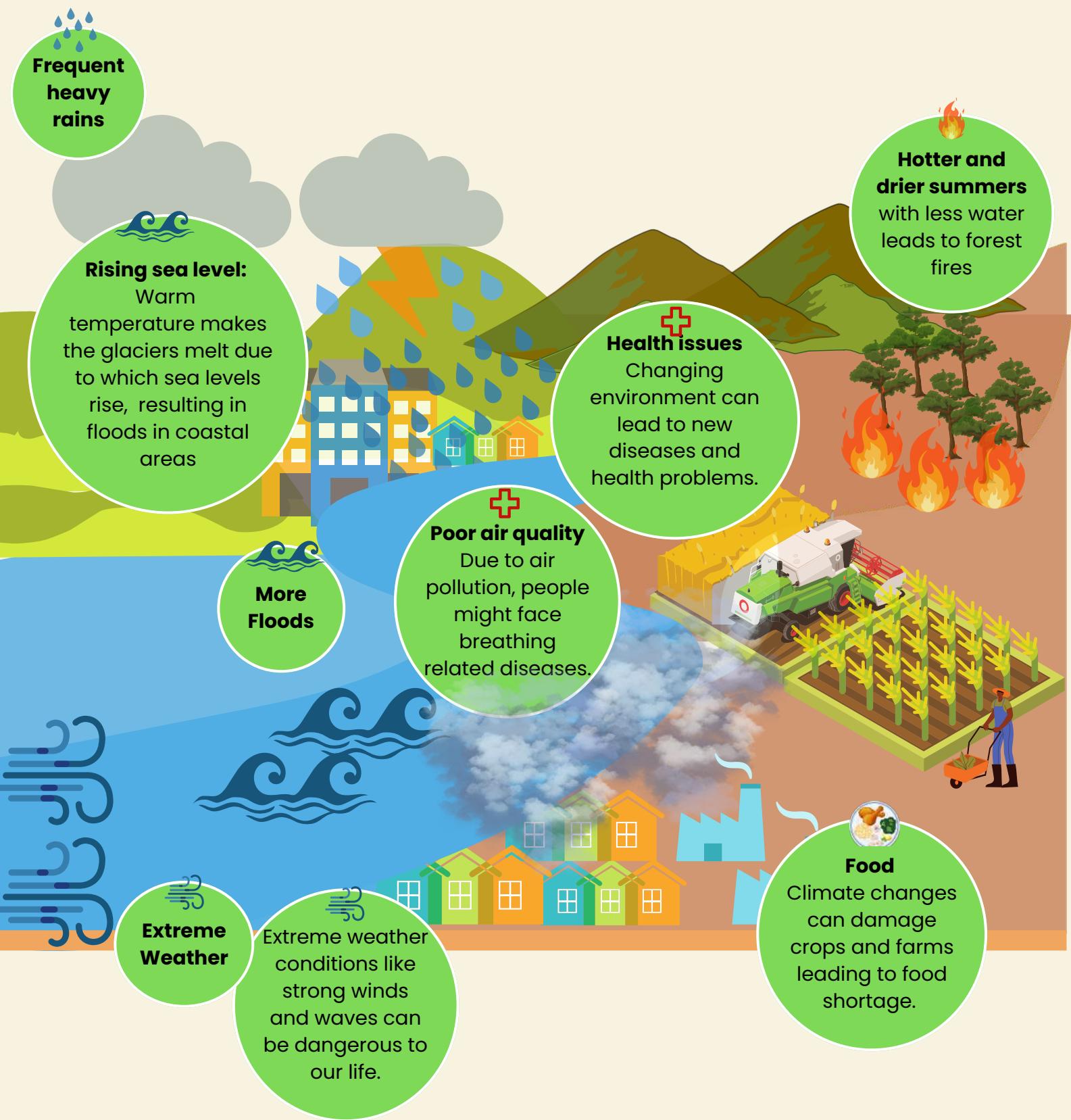
She **talks to her friends and family about** the actions that can be taken to prevent global warming.

# EFFECTS OF GLOBAL WARMING

Have you thought of what would happen to us because of Global Warming?

It can harm our planet, life and future.

Let us look at the effects of Global Warming on our life.



## LET'S MEET SOME PROBLEM SOLVERS!

Every time you find a solution to a problem, big or small, you become a problem solver! Here are a couple of student teams just like yours, who tried solving problems in their surroundings. Let's read about them!

1

### MULTI PURPOSE BAGS

#### What is the Problem?

Students Rajesh, Abhishek and Venu from Telangana, India (in the picture below) found that farmers and workers in the fields do many kinds of work in the fields at the same time, like plucking cotton, chilly, vegetables, fruits and also spraying fertilizer in the field and find it difficult to do it together.



#### How did they solve it?

The made a Multipurpose Bag for Agricultural Utility (MBA). It is a low-cost solution, designed for farmers to do various physical works. The bag has multiple pockets to carry the relevant tools, collect cotton, chilly, vegetables or spray fertilizer using the pipe attachment. Shoulders are padded with sponge to make the user experience smooth.



2

### WASH BASINS FROM WASTE

#### What is the Problem?

Students found that old water cans are a major part of plastic waste.



#### How did they Solve it?

They recycled the old water can by cutting them and making them into water basin that could be used in their school.



**Time to get INSPIRED!**

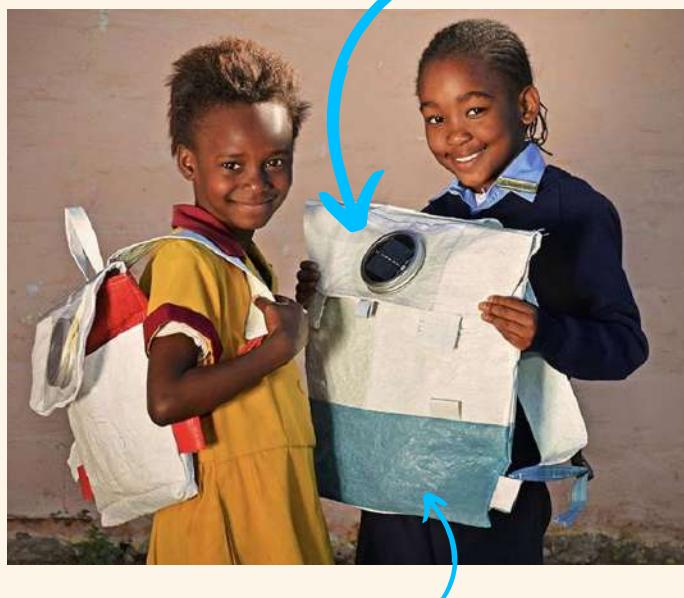
## LET'S KNOW MORE ABOUT SOCIAL INNOVATION

**Social Innovation** is a new idea to solve a problem faced by a group of people that makes the life of people better

Let us get to know about 2 young innovators who inspired us with their social innovation!

1

Solar Light that gets charged in sunlight while walking to school



This is Thato, a student from South Africa. She makes schools bags out of old plastic bags. These bags have a solar lamp as well. It gets recharged by the sunlight and provides light to study!

In their country, electricity is not always available. Through this innovation, she made use of plastic bags and turned them into lights. As it is useful for many people, her solution is a Social Innovation!

2



Riya Karumanchi, from Canada, saw her friend's grandmother, who was blind, found it difficult to walk using normal walking stick alone. So Riya innovated and made the normal walking stick better by making a device called the Smart Cane.

Smart Cane is an innovative walking stick for people who are blind. It vibrates to alert its user of any obstacles, wet surfaces, has a GPS navigation to give directions in audio and an emergency button to send out help signals, in case of danger.



Time to get INSPIRED!

# SUSTAINABLE DEVELOPMENT GOALS

**Goal  
1**



## End Poverty

No one should suffer because they have less money.

**Goal  
2**



## End Hunger

No human should ever suffer because of lack of food.

**Goal  
3**



## Health and Well Being

A healthy world free of diseases.

**Goal  
4**



## Quality Education

Every child in the world has the right to good education.

**Goal  
5**



## Gender Equality

A world where every gender gets equal respect and is given equal opportunities.

**Goal  
6**



## Clean Water for all

Clean water to drink and clean themselves and improve public health

**Goal  
7**



## Affordable and Clean Energy

Clean Electricity in every home, every day, without pollution.

**Goal  
8**



## Decent Work for all

Jobs for everyone to take care of themselves and better their life

**Goal  
9**



## Innovation to benefit all

Modern and safe technology for development of all.

**Goal  
10**



## Reduce Inequality

Help and support people who don't have equal opportunity.

**Goal  
11**



## Safe cities and surroundings

Build communities that are safe and harmless to both people and the planet.

**Goal  
12**



## Responsible Usage

Careful usage of resources and products to avoid unnecessary waste creation.

**Goal  
13**



## Stop Climate Change

Everybody does what they can to stop climate change caused by human actions.

**Goal  
14**



## Protect the Ocean

Working together to keep the seas and oceans clean and life under water safe.

**Goal  
15**



## Life on Land

Earth is the only home for a lot of animals and living things. Take care of them.

**Goal  
16**



## Live in Peace

No fights, No crimes. Peaceful solutions to problems, fights and crimes of all kind.

**Goal  
17**



## Work Together to reach goals

Educate people about these goals and work together to complete them.



# WAYS TO ACHIEVE SUSTAINABLE DEVELOPMENT GOALS

You must have noticed that SDG's focus on making people's lives better and protect our planet. Let's look at some of the actions that we can take to achieve the SDG's concerned about people and planet.



## 5 GENDER EQUALITY



Boys and girls should equally participate in household work.



Learn to work along with both boys and girls. There is a lot to learn from each other!



Encourage girls to participate in sports.

## 3 GOOD HEALTH AND WELL-BEING



Getting 8–9 hours of sleep daily keeps you healthy.



Limit yourself from watching TV or mobile phones for a long time.



Play sports and stay fit to be healthy

## 13 CLIMATE ACTION



Avoid burning plastic waste.



Take part actively in cleaning up your school or community spaces.



Make your parents and friends aware about global warming.

## 15 LIFE ON LAND



Trees are home to a lot of animals and birds. Take care of plants and trees around you.



Plastic waste is a threat to birds and animals if eaten up by them. Don't litter.



Don't harm animals and birds. Speak up against animal cruelty.

Taking care of both planet and people is important. Each one is depended on the other!

# EVERYDAY PRACTICES TO LEAD A SUSTAINABLE LIFE



## Repair and Reduce

When something is broken or damaged, repair and use them. We can avoid buying new things and producing excess waste.



Oh no! I torn my shirt. Now I have to buy a new one



Small tears are repairable. With the help of a tailor, get it stitched. You can reduce wastage. Also save money!



## Recycle and Reuse

Use old and unused items to create something new. It will lead to lesser waste and less usage of resources.



Oh no! I need to buy new notebooks for rough work!



Check if you have unused empty pages in your old notebooks. You can use them to make a rough notebook instead! You'll save trees!



## Responsibly using resources

There are limited resources on planet. Using them wisely and without wasting is important.



Oh no! Water is limited at home and there's not enough to water plants!



Don't worry. Make sure to turn off taps. Collect rainwater and kitchen waste water to water plants!



## Using environment friendly things

Some things can be harmful for the land, air and water. By using things that are environment friendly we can reduce harmful waste.



There are so many plastic bags at home. It keeps increasing!



Reuse the old plastic bags you have. Avoid buying more plastic bags instead carry your own cloth bags or recycled bags



# WHAT CAN WE DO TO REDUCE INEQUALITY?

Reducing Inequality is important so that everyone can grow better together and no one is left behind! Here are a few steps you can take to reduce inequality.

## DONATE

Donate books and clothes in good condition to those who cannot buy it.



## SHARE

Share your books and stationery with your classmates who don't have them



## HELP

Help those in need. Elderly people, differently abled and younger children may need your support.



## RESPECT

Different people may speak and dress differently. Respect every culture. You can even learn more about their culture!



## INNOVATE

Create better solutions to make life easier for those in need like the differently abled and elderly people.



Natural Bamboo Flower Pots



Magnetic Buttoned Shirt for handicapped

# WHEN DOES SOMETHING BECOME A PROBLEM?

3 QUESTIONS IS ALL YOU NEED TO ASK!



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

Earth has very limited resources. We, as humans have the duty to protect them for our future. Overusing of resources, polluting water, land, air or any other such resource will cause threat to our life on the planet.

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

Living beings include not only humans, but plants and animals as well. All of them are dependent on each other for survival. It is necessary to create a safe environment for all of us to live together.



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

Treating a group of people differently and denying them of chances will cause difficulties in their life. Including everyone is important to create an equal, fair society so that all of us can lead a happier life.



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 !

## I SEE – I WISH

Look at the Problem Solvers below and their I SEE – I WISH statements.

1

Tenith found that a lot of plastic waste was being created when using disposable containers, plates and cups. Let us look at his I SEE – I WISH statements.

### I SEE

**I see** a lot of plastic waste lying around – bottles, containers, spoons and plates thrown away.

### I WISH

**I wish** we didn't have to use so much plastic and could avoid making so much waste.



2

2

Riya saw that her friend's grandmother who was blind found it difficult to go around using normal walking stick. Let us look at her I SEE – I WISH statements.

### I SEE

**I see** blind and old people having difficulty in walking using normal walking stick

### I WISH

**I wish** it was easier for old blind people to walk around without others help.



To achieve her I WISH statement, Riya created the Smart Cane vibrates to alert its user of any obstacles, wet surfaces and other hazardous situations on their way.



To achieve his I WISH statement, Tenith came up with the solution to use banana leaves to make cups, plates etc in order to stop the production of plastic materials.



## VIDEO 2

**HOW TO FIND A PROBLEM****USING INTERVIEWS****Start with an introduction**

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

**Decide on your role**

Take up a role in conducting the interview. Eg - asking questions, taking notes, listening to conversations.

**Be prepared**

Discuss and prepare a set of questions. Keep it ready to conduct the interview better.

**Thank them**

Remember to thank people for their time and participation in the interview.

**Stay focused**

Pay attention to people while they are talking to you. Ask them further questions to understand it better.

**Ask questions**

Here is a list of questions that you can refer to. Feel free to frame your own questions as well for the interview.

**To know about the person**

What is the kind of work / job that you do?  
Any challenges in staying in this area or community?

**To know about the problems**

Why do you think such problems arise?  
How does it affect everyday life of people?

**To know about home/community**

Is there anything that you wish your home/ community had?  
What is it?  
Why do you think so?

**HOW TO FIND A PROBLEM****USING RESEARCH****Collect information**

Newspaper articles, magazines, pictures and videos can help you know about the problems.

**Take notes**

Noting down the important points will help you in compiling information at the end.

**Search online**

Ask for help from your teacher / mentor on how to do google search.

**Always keep an eye for information**

Watch News, read newspaper regularly to stay aware about problems in your surrounding.

**Use reliable sources**

Take help from elders to identify reliable and safe websites. Not everything on internet is correct! Magazines, Journals are also reliable sources.

**Decide on what to search for**

Decide what you are searching for. Avoid clicking unnecessary links (pop-ups).

## HOW TO USE YOUR EXPERIENCE TO FIND PROBLEMS

**Your experience is as old as you. You have seen a lot of problems already.**  
**Don't believe? Let's have a look !**



### Think about your home.

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

*Eg: I can't sleep properly at night because there are a lot of mosquitoes.*



### 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.

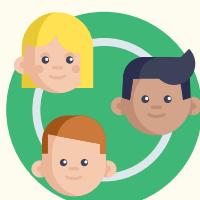
*Eg: When I go to the park, there are no dustbins to throw waste.*



### Think of everyday activities that you do

Your day starts by getting up, going to school and many other activities. Recollecting your activities in a day can help you remember problems you face.

*Eg: When going to school, my school bag is very heavy and I get back pain.*



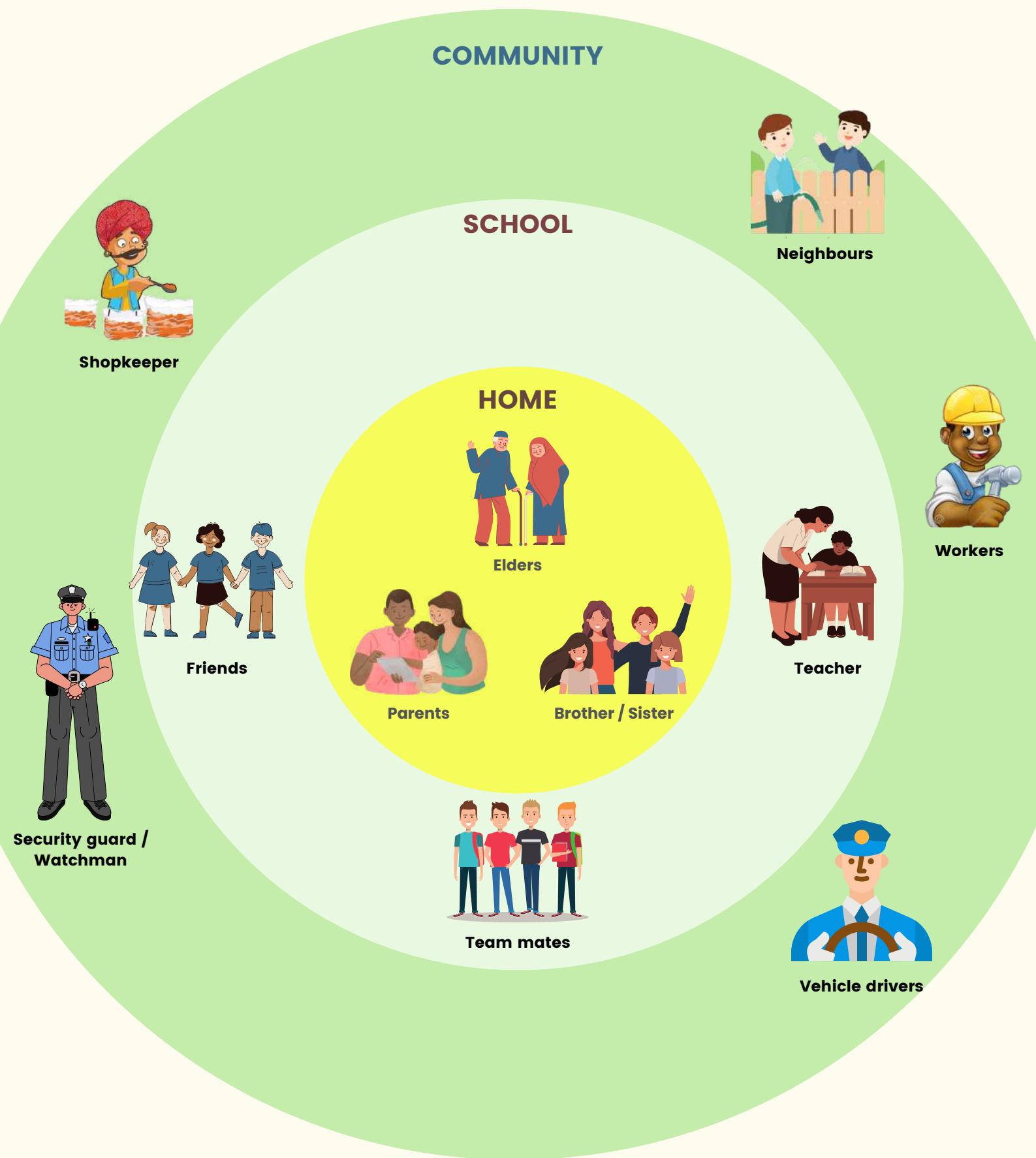
### Think of different people you interact with

Meeting new people will give you new experiences. Think of different interactions you had with different people. After your interactions, think if you have experienced any of the problems they mentioned in their interactions.

*Eg: The boys in my class talk to me rudely and don't let me play with them because I am a girl.*

## WHOM TO TALK TO ABOUT THE PROBLEMS THAT YOU IDENTIFIED?

After identifying some problems, discuss about it with different people. It would help you in choosing the problem.



And many more such people who could give you more information ....  
Go around and find them.....

## PEAK CRITERIA

You have seen how Aryn and team have used the PEAK criteria to rate their problems.

Let us understand the PEAK criteria better



### Preference



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

**You can see many problems around yourself. But few of them might be more interesting for you to solve.**

Your preference on which problem to solve first is one of the factors to be considered while choosing.

### Effect

I wanted to rate the walking stick problem higher as it affects many elder people, but Shama gave a good reason after which we lowered our rating



**Some problems may have huge impact. If they are not solved on priority, it might lead to further issues.**

Choosing problems based on their effect is important.

### 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

**You might feel more confident in finding solution for certain problems. Especially the ones which you relate yourself to.**

Your confidence level in finding solutions for a problem matters.

### 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 should have all the information about the problem chosen. Is it possible to collect it? Are you well aware about the problem?**

Knowing about the problem well makes the process of solving it much easier.

## IDENTIFYING DIFFERENT STAKEHOLDERS IN A PROBLEM

**STAKEHOLDERS** are people who are connected to our problem directly or indirectly



### DIRECT STAKEHOLDERS

Directly experience the problem. They are the target group for whom solution is being created.



### INDIRECT STAKEHOLDERS

They don't face the effects of the problem directly and might have extra information about the problem.



### OTHER STAKEHOLDERS

People who are either solving or are trying to solve a similar problem.

Let us hear from Farah how she picked her Stakeholders for her selected problem

**PROBLEM :** A lot of plastic waste is seen in rivers in my community



I identified **FISHERMEN** as one of the Direct Stakeholder  
But, Why are they Direct Stakeholders?



Plastic waste gets stuck in their fishing nets, sometimes even breaking them. Many times they also find dead fish in plastic waste in the sea.

I identified **TOURISTS** as one of the Indirect Stakeholder  
But, Why are they indirect Stakeholders?



I found that a lot of tourists visiting the place are throwing plastic waste on the ground. I wanted to understand why they buy so much plastic

I identified **PEOPLE CLEANING PLASTIC WASTE AT SEA** as one of the other Stakeholder  
But, Why are they indirect Stakeholders?



There are some volunteers (social workers) who pick plastic waste from the sea. Since they are already trying to solve the problem, I wanted to understand from them what else can be done.

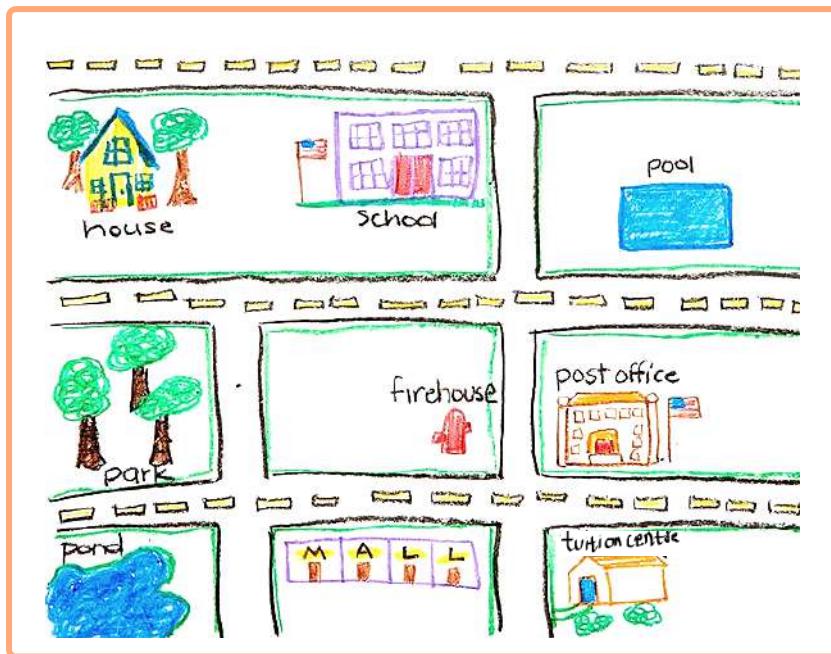
## IDENTIFYING STAKEHOLDERS FROM A COMMUNITY MAP

Let us look at an example problem

Amir observed that **Children carry heavy school bags, which is leading to back pain for them.**



Let us help Amir in identifying stakeholders for the problem using the community map



There are **three** simple steps in identifying stakeholders

### Step 1



**On the community map, identify places where your problem is occurring.**

This problem can occur in all those places where children carry their bags. Look at the community map carefully, and we can see 3 such places:

- School
- House
- Tuition Centre



Children are seen with their bags in all these places

### Step 2



**Make a list of the people who are connected to these places.**

- |                  |   |
|------------------|---|
| • School         | : Teachers, Other Children, Non-teaching staff, Principal             |
| • House          | : Parents, Brothers, Sisters, Neighbouring children and their parents |
| • Tuition Centre | : Tuition teacher, Children from other schools                        |

### Step 3



**Identify people who are connected to your problem and group them into different types of stakeholders**

For Example,

- |  |   |
|--|---|
| • Other students                         | : They are directly suffering from the problem    |
| • School and Tuition teachers, Principal | : They can help in reducing the load of books     |
| • Parents                                | : They might be interested in solving the problem |

## STEPS TO BUILD A MIND MAP

In your problem solving journey, creating a mind map is an important step. Building a mind map involves a lot of steps and sometimes can be confusing. Follow the below 5 steps on how to build your mind map.



**Write:** After you select the problem that you want to solve, write it down.



**Identify stakeholders:** Around the problem, write down all your stakeholders who are connected to the problem.



**Identify places:** Also, write down if there are any new places you identified where this problem is occurring or this problem is creating an effect.



**Draw links:** Then draw a link between these stakeholders and places to the problem.



**Identify Actions:** On the link, identify and make a note on the actions that are connected to the problem.

Pay attention to all stakeholders. Some stakeholders are contributing to the problem, some are affected by the problem and some are involved in the problem.

Pay attention to all places. In some places, problems are occurring and some places are affected by the problem.

Understand your stakeholders deeply – some of them are knowingly contributing to the problem while some of them might be unknowingly getting affected by the problem.

## HOW TO TAKE INTERVIEWS TO UNDERSTAND YOUR PROBLEM DEEPER

Remember? You had taken Interviews previously to **FIND** problems in your community.

Well! You can take interviews once again to **EXPLORE** your selected problem much deeper. Let us look at a few things to prepare for this Interview !



Using your Mind-Map,  
make a list of the stakeholders you want to  
Interview.

- 1 =
- 2 =
- 3 =

Make sure your list has atleast one direct,  
indirect and other stakeholder each.



Prepare for different questions to ask for each of  
these stakeholders.



Remember that some questions  
can be common for all stakeholders



Also, if needed, add questions  
while you are talking to them.



Before returning from your interview, think  
whether you got all the information needed.

## UNDERSTANDING THE DIFFERENCE BETWEEN INTERVIEWS IN FIND AND EXPLORE STEP

### FEEL & FIND INTERVIEW

VS

### EXPLORE INTERVIEW

Interview is taken to ask people about different problems they are facing



Interview is taken to know in detail about the particular problem chosen.

You can Interview anyone you feel will help you find problems



You interview the stakeholders identified to understand the problem deeper.

Your questions are designed to help people think about the surrounding problems and hence the questions can be same for everyone.



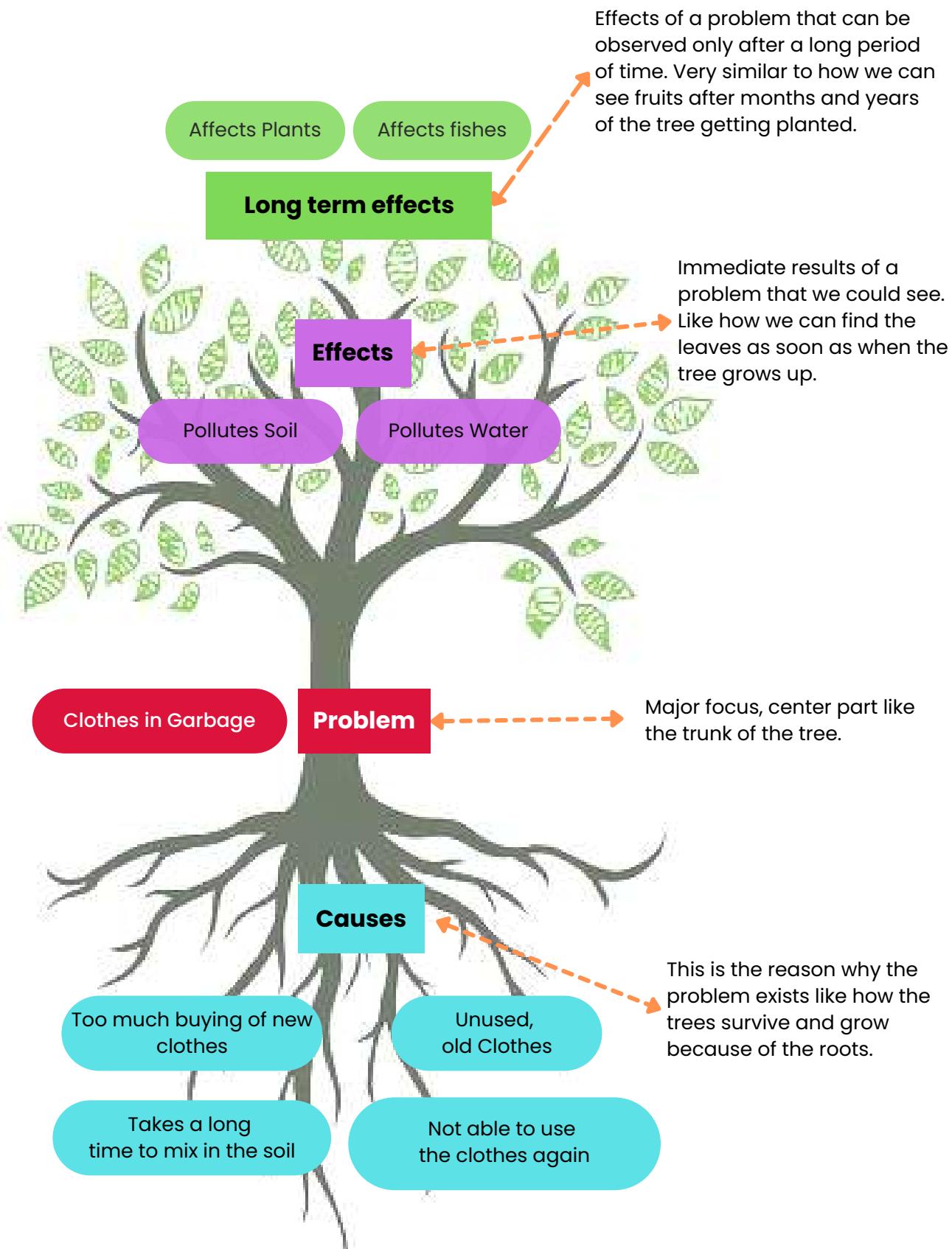
You may have to design different questions for every stakeholder, as each of them may have different information about the problem you identified.

Discussion is not around solutions but is around problem identification

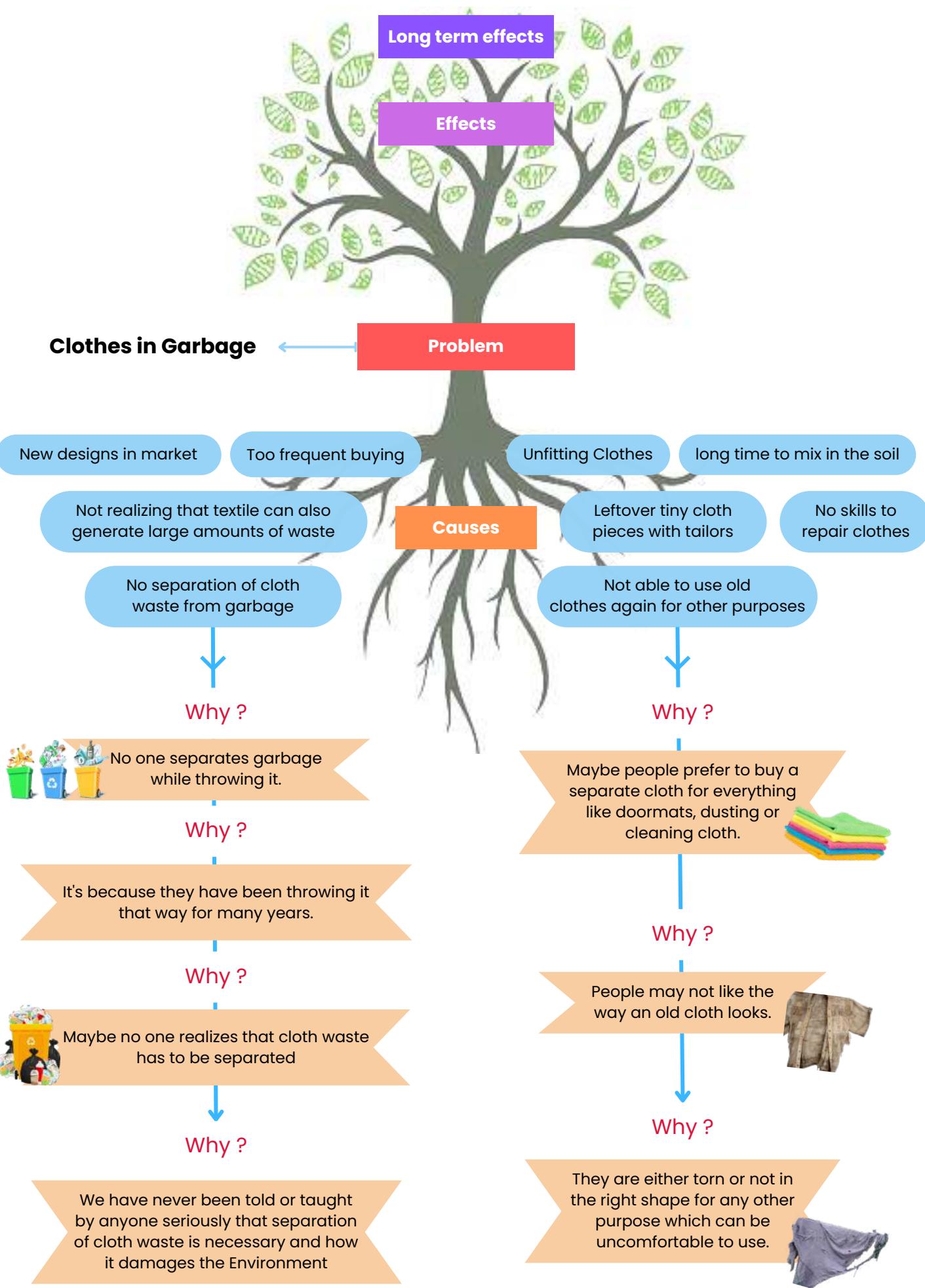


You discuss with stakeholders also to find out if they are aware of any existing solutions and their effectiveness

## UNDERSTANDING PROBLEM TREE

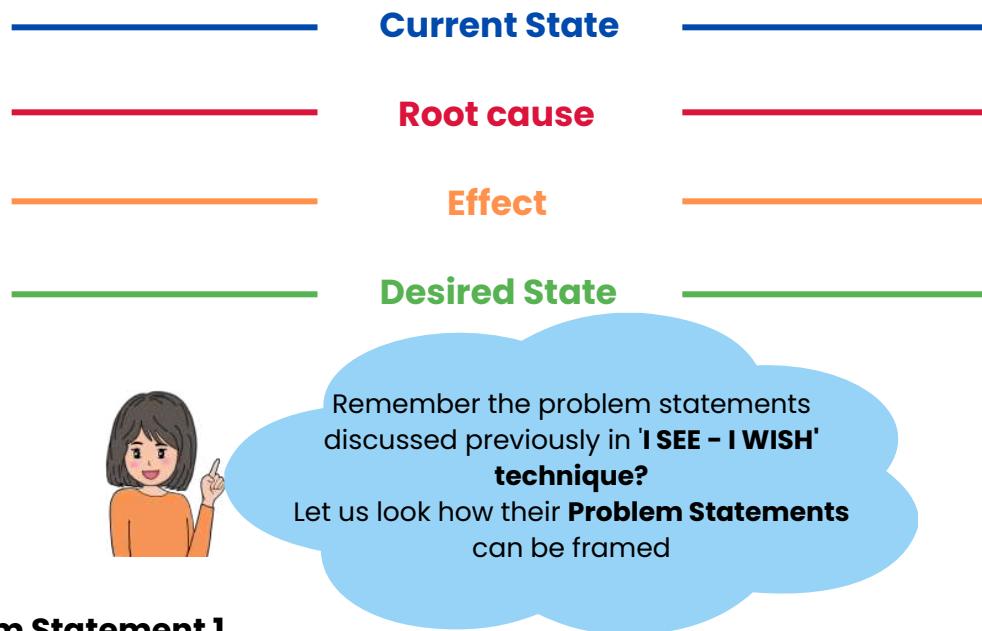


## HOW TO USE 'WHY'S' TECHNIQUE



## WRITING A PROBLEM STATEMENT

A problem statement has four important components in it



### Problem Statement 1

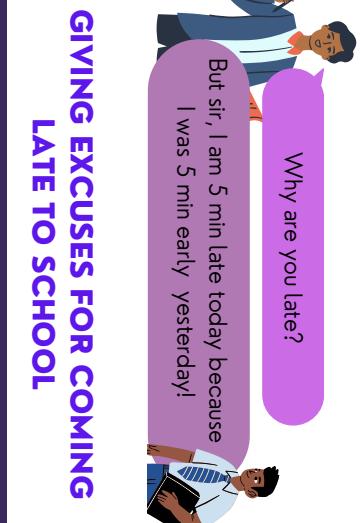
A lot of plastic wastes being thrown away is a problem caused by the usage of single use plastic items like plastic bottles, spoons, containers etc. This can lead to piling up of plastics on the water bodies and the land, affecting the environment. Avoiding plastics by opting for Eco-friendly materials will help us address the problem.

### Problem Statement 2

People are facing difficulty while walking using the normal walking stick. This is a problem caused by the lack of special features and technology in the walking stick. This can lead to them becoming more dependent on others to move around. Old aged and blind people being able to walk around on their own comfortably without much help from others will help us address the problem.

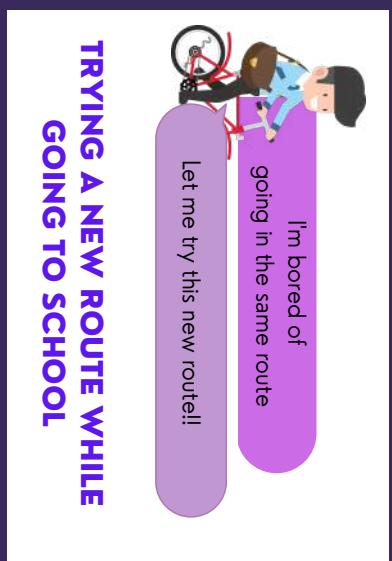
# HOW CAN YOU COME UP WITH CREATIVE IDEAS?

Think if have you ever done the following



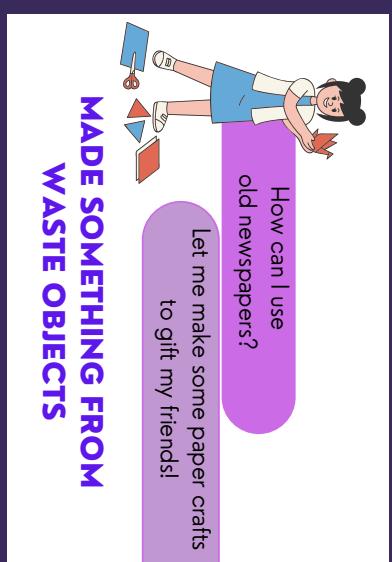
Why are you late?  
But sir, I am 5 min late today because I was 5 min early yesterday!

## GIVING EXCUSES FOR COMING LATE TO SCHOOL



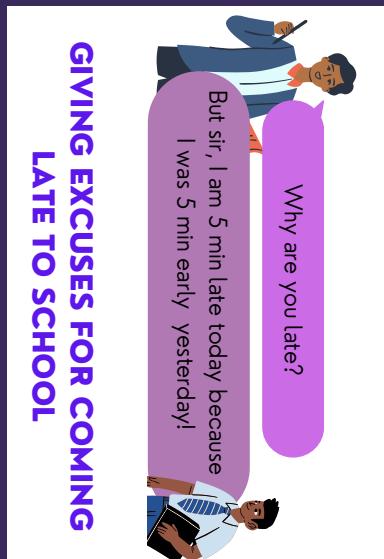
I'm bored of going in the same route  
Let me try this new route!!

## TRYING A NEW ROUTE WHILE GOING TO SCHOOL



How can I use old newspapers?  
Let me make some paper crafts to gift my friends!

## MADE SOMETHING FROM WASTE OBJECTS



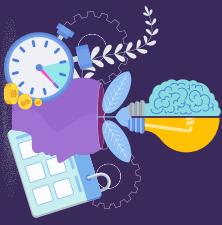
I'm bored of going in the same route  
Let me try this new route!!

Creativity is all about thinking different and trying new things. And we all love that!

A few simple tips can help you get more creative

### 1. KEEP YOUR IDEAS FLOWING

Ideas are like books. The more, the better. Don't stop with one. Two is better than one and ten is better than two, and your brain can think of more than a just few!



### 2. KEEP LOOKING AROUND YOU

If you keep your eyes, ears and mind open. Sometimes, simple things we see around us can inspire great ideas



### 3. KEEP DEADLINES

keep the clock ticking while you keep your ideas flowing. Challenge yourself to think in limited time and see the wonders your brain can do!



### 4. PARTICIPATE IN ARTS

Draw and paint, sing and dance. And you will see your ideas blooming, because a happy mind is a creative mind!



Your mind NEVER stops working. It produces 70,000 thoughts each day! If you keep your brain active, you can think differently and creatively.



## **IDEATION TECHNIQUES: Bring out the different ideas in you**

One day, Sohail observed that many students in his school are not closing the water taps properly after use. He wanted to solve this problem and asked his friends for some ideas. Let us hear how his friends came up with solutions.



"Maybe we should put an Alarm in the tap which rings if the tap is not closed properly"



Ibrahim's idea is quick and crazy, but not a bad one!

### **First Idea- Crazy Idea**

Sometimes great ideas sound crazy and come first to your mind. Try it!

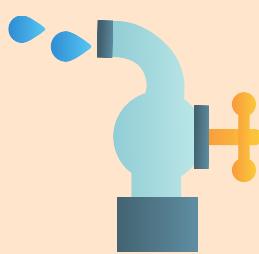


"**What if** the solution is a communication?"  
 Hmm... We can use posters to make others aware about water wastage!

Aryn asks himself a 'What if' question to help him think of a solution

### **What-if**

To find a direction to think you can put a 'What if' condition !



"But Ibrahim, the sound can create disturbance"  
 "How about fixing a machine to the tap that can automatically stop the tap when not in use?"



Adila and Aryn discussed further on Ibrahim's idea and improved it.

### **Open Brainstorming**

An open discussion with others can improve and generate more ideas.



"Oh! If I am the School Principal, I will show the students a movie about people facing water shortage and also our growing water bill. That will make them think about their actions"



Shama tries to think like their School Principle

Step in to the role of a stakeholder, and you might be able to think like them

### **Role storming**



## PRODUCT VS PROCESS BASED SOLUTIONS

### Product Based Solution



Have shoe rack with numbers assigned to lab seats so that students have to keep shoes in rack to pick a seat.

### What Is The Problem?

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



### Process Based Solution



Sticking Instructions outside the lab allowing entry only after shoes are placed in order.

Assigning a student who makes sure that everyone leaves their shoes in order

As you can see here, a problem can have both process based and product based solutions. Try to think of both the types of solutions for your problem and select the one that scores higher on **FUSE** criteria

## UNDERSTANDING FUSE CRITERIA



**Remember PEAK?**  
You used to select a Problem



**Now we have FUSE!**  
And this is to select a solution



Let us look at how Aryn and team have used the FUSE criteria and understand it better

### FEASIBILITY



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.

If something can be done easily it is called **FEASIBLE**.

When a solution requires a lot of time, cost and materials needed, then the solution is not easy to make.

### USABILITY



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.

If the people who have the problem, feel that your solution is nice and are willing to use it, then it is **USABLE**.

When a solution is something that the users like, then the usability score of your solution will be high.

### SUSTAINABILITY



Aryn suggested that we rate making keychains and dolls as low, as people will lose interest in this idea quickly. This idea will not work for a long time. The team felt the same and rated sustainability as 2.

If your solution can be implemented for a long time and does not harm the environment, then it is called **SUSTAINABLE**.

A solution that is temporarily solving a problem can not be called Sustainable. Such solutions and those that can harm the environment are rated low

### EFFECTIVENESS



I thought creating an awareness drive is an effective solution and decided to rate it 5. But Shama made me realize that not everyone might listen to us and take action. And hence, we decided to rate it at a 4.

If your solution can achieve the desired state (goal) mentioned in your problem statement, then it is an **EFFECTIVE** Solution.

Always discuss with your team about the effectiveness of your solutions before selecting. Everyone thinks different and can add value.

## WHOM TO ASK FOR FEEDBACK ?

Let's see how Sohail and his team is getting feedback on their solution to make their selected idea better..

### THINK OF PEOPLE CLOSE TO YOU WHO ARE FACING THE PROBLEM

Hey ! Why can't we get feedback from **our classmates** first? They are using the taps daily just like us

Oh yes ! And they will openly tell us what they think because they are our friends! And they will be the ones using our solution.

### THINK OF PEOPLE WHO HAVE FACED THE PROBLEM BEFORE AND HAVE MORE INFORMATION ABOUT IT

We should also try to get feedback to hear about different solutions that have already been tried before

Oh! We can ask for feedback **our teachers**. They have been here for a longer time and must have seen the problem and other solutions tried before.

### THINK OF PEOPLE WHO HAVE THE SKILL TO WORK WITH THE PROBLEM

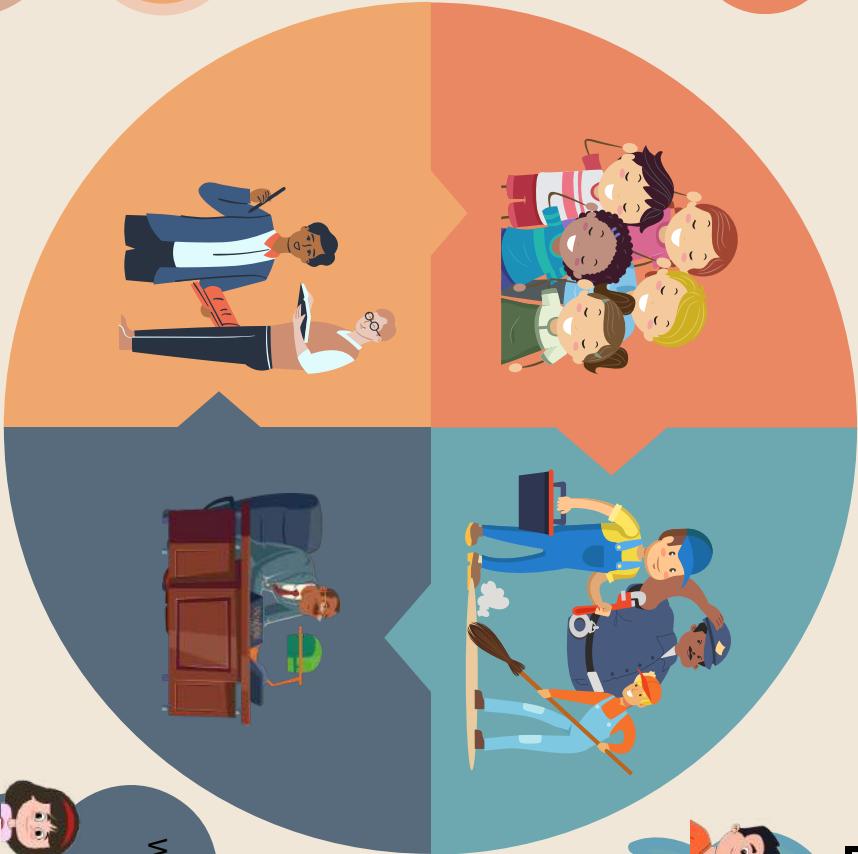
Actually we can get feedback from other people who are part of the school. Like our **watchman uncle**, our **school helper**!

And the **plumber** who often comes to repair pipelines at our school!

### THINK OF PEOPLE WHO ARE DECISION MAKERS AND ARE INVOLVED IN SOLVING THE PROBLEM

We missed our **School Principal**! We should talk to him about the difficulties in implementing our solution.

Amazing ! He will be able to guide us better in this regard. Let's start collecting feedback for our solution.



# 6

## Things to do after collecting



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.
2. **Discuss** with your team and decide on which suggestion you want to use from the feedback to improve your idea.
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.
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.
6. Finally, check whether your new idea or solution satisfies the **FUSE criteria**.

And now it's TIME to develop your IMPROVED AND NEW SOLUTION using the feedback...  
Have Fun!

# PROTOTYPING IN EVERYDAY LIFE

DOES 'PROTOTYPE' SOUND LIKE A NEW WORD ?



WHAT IF I TELL YOU THAT YOU HAVE PRACTISED PROTOTYPING BEFORE ?

DON'T BELIEVE?   
OK! THEN TELL US, IF HAVE YOU EVER

## 1. TRIED COLOURING /DRAWING WITH CRAYONS



Then, you might have definitely tested the colour of a crayon before using it. Right?



## 2. LOOKED AT CLOTHES ON A DUMMY MODEL AND WANTED TO BUY IT?



You already know how shopkeepers display clothes on dummy models so that people can see how it looks before buying



## 3. DESIGNED SOMETHING LIKE A LOGO?

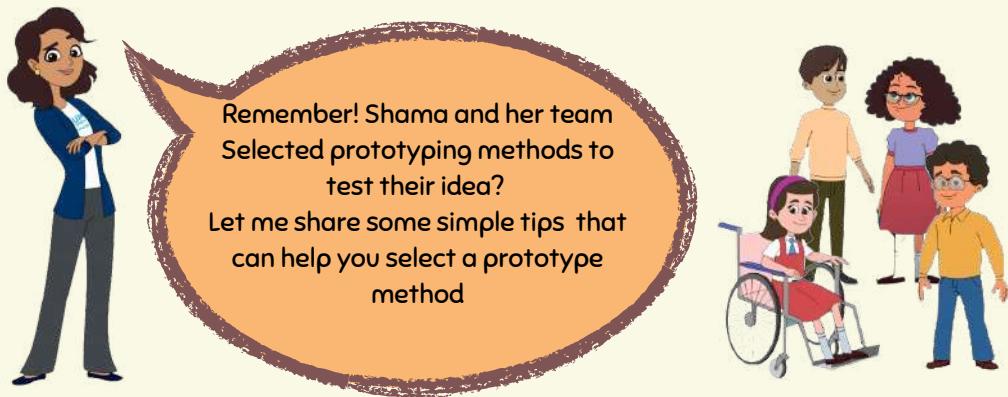


Of course, you have!  
You made a logo design for your team.  
Remember how you tested many designs?



Any time you are testing/trying out something, you are prototyping.  
We all prototype a lot in our daily life to check our ideas for mistakes  
Similarly, your solution idea also needs to be prototyped!

## PLANNING FOR PROTOTYPING AN IDEA



### IDEA/SOLUTION

#### Product Based

Eg : Cloth Mop

Is your Solution  
**Product Based or  
Process Based?**

#### Process Based

Eg : Cloth Exchange

Users will be able to simply read and understand our idea



Read

Users will understand our idea only if they use /feel it first



Feel

Users will understand our idea by watching how to use it



See/Hear

Users will be able to simply read and understand our idea



Read

Users will understand our idea only if they use/feel it first



Feel

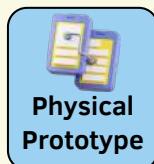
Users will understand our idea by watching how to use it



See/Hear



Paper Prototype



Physical Prototype



Mock-up Prototype



Storyboard



Mock-up Prototype



Role-Play

OR



Storyboard

OR



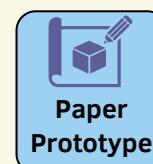
Mock-up Prototype

+



Role-Play

OR



Paper Prototype

+



Role-Play

Remember that all types of prototypes are equally good. You can choose to pick the simplest prototype that can help the users/stakeholders understand your idea or solution completely.

## 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



### PHYSICAL PROTOTYPE



1

Real materials can be used in this method as they are affordable and available



Helpful in testing usage and functions with users like comfort, ease to handle in different terrains



### Conclusion

Each prototype method has its own advantages and disadvantages. Like in 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!



### MOCK UP



2

Replacement materials like cardboard, clay etc are used instead of real material as they are expensive or not easily available

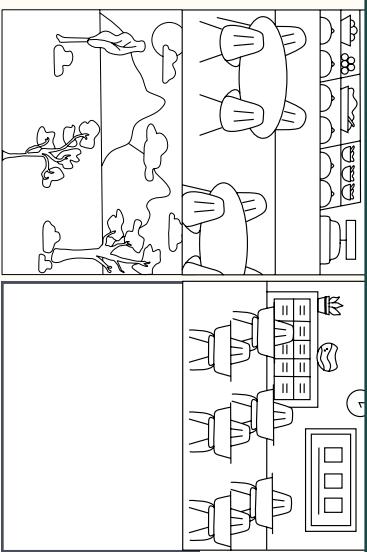


Helpful in showing the look, design, concept and style of an idea to the users when it is not necessary to test usage.

## **STORY BOARDING**

How do we storyboard an idea ?

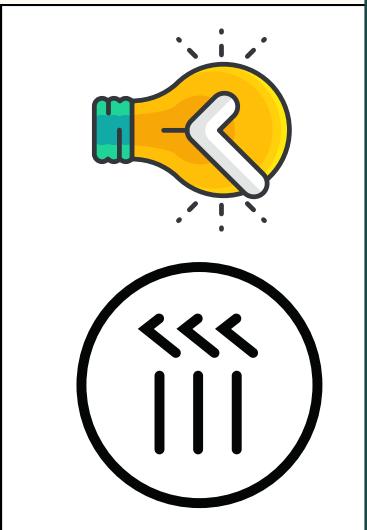
Story Boarding uses rough sketches to show how process or product based ideas will be used or how it works. Let us see how we can do it.



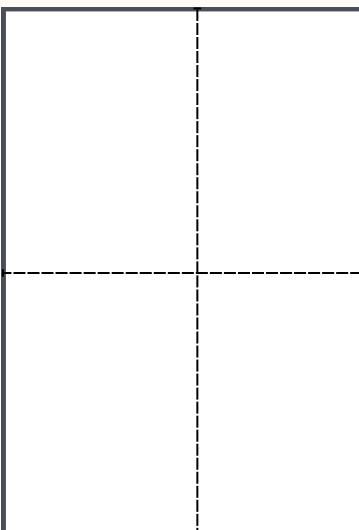
4. Use rough sketches to draw the story panel, one at a time.



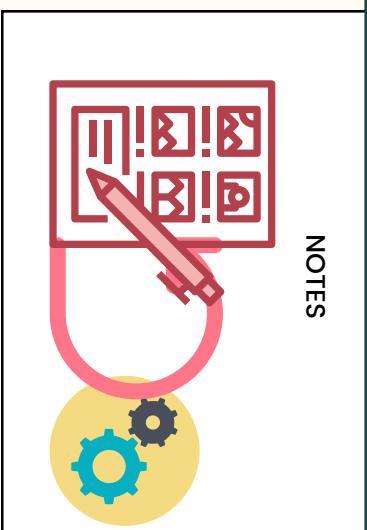
- 1.Think of situations where your idea will be used and develop a story.



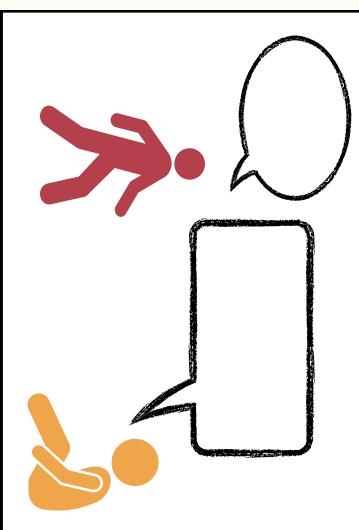
5. Make sure that the advantage of your idea and its different features are shown in your story.



2. Split the story into different pieces to be shown in each panel.



6. Note down any confusions or doubts others might have on seeing this and use it to rework your idea.



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

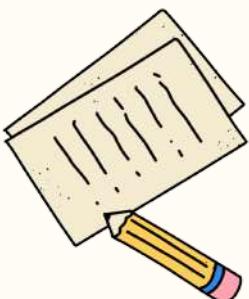
Check out your worksheet to see an example of a storyboard !

## **ROLEPLAY**

How to do a role play for your solution ?

Role play lets you act out a solution to see how the solution will work in real. Follow the steps below to conduct a role play.

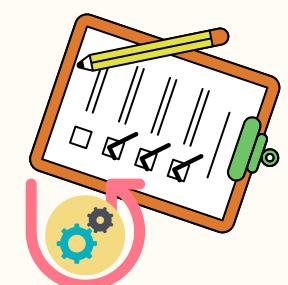
1. Think of a situation you want to act out for your solution and write down the story.



2. Decide on characters and dialogues to be used in the role play.



3. Take up the role of different characters from the story and act it out. Use props or materials where needed.



4. While acting out, make note of doubts or confusion or other issues faced in using the solution.

5. You can Role play as many situations as you like to and test the solution. Note down any changes and rework your ideas.



# 5 TIPS FOR SHOWCASING YOUR FINAL SOLUTION



## Practice beforehand

Plan and prepare who is going to talk about which part of the problem solving journey.  
Practice as a team.

## Ask for and Give support

Never hesitate to ask for help from your classmates or teachers.  
Don't forget to thank all those who helped you in your journey !



## Share your story

Share about your journey to motivate the audience to become problem solvers!  
Support your teammates if they get stuck while presenting !

## Ensure participation

Make sure that every team member gets equal chance to speak.  
Let the audience ask questions and doubts.  
Thank them for useful feedback.



## Be confident

While presenting, Speak loudly.  
Be confident and clear.  
Nobody knows your idea better than you !!!