

Teacher's Handbook

UPSHIFT

powered by UNISOLVE

**Transforming Schools Into Places Of
Creativity And Innovation**



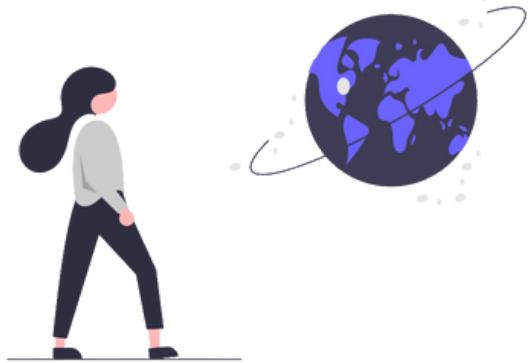
A practical guide to implementing the
unisolve curriculum in schools.

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What is UPSHIFT?

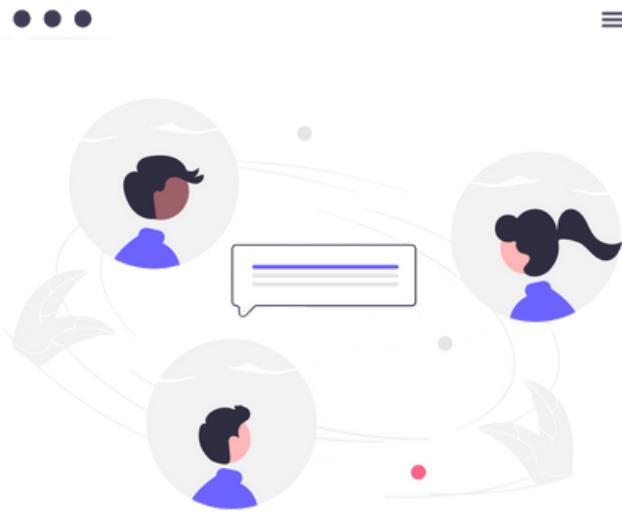


We are living in a fast changing world. Rapid technological advancements have made our lives relatively easier, but still, so many problems persist around us, in our homes, in our communities.

Every century has a story to tell. And every century brings with it some challenges that demand our collective attention. For hundreds of years, basic education had been a privilege. Today, even as many nations around the world are still busy grappling to provide basic access to education to its citizens, it has become increasingly clear that our children are not supported enough to take on the world of tomorrow.

Our focus can no longer just be achieving literacy and numeracy milestones. Roughly, seven years ago in the year 2015, the United Nations set up the Sustainable Development Goals [SDGs], intended to be achieved by the year 2030. Of them, SDG 4: Quality Education, focusses on imparting skills that are relevant to the demands of the contemporary world.

The aim of UPSHIFT *Powered by UniSolve*, a digital learning platform, is to help children grow into self-sufficient and highly employable individuals with knowledge and skills that are practical and relevant.



UPSHIFT Powered by UniSolve is an online digital platform. Students can enroll as a team and learn the critical skills required to take on the social challenges of tomorrow and practice these using the workbook.

As a part of this program, students between the age groups of 10-15 years have an opportunity to learn, through a self-paced, interactive, online curriculum, and build skills such as ***critical thinking, creative problem-solving and design thinking***. They are encouraged to put what they learn into practice to benefit the community around them.

Students, with support from you teachers, will identify problems in their immediate surroundings / larger communities and apply different problem-solving techniques such as ***researching, idea brainstorming, prototyping*** and other ***design thinking*** methodologies to change their communities for the better. The videos and workbook will guide them in this process. The best of the ideas submitted will have an opportunity for further mentorship and financial support to implement it at a larger scale.

The **PROBLEM-SOLVING JOURNEY** that the students partake in as a part of the course, in addition to self-confidence, will instill in them the skills that enable them to be the **change-makers of tomorrow**.

What problems will students solve?

The United Nations, in the year 2015, set up 17 ambitious goals that strive for sustainable development. All of these goals, called the **Sustainable Development Goals or SDGs**, aim for a greener, healthier, equal, and more peaceful development of our planet.

Achieving these goals calls for a greater awareness about them and participation of a wide range of audience, from students in schools to politicians and people in power at all levels. Through the course modules in **UPSHIFT** Powered by UniSolve, students will be sensitised to the 17 SDGs (goals). Then, they will be encouraged to work towards a goal of their choice in their communities. Let us once look at what the 17 SDGs are.

Sustainable Development Goals

1 NO POVERTY



Objective: End Poverty in all forms everywhere.

Brief Description: Many people around us are poor and do not have enough money for education, health care, house or even food.

2 ZERO HUNGER



Objective: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture

Brief Description: Along with poverty, events such as floods, extreme heat that are becoming more often which is leading to lesser availability of food for people all over.

3 GOOD HEALTH AND WELL-BEING



Objective: Ensure healthy lives and promote well-being for all at all ages

Brief Description: Lack of awareness of diseases, availability of timely treatment, medicines, and good hygiene practices is increasing the risk of death.

4 QUALITY EDUCATION



Objective: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Brief Description: Many children are out-of school and there is a lack of facilities in the schools for children to get the best quality education. This is leading to many educated people to end up without jobs.

5 GENDER EQUALITY



Objective: Achieve gender equality and empower all women and girls

Brief Description: Boys and girls are still not treated equally in many parts of the world and the opportunities available for girls and women are far lesser than those available for men

6 CLEAN WATER AND SANITATION



Objective: Ensure availability and sustainable management of water and sanitation for all

Brief Description: A large percentage of people in the world do not have clean water to drink, and many water sources are contaminated with chemicals being dumped into them. This is spreading diseases at an alarming rate.

Sustainable Development Goals

7

AFFORDABLE AND
CLEAN ENERGY



8

DECENT WORK AND
ECONOMIC GROWTH



9

INDUSTRY, INNOVATION
AND INFRASTRUCTURE



10

REDUCED
INEQUALITIES



11

SUSTAINABLE CITIES
AND COMMUNITIES



12

RESPONSIBLE
CONSUMPTION
AND PRODUCTION



13

CLIMATE ACTION



Objective: Ensure access to affordable, reliable, sustainable and modern energy for all

Brief Description: Electricity is still not available in many parts of the world, and production of electricity produces a lot of environmental waste. The world needs to use electricity carefully to avoid wastage and become aware of methods that can produce clean energy (electricity) without polluting the environment.

8

Objective: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Brief Description: Decent and varied job opportunities should be created for the growth of both people and planet. This includes skilling and making new opportunities.

9

Objective: Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation

Brief Description: Work towards improving access to technology for all the people and business. Improved access to internet and learning new technologies should help to develop themselves and their communities.

10

Objective: Reduce income inequality within and among countries

Brief Description: There are so many differences between the rich and the poor. This gap must be reduced and opportunities should be given to work on reducing this gap.

11

Objective: Make cities and human settlements inclusive, safe, resilient, and sustainable

Brief Description: Increasing population and unplanned development in the cities is making them unhygienic and unlivable in many ways. All these cities must be made safe, hygienic and liveable for all people.

12

Objective: Ensure sustainable consumption and production patterns

Brief Description: Every natural resource like wood, oil/petrol, air, soil, and water are limited on the planet. Overusing them will leave the future generations with very little or nothing of these, putting their lives in danger. People must reduce, reuse and recycle these resources whenever possible and prevent their depletion.

Objective: Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy

Brief Description: Overuse of resources like wood, electricity, petrol, plastic is heating the planet and creating many disasters like the floods, and extreme heat and cold waves. Action must be taken to save the planet from disasters caused by the climate change.

Sustainable Development Goals

14 LIFE BELOW WATER



Objective: Conserve and sustainably use the oceans, seas, and marine resources for sustainable development

Brief Description: Aquatic life below water is in danger due to human activities like over fishing and releasing of harmful chemicals and wastes like plastics in to the rivers and oceans. This could not just destroy the aquatic animals, but all those people who like by these water bodies.

15 LIFE ON LAND



Objective: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Brief Description: Land belongs not just to humans but to all the animals, birds, and plants that live on it. Cutting of trees, polluting air, hunting of animals are some of the activities that are destroying the life on land. All these activities must be prevented.

16 PEACE, JUSTICE AND STRONG INSTITUTIONS



Objective: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Brief Description: Violence can happen due to differences between peoples religion, culture, gender, or even age. Many people do not have access to justice in their communities. All such violence must end by strengthening the justice system in the countries and actively promoting peace in the communities.

17 PARTNERSHIPS FOR THE GOALS



Objective: Strengthen the means of implementation and revitalize the global partnership for sustainable development

Brief Description: People should learn more about each of the SDGs, what they can do to achieve them, spread awareness about them in their communities and collaborate by working together to achieve all the above 16 goals.

Getting closer to the **Sustainable Development Goals** involves identifying and taking small actionable steps in our communities within our capacity. Each one of us have the capacity to contribute towards these goals, including children.

All that our children need is the **awareness** of this need, **tools** that inculcate in them the **skills** to meaningfully engage with the goals, and **mentorship** to motivate them to work towards the goals.

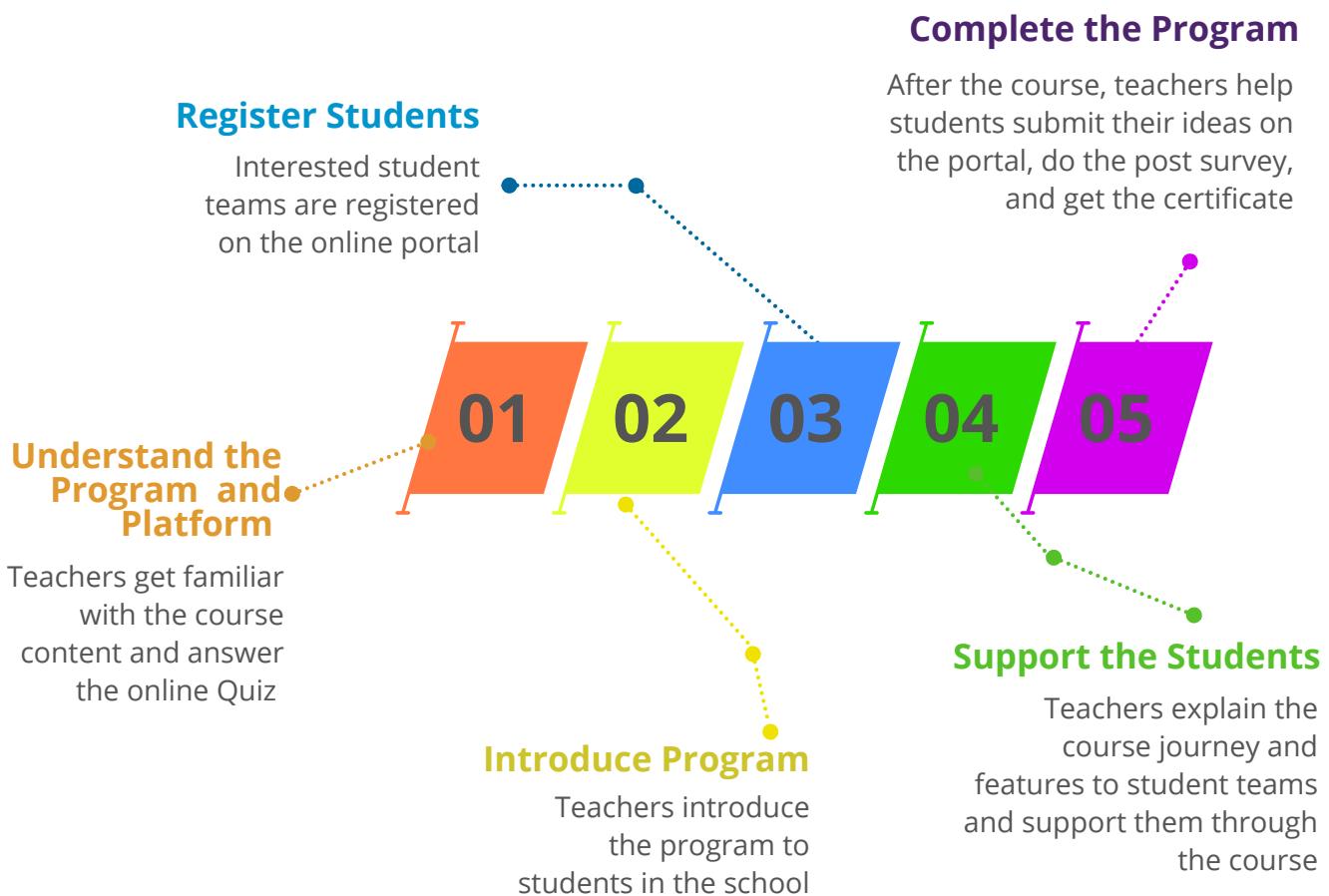
As children participate in this problem-solving journey, it will open for them a unique view of the world around. And as they engage with the world around, that will build in them more awareness of the self and inform them of the things they might want to do or contribute towards in the future. That will make them both **employable** and **responsible** citizens.

Program Journey Roadmap

Teacher Training : Guide teachers attend training sessions about rolling out the program in their schools. They are familiarized with the content and platform. Teachers get registered on the platform, fill up the pre-surveys and explore the platform.

After the trainings they follow 5 steps to roll out the program in their own schools.

5 Steps of the teacher journey



1. Understand the Program & Platform

Course Elements



A **team** may consist of anywhere between **2-5 students**.

While some elements in the module are completed individually by each team member, others would require them to be done either both individually and/or as a team.

The step is mentioned here. This is the first step in the Teacher Journey.

Videos

Team | **Individual**

There are 6 modules with 2 to 5 videos in each of them that follow the journey of four characters who set out to solve a problem they observed in their community. Each video is 3 - 10 minutes long. Through their journey, the characters & students learn various problem-solving techniques that they can apply to solve a problem identified by them in their respective community/surroundings.

These videos can be watched as a group, individually, or as a class, depending on how much device access is there in school. Avoid watching all the videos in one go. **It is ideal that the students watch few (2-3 videos) in one session and do the related workbook sheets, for better learning.**

Video Questions

Team

During the module, at the end of some videos, questions will be shown on screen. These questions are meant for teams to take a pause and discuss them in their own groups and do any workbook activities. Avoid watching all the videos in a module in one go.

In one session, it is ideal that the students watch videos (2-3), till they reach a video question.

The purpose of the reflective questions is to:

- Help reflect on their feelings after watching the video.
- Discuss and relate what they learnt to the world around them.
- A reminder for the students to start doing the related workbook sheets.

Workbook

Team

Workbook is to be done together in a team after all the students in a team have watched the respective videos. The workbook guides the team to apply the concepts learnt in the respective video for their own problem-solving journey.

All the students are expected to spend some time together in their teams and get their doubts clarified from their teacher to do the tasks in the workbook. The students should do the workbook during the week before they move onto watching the next videos.

Quiz

Individual

At the end of each module, the students have to individually answer a Module Quiz of 10 questions based on the concepts they learnt. The Quiz can only be answered one time, so students should think carefully and answer the questions.

The Quiz is designed to help students: Recall and revise the important topics learnt in the respective course module. Help them evaluate their own comprehension of concepts.

Student Journey

How does the course play out for the students?

- There are 6 modules in the course and 1 workbook.
- Each module has 4-5 videos.
- Teams should download workbook in the beginning and use it during the course.

For each Module



Watch few videos in a module

Watch a few of the videos (2-3) in the module **as a team or individually** once a week.



Discuss video questions

As a team, discuss the questions shown on screen after watching the videos.



Do workbook sheets

There are weekly worksheets related to weekly videos. Work on it **as a team** to practice the things they learnt. **Teachers can guide** them by having **weekly discussions** around the worksheets after the related videos are watched.



Watch the rest of the videos in the module

Discuss video questions

Do workbook sheets



Give module quiz

At the **end of each module**, the students will **individually** answer the Quiz.



End of a Module

Start the next module



After the **6 Modules** are completed, the student teams should submit their own idea in the portal in the '**Idea Submission**' page. This idea will be evaluated for final selection.



End of Course

- About 25% of the journey is online (videos, reflective questions, quizzes)
- About 75% of the journey is offline (application of learning in the community, discussions, worksheets)

Recommended Program Schedule

The entire program is scheduled for **12 weeks**. We recommend :

- Of the 4-5 videos in a module, teams **watch 2-3 videos in a weekly session**. Avoid watching all videos in a module together.
- Teachers encourage the teams to **discuss the questions** shown on the platform.
- Teachers discuss and **clarify the workbook** sheets in the weekly sessions.
- Teachers support teams to **plan and do workbook** sheets in the same week.

Each module will take about 2 weeks to complete (except for Module 2 which has only 2 videos). The recommended program schedule is given below :

Week 0	Preparation Week Step 1 : Understand the Program and Platform Step 2 : Introduce the Program to students Step 3 : Register Students and provide them with the login details. (4-5 students per team). Teams complete Pre-Survey. Step 4 : Support Team and help them plan for the program. (Device access, weekly session, time, discussion, workbook)
Week 1 & 2	Module 1 Week 1 - Watch Videos 1 and 2. * <i>*Discuss Videos and Workbook. Support teams to plan and do workbook.</i> Week 2 - Watch Videos 3 and 4. * <i>*Discuss Videos and Workbook. Support teams to plan and do workbook.</i> All team members do the Quiz individually.
Week 3	Module 2 Week 1 - Watch Videos 1 and 2. *
Week 4 & 5	Module 3 Week 4 - Watch Videos 1 and 2. * Week 5 - Watch Videos 3 and 4. * All team members do the Quiz individually.
Week 6 & 7	Module 4 Week 6 - Watch Videos 1 and 2. * Week 7 - Watch Videos 3 and 4. * All team members do the Quiz individually.
Week 8 & 9	Module 5 Week 8 - Watch Videos 1, 2 and 3. * Week 9 - Watch Videos 4 and 5. * All team members do the Quiz individually.
Week 10 & 11	Module 6 Week 10 - Watch Videos 1, 2 and 3. * Week 11 - Watch Videos 4 and 5. * All team members do the Quiz individually

**Step 5 : Submit team Idea, Teachers and students complete Post Survey.
Download certificates.**

Course Journey

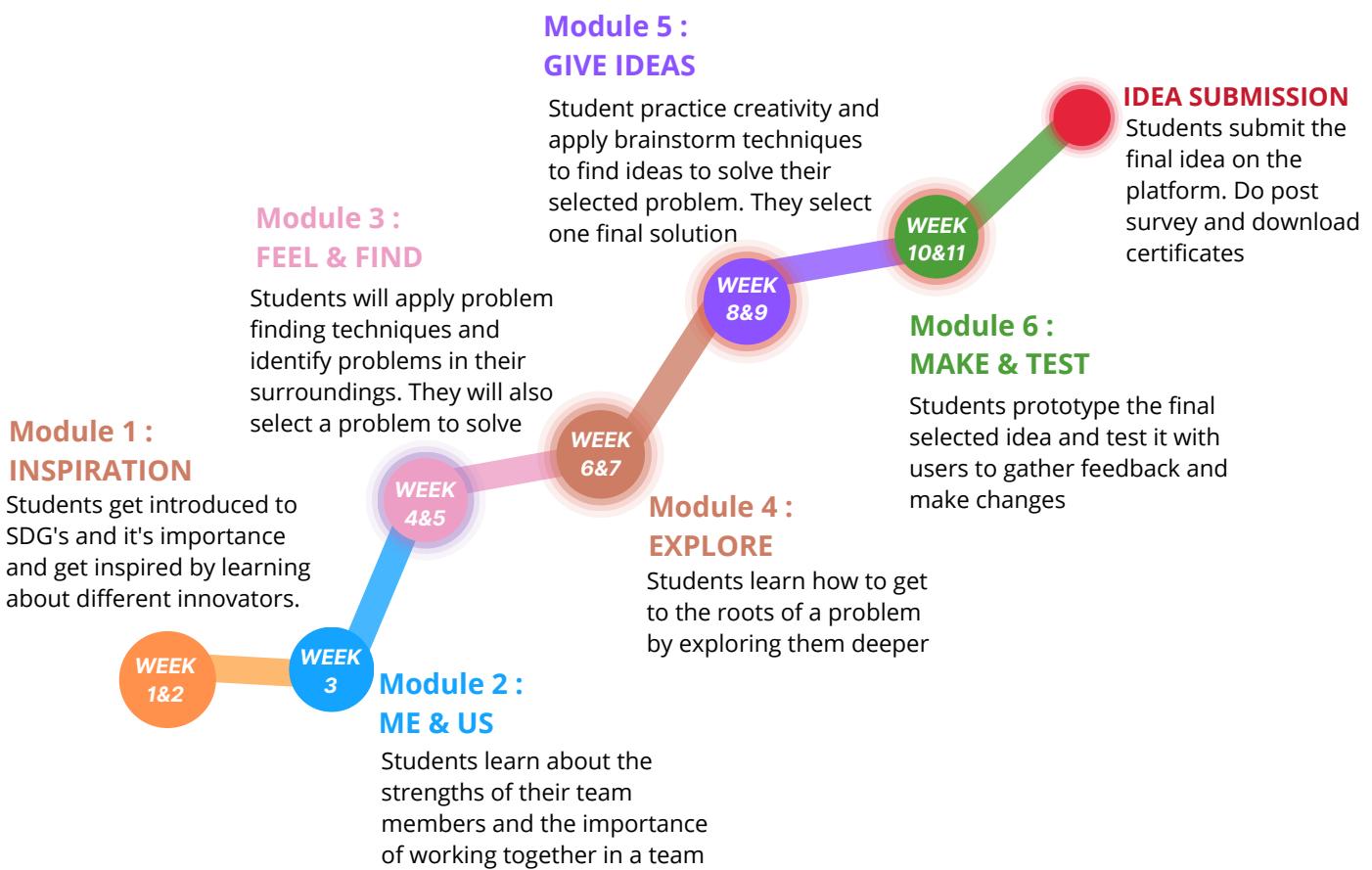


Concepts in this course are taught through the story of four students, who set out on a mission to solve a problem they identified in their community.

Each of their major problem-solving steps are covered in the Modules. There are 6 modules in total. At the end of the module the student come up with their own solutions.

What are the major steps in their problem-solving journey?

Let us find out!



Module 1: Inspiration

Objectives:

- Students realize the need for problem-solving
- Students understand the need to work towards the Sustainable Development Goals
- Students are inspired to take on the problem-solving journey



STORY

It was a rainy day. The teacher shares with his students about how concerned he sometimes gets whenever it starts to rain heavily. He talks about the destruction he witnessed in the country as a result of disasters such as floods.

A group of four friends, on learning that these disasters are a result of human actions, get concerned if such things will happen more often.

They visit their teacher later, to ask him if anything can be done about this. The teacher gets inspired by their motivation to do something and gives them examples of how small actions can make a difference and encourages them to take up such small **innovative** actions to solve problems that exist around them.

To help them understand what problems exist around, he introduces the concept of **Sustainable Development Goals (SDGs)** and asks them to identify the problems they think need attention in their community.



Key Concepts

- Innovation
- Sustainable development goals (SDGs)

Module 1: Inspiration

Key-concepts



Innovation :

Any idea or solution that tries to solve the problems faced by people or planet is an innovation. When an innovation is also helpful to many people or helps the disadvantaged to lead a better life, it is called social innovation.

In this Module, social innovation is explained through the story of Basheera, who innovates a wheelchair that can rise up and rotate, thus helping to better the lives of all such differently abled people.

Sustainable Development Goals:

Our leaders around the world have identified few problems to be solved for a better society for everyone, for all individuals, communities, and societies. These Goals are called Sustainable Development Goals.

They aim to solve problems relating to hunger and poverty, lack of water, food, education, health care, and inequality in various forms and other such goals for a better world for everyone, including nature and animals



Module 1: Inspiration

Check For Understanding Questions for self and students

Question you can ask students during discussions to check if they understood the major topics in that module.

Questions	Expected Student Response	(if student responses are similar to answers mentioned, then it tells us that they understood the topic well)
1.What is concerning about the future of our planet?	The planet earth is facing a danger due to disasters such as extreme floods that are caused by human actions	
2. What is global warming, and What can we do to save our planet from it?	Human actions such as cutting of trees and pollution are causing the globe to warm up, leading to global warming. We can all contribute in our own way by doing small actions that can help protect the planet. Eg: Not using too much plastic, reusing materials and reducing waste, Saving electricity	
3. What is innovation, and how does social innovation help?	Innovation is any new idea that can help solve a problem. A social Innovation can help people lead better lives by solving problems.	
4. What are SDGs, and how will you use them?	Leaders around the world have identified different problems that need to be solved for a better life for all of us. These goals are called SDGs and these help us think about what developments do our communities need.	

Module 1: Inspiration

Workbook

Go through the workbook to understand the activities in each module. This will help to clear doubts when the teams are doing the workbook.

Title	Objective and Description
1.What is Global Warming	Students learn the causes of global warming and then think about which of the effects of global warming that they may have seen in their community.
2. Small Actions to tackle Climate Change	Students think about what actions they can take in their surroundings to reduce the effect of climate change.
3. Thato's Innovator Actions	Students read Thato's story about her innovation journey and reflect on her innovation actions.
4. Sustainable Development Goals	There is a list of all the Sustainable Development Goals. Some solutions have been given, students write down the SDG that the solution is trying to achieve.

Module 2: Me & Us

Objectives:

- Students recognize the benefits of working together in a team
- Students explore each other's strengths



STORY

The four friends study and understand the Sustainable Development Goals and realize that there are many problems in their community that need attention. They go back to their teacher, seeking his help in understanding more about what they can do about it.

The teacher gets delighted to see his four students think about problem-solving in their community and agrees to help them.

He starts off by explaining to them the importance of working together as a team to be able to solve any problem effectively. He does this by engaging them in an activity called '**The Classroom Budget**' that teaches them the advantage of thinking as a team.

The teacher then helps the students explore and understand each other's strengths that they can take advantage of together as a team, in their quest for problem-solving.



- Key Concepts**
- Team work
 - Team strengths

Module 2: Me & Us

Key-concepts



Team Work:

Working together is essential for problem-solving. Everyone is good at different things, and that makes teamwork important for a stronger and better team. When people, resources, and thoughts come together, greater things can be achieved and getting to know each other is important to work in a team.

Team Strengths :

The best qualities of team members forms the team strength. By knowing about oneself and others in the team, it is possible to bring out the best qualities while working in a team. In a team, everyone will have skills that can be focused on - while some might be good at being a leader, some might be better at coming up with ideas or listening to others or getting additional information. It is important to learn from each other while working together as a team to bring out the best strengths.



Module 2: Me & Us

Check For Understanding Questions for self and students

Question	Expected Student Response
1.What is the benefit of working in team?	Working in a team helps think of better ideas, and it makes work easier and faster.
2. What are strengths? And why is it important for you to know the strengths of your team members?	Strengths of a person are the things they are good at. Knowing about each other's strengths in a team will help the team use these strengths while working together.

Module 2: Me & Us

Workbook

Title	Objective and Description
1.Teamwork	The team discusses what their strengths are and together makes a superhuman drawing of each of their team members.
2. Team Logo	Students look at various logos and understand how a logo is made. Then they together make a logo for their own team.

Module 3: Feel & Find

Objectives:

- Students will be able to make use of different tools and identify problems in their communities
- Students will be able to objectively choose a problem that they want to work on



STORY

One student introduces the team to her elder sister, who is an innovator working on solving the issue of plastic waste in the oceans, by collecting and repurposing the waste to make shoes out of them.

The team of four students are inspired by her and seek her help in trying to identify problems that they can work on solving. She teaches them how to observe for problems by challenging them to think about change they would like to see around them. She calls this challenge the '**I SEE- I WISH**'.



The sister agrees to mentor the team in their problem-solving journey. Later, the students identify a few problems in their community with the help of other techniques taught to them by their teacher.

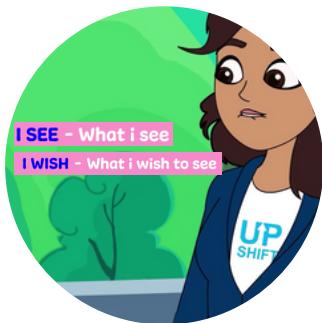
The students then mark the problems on a **community-map** and decide which problem to work on using a problem selection criterion known as **PEAK**

Key Concepts

- Problem Finding Techniques
- Problem Selection Criterion—'PEAK'

Module 3: Feel & Find

Key-concepts



I SEE -I WISH

I see - I wish is a way used to find problems in our surroundings. Use the 'I-See' statement to identify the problems that can be seen around us. Use the 'I-Wish' statement to think how it would be better if the problem was not there - 'What I wish to see'.

Ask the following questions alongside to identify a problem -

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

Problem Finding Techniques:

These are techniques used to identify problems.

1. Observation - Seeing and looking for problems around you.
2. Experience - Thinking of problems experienced by self.
3. Interviewing - Talking to people to find problems faced by others.
4. Research - Reading articles, watching news, documentaries or other resources to find problems. Eg - News





Community-Map :

It is a sketch of the community, marking the various places where different problems are identified. A map of the community is made by marking all the important places such as schools, markets, roads etc. and on it, the different places where different problems are identified, are marked. This also helps to understand where else a problem is faced and to visit these places to get additional information about the particular problem.

Problem Selection Criterion: PEAK

Peak Criteria is used to select a problem to solve from the many problems identified by rating each problem on 5 based on the following criteria. Peak stands for:

- Preference - Are all members excited about the problem?
- Effect - How badly is it affecting the people/ planet?
- Achievable - Do you feel confident about achieving a solution to the problem?
- Knowledge -How well do you know the problem?

Any of the higher scoring problems can be chosen to solve.



Module 3: Feel & Find

Check For Understanding Questions for self and students

Question	Expected Student Response
1.What are the four problem finding techniques?	Observation- Look for problems using the I SEE- I WISH technique Interview-Interview people at home and in the community to understand their problems Experience-Think of our own experiences with the problems we faced Research-Read newspapers or watch news channels to look for problems
2. What sources can you depend on to find a problem using Research technique?	Newspapers, News channels on television, Internet, Books
3. What is a community-map, and how is it helpful?	A community map is a sketch of the community with all the important places and roads marked. It helps us identify and mark the different places where an observed problem might exist.
4. How do you use PEAK criteria to choose a problem?	Every problem observed is marked on a scale of 1-5 based on Preference, Effect, Achievability and Knowledge. The problem with the highest final score is selected to solve.

Module 3: Feel & Find

Workbook

Title	Objective and Description
1. When does something become a problem	Three problem finding questions have been given that will help in deciding if a given problem is a problem.
2. How to find a problem	There are four ways in which problems can be found : Experience, Observation. Interview and Research. There are activities to help practice each of the methods.
3. Community Mapping	Students have been given space to draw a map of their community that will help them identify different problems in their community by going around and noting down the problems they found and where they are repeated.
4. Problem Selection	Once students have identified various problems in their community, the problem selection rubric helps them select one problem to solve based on the PEAK criteria. The criteria includes Preference, Effect, Achievability and Knowledge.

Module 4: Explore

Objectives:

- Students will be able to identify different stakeholders involved in the problem they identified
- Students explore the problem deeper using various problem exploration tools
- Students develop a clear problem statement for the problem they identified



STORY

The team decides to work on solving the problem of “**Textile Waste**” in their community.

They ask their mentor for guidance on what their next step can be. She suggests them to identify **stakeholders** that are either contributing to the problem of textile waste or know something about it. The team takes the help of their classmates to identify the stakeholders to their problem, and their teacher helps them by putting them on a **Stakeholder-map**.

Next, the students learn to identify how these different stakeholders interact with each other by drawing connections between them in a **Mind-map**. This helps them in applying these learnings to the **Problem-tree** and **Why's-technique** to investigate and explore the deeper causes of the problem.

Once the key-causes to the problem are identified, they write a clear **problem-statement** that can guide them in generating ideas for the solution.



Key Concept

1. Stakeholder-map
2. Mind-map
3. Problem-tree
4. Why's- Technique
5. Problem- statement

Module 4: Explore

Key-concepts



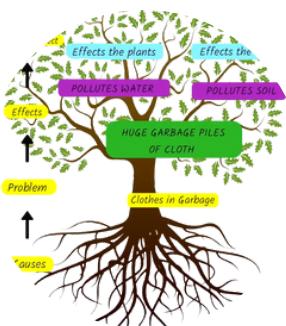
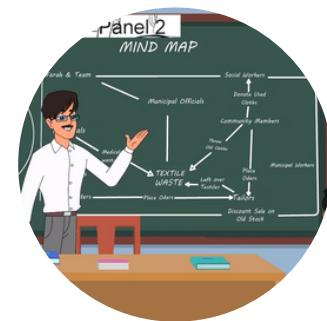
Stakeholder-Map:

Anyone who is connected to this problem in any way is called a stakeholder. They can help us understand the problem more deeply.

- **Direct Stakeholders** - These are the people who directly experience the problem you have identified. They are the target group for whom we are creating the solution.
- **Indirect stakeholders** - They might not be the people who are directly affected by the problems, but are still connected to it.
- **Other Stakeholders** - These can be the other people who are either solving or are trying to solve a similar problem. They will be able to connect us to experts or people for solution.

Mind-Map:

The mind map is used to find out how the different stakeholders identified interact with each other in the community in relation to the problem. This can give us more in-depth understanding of the problem. A mind-map will include people, places causing the problems, affected by it or contributing to it and how they are related to each other. Understanding how stakeholders contribute to the problem and interact with each other can be useful to understand the problem.

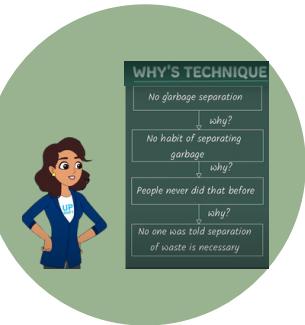


Problem-Tree:

Problem Tree helps you arrange information easily so that you can understand the information about a problem. The problem identified is the visible trunk of the tree. The leaves and fruits of the tree that are easily visible to us are the effects and long-term effect of the problem. The roots are the reason a tree survives and grows. The causes of a problem are the reason a problem grows and are represented at the roots.

Why's-technique:

Every cause identified in the Problem Tree will have more causes. You can only solve a problem by solving the Final root cause for a problem. The 'Why's technique' is used to find this Final root cause. This is done by picking any cause from the problem tree and repeatedly asking 'Why is this happening' and answering it until you reach the final cause. This can be repeated as many times as needed.



Problem-Statement :

A Problem Statement is a statement that clearly explains the problem including the current state of a problem, its root causes and effects, and what desired state you are trying to achieve by solving this. It reminds us of our goal while we are creating solutions. It can be of the following format -

'(CURRENT STATE) is a problem caused by (ROOT CAUSES). This can lead to (EFFECT), (DESIRED STATE) will help us address the problem'

Module 4: Explore

Check For Understanding Questions for self and students

Question	Expected Student Response
1. Who are stakeholders and how are different stakeholders important.	Any person connected to the problem is called a stakeholder. Stakeholders are of 3 types. Direct stakeholders, Indirect stakeholders and other stakeholders are people who have solved/ solving similar such problems. Every type of stakeholder can give a different but valuable information about the problem.
2. What does a mind-map help you understand?	A mind map helps in understanding the connections between different types of stakeholders and how are they either causing the problem or getting affected by it.
3. How is a problem tree helpful and how to find root causes of your problem?	A problem tree helps in arranging all the information gathered in an easy to read and understandable format. We can find out the root causes of a problem by applying the Why's technique.
4. What all information should a problem statement have, why?	A problem statement should be able to tell the current state, effect, root cause of the problem and the desired state we hope to achieve with our solution. It helps in reminding us of the goal (desired state) while thinking of a solution.

Module 4: Explore

Workbook

Title	Objective and Description
1. Stakeholder Map	Students fill in the Stakeholder Map based on the different stakeholders (Direct, Indirect and Other Stakeholders) related to their selected problem.
2. Mind Map	A sample problem has been given, students use the mind map to see how well they understand the problem.
3. Interview Sheet	Interviews help students understand their problem better. The interview sheet acts as a guide to help students to understand their problem better by interacting with stakeholders.
4. Problem Tree	The Problem tree helps students identify the different causes and effects for their selected problem.
5. Why's Technique	The Why's technique helps students get to the root cause of a problem.
6. State your problem	The State your Problem page is where students write down their final problem statement that includes different parts such as current state, desired state, effect and cause of the problem.

Module 5: Give Ideas

Objectives:

- Students will be able to think of ideas creatively.
- Students will be able to effectively make use of the brainstorming tools and come up with a large variety of ideas.
- Students will be able to refine their solution after analysing the feedback from their users/stakeholders.



STORY

The team is now clear about the goal that their solution should be able to achieve.

The team sits with their mentor to discuss how to come up with a good solution that can achieve their goal. She, ignites the **creativity** in the team by engaging them in an activity that teaches them not to be afraid of thinking differently. This builds confidence in the team, who further learn about different approaches to solve a problem by judging the **type of solution** that better addresses the causes.



The students then come up with a slew of solutions after applying various **Ideation techniques** taught to them by their mentor by engaging them in different fun activities.

The team then uses a **solution selection criterion-FUSE** to pick the best ideas and shares them with their classmates and a few stakeholders to get their feedback. Finally, they improve their solution by modifying their idea based on the feedback they gather.

- Key Concepts**
1. Creativity
 2. Types of solutions
 3. Idea generating techniques
 4. Solution selection criterion- FUSE

Module 5: Give Ideas

Key-concepts



Creativity:

Best solutions come when we think differently. To be creative means thinking in new ways like never before. Ideas are the most creative when one is joyful and can think really differently and come up with many ideas. Enjoying is important because creativity happens when you are not afraid to think. So, any thinking techniques we use to solve a problem will be successful only if we can think without the fear of failure.

Types of Solutions:

Product-based solutions - Solution where you make something like a product that people can see, touch and used to solve a problem. Eg- spectacles to correct bad eyesight.

Process-based solutions - A set of clear instructions/steps for people to follow that can solve problems. Eg- boiling water to prevent typhoid, awareness drives.





Idea Generating Techniques:

These are different ways to think of different ideas.

- First Idea-Crazy Idea - Note down ideas that come first to your mind without thinking too much.
- Open Brainstorming - Discuss with others and improve and generate more ideas.
- What-If - Give a direction to think using 'What if' condition, you can get different ideas. Eg- What if the solution is a person?
- Role storming - Think like a stakeholder, and you might be able to put yourself in their shoes and find new ideas.

Solution Selection criterion: FUSE

FUSE Criteria is used to select the best idea to solve a problem from the many ideas you find by rating them on 5 based on the following criteria. FUSE stands for:

- Feasible - How efficiently can it be implemented? (time, cost, materials required)
- Useful-Will stakeholders / users find it useful?
- Sustainable - Will the solution last long or is it harmful to the environment?
- Effective - Is it helping achieve the goal in the problem statement?

Any of the higher scoring ideas can be chosen as your solution.



Module 5: Give Ideas

Check For Understanding Questions for self and students

Question	Expected Student Response
1. When can you think creatively, and why is it important to think creatively?	Creative thinking happens when one is not afraid to think or give wrong answers. It is important to think creatively as it helps us come up with new, different and more efficient solutions for problems.
2. What is the difference between a product-based and process-based solution?	A product-based solution is one where a product that one can use is created to solve a problem, whereas a process-based solution is one where following a set of instructions will solve a problem.
3. What is idea brainstorming? How many ideas do you have to generate for your problem?	Brainstorming is a way to discuss and come-up with as many ideas as one can to solve a problem. There is no limit to the number of ideas one can think of and the more you can think of, the better.
4. How do you select a solution for your problem after idea brainstorming?	The final solution can be selected by rating the solutions on a scale of 1-5 on the criterion mentioned in the FUSE (Feasibility, Usability, Sustainability, Effectiveness)

Module 5: Give Ideas

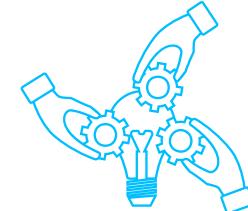
Workbook

Title	Objective and Description
1. Let's get Creative	To get students to think differently and creatively, there are four activities for students to do, these include thinking of how students would respond to situations, thinking of unconventional uses for given objects and complete the drawing when given a part of an object.
2. Product Vs Process Based Solutions	Solutions to problems can be approached in two ways, Products and processes. Solutions have been given and students have been asked to categorise them into a product or process based solution.
3. Brainstorming	Students have been given a problem and they are required to use the four different brainstorming techniques (First idea Crazy Idea, Open Storming, What If and Role Storming) to think of solutions to the given problem.
4. Solve your problem	Students have space to brainstorm solutions for their selected problem.
5. Solution Selection	From the multiple solutions that students brainstormed, they select one solution using the FUSE criteria. The criteria includes Feasibility, Usability, Sustainability and Effectiveness.
6. Feedback	Students are introduced to who they can ask for feedback. Further, students are expected to get feedback on their solution from different users on how they can improve their solutions,

Module 6: Make & Test

Objectives:

- Students will be able to understand the importance of prototyping
- Students will be able to choose a prototyping method for their solution
- Students will be able to plan for resourcing materials for their prototype



The next day, Geetha stops by the school to pick up her sister, Deepthi, on her way home. The team engages with Geetha in a casual conversation, which reminds Geetha of her days in school. As the conversation builds up, Geetha senses an opportunity to teach the team about an important step in the problem-solving process:

Prototyping a solution. She narrates from her experience how missing this step proved costly for her when she was working on her solution to the problem of plastic waste. She goes on to teach them various prototyping methods, after which the team decides on a prototyping method for their testing of their idea.

After **resourcing** for materials needed, they create a prototype which they test with the stakeholders for their feedback before making further refinements to their final idea.

Finally, the team celebrates their success by thanking their classmates and is overjoyed to learn that they have inspired a few of them to take up problem-solving in their communities.



Key Concept

- Prototyping Methods
- Resourcing

Module 6: Make & Test

key-concepts



Prototyping Method :

After Deciding on a solution, it is important to make a sample design of the solution and test it with some users to get their feedback. These sample designs that help us see how a solution works are called prototypes

1: Physical Prototype

Physical prototype is made when real materials are affordable and available. This is used when you want to test the usage and function with users like comfort, ease to handle. It can be used when prototyping can be made as per real size or function.

Prototyping Method

2: Mock-Up

In this method you use replacement materials like cardboard, clay etc as the real material are expensive or not easily available. It is helpful in showing the look, design, concept, and style of an idea to the users when it is not necessary to test usage. It can be used when prototyping cannot be made as per real size or function. (Ex - real idea may be big - design of apartments)



Prototyping Method

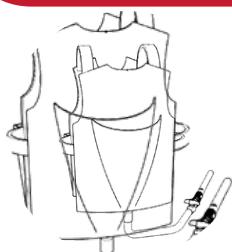
3: Role-Play

In Role-Play, a drama is performed in front of the people to act out the solution and to make them understand the solution. It can be used for Product as well as Process-based solutions when the steps involved in the solution need to be explained.

Prototyping Method

4: Storyboard

In storyboarding, the solution is explained to people in the form of a story in a comic book. The story shows all the actions that are a part of the process from start to end. However, it can be used for Product as well as Process-based solutions when the steps involved in the solution need to be explained.



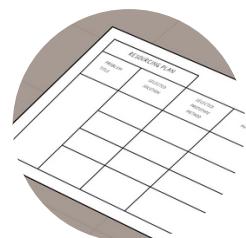
Prototyping Method

5: Paper prototype

In Paper Prototype method, a drawing of the solution is made on a white paper with details and features to explain the solution. It is shown to the users to get feedback.

Resourcing:

Resourcing is the process of identifying the materials, planning and collecting things that will be required to make the prototype of the solution. It also involves identifying whose support will be needed to make it - skill, permissions etc. Identifying the people whose support is needed is important to be better prepared. Resourcing also helps to distribute responsibilities among the team.



Module 6: Make & Test

Check For Understanding Questions for self and students

Question	Expected Student Response
1. What is a prototype?	A prototype is a model of a solution that clearly helps show and tell the user how an idea works.
2. How do you choose between different prototyping methods?	Choosing a prototyping method depends on the type of the solution, i.e., is it a process-based or a product-based solution. Availability of materials is also an important factor in choosing the type of prototype.
3. What is resourcing?	Planning and collecting for materials to make a prototype is called as resourcing
4. Why is it important to test your prototypes with the users?	Prototypes are made to test them with the users so that their feedback can be incorporated for designing a better solution before implementing it on a larger scale

Module 6: Make & Test

Workbook

Title	Objective and Description
1. Physical, Mock-Up Prototype, Storyboard and Roleplay	Students read and understand about the similarities and differences in physical and mock-up prototyping and Storyboarding and Roleplay prototyping
3. Choosing the best prototype	A tool to help students to select the best prototype they can for their particular solution
4. Resourcing	Activity to practice and plan for prototypes by listing out the resources required for building it.
5. User Testing	For students to test out their solutions with users and get feedback to make their solution better
6. Final Idea	For students to share the final problem and solution they have come up with. This sheet can be used during the Idea Submission as well.
7. Journey of Problem Solving	An activity to quickly recap the major steps, tools and keywords in the problem-solving journey.
8. Program Reflection	A team reflection activity to discuss and write about their experiences and takeaways from the program.
9. Team Reflection	An activity for each team member to reflect on the strengths and growths they have had during the program.

Teacher Actions Checklist



As a Teacher, you are required to take the following steps to help your students:

- Understand the portal and program by going through the teacher videos, handbook and taking the quiz.
- Introduce students to the program.
- Register student teams on the portal.
- Figure out how they can access the platform - school devices, home, teachers' device.
- Familiarize students with the course journey, the portal and help them plan their schedule.
- Track individual and team progress by following the schedules and time checks.
- Avoid making the students watch all the videos together. Every week plan a session, to watch 2-3 videos, and discuss how to do the related Workbook sheets.
- Use '**Check For Understanding**' given after each module concepts to drive the discussion around the videos and Worksheets and clear their doubts, if any.
- Go through the workbook and understand the activities. You should be able to clarify any doubts they might have.
- Support the students in doing activities in workbook by helping them schedule work-time within school premises.
- Evaluate their Workbook sheets to understand their concept understanding.
- Accompany students in their community visits and help them get the necessary permissions from parents, school or any other authorities.
- Reflect on student performances after each module and support them in making their journey easier.

01

02

03

04

05

2. Introduce the program

Objective:

Introduce problem-solving to inspire children to participate in the course

Check the step here.
This is the second step
in the Teacher Journey.

Audience:

All students in the school between Grades 6-10.

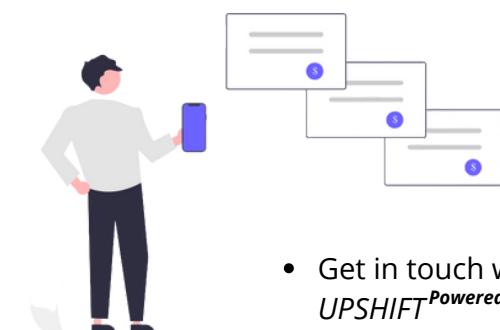


Session:

- After registering yourself, you can refer to the handbook & introductory video to explain the program outcome to the students.
- Give them a brief about the duration of the course (12 weeks) and how it happens.
- Inspire them by using examples of previous years student winners and other student ideas.
- Ask interested students to form teams of 4-5 and reach out to you to register themselves and participate in the course.



3. Register the Students



- Get in touch with your school's Point of Contact (POC) / log into the **UPSHIFT**^{Powered by unisolve} portal using the login details given to you and watch a video on how to register student teams or as instructed in your trainings.
- Once you register the different teams, make sure to share their correct login details with them.
- Instruct the students to login to the platform and complete their pre-survey.
- From our past experience, one guide teacher can handle up to 5 teams (20 students). However, it depends on how the program is rolled out in your area.

4. Support the Students

Objective:

Help students understand how the course components work and their learning pathway.

Audience:

All the registered student teams

The video named '**Course Components**' explains the students learning pathways.

Ensure the students have watched it and clear their doubts, if any

You can follow the best practices to ensure the best support for students through the journey.



Best Practices while supporting



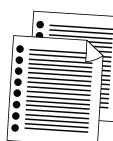
Ensure all the students have access to a mobile or a laptop with internet connection to complete their individual tasks.

Ensure all the students have a thorough understanding of the learning journey and components before they begin their Problem-Solving journey.



Give clear instructions to the students teams about their group tasks and schedules before the start of every module.

Prepare and discuss with student teams, follow the weekly schedule for watching videos and doing worksheets for each module.



Every team should be given one set of the printed workbook.

Alternatively, the students can view the worksheet digitally and do the activity in a dedicated Team Notebook.

Ensure all the students have access to the respective workbook while/after watching the weekly video.



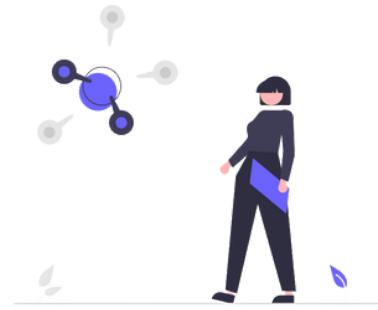
Conducting timely check-ins and checks for understanding while discussing the workbook sheets for respective videos and ensure that teams have a good hold of the concepts before proceeding with the completion* of worksheets.



Some modules require the students to do community visits, take interviews and ask for permission etc. Teachers can support them by accompanying them or helping them get required permission in their journey.

***Note:** The teacher is not supposed to help students with the completion of worksheets. However, before the students get on to the tasks in the worksheets, they may provide support to understand the concepts and tasks better.

Teacher Rubric



While this course is designed to be student lead, it is important that the teachers guide the student journey and support it in all ways possible.

Even though the students have to watch the videos on the portal, majority of the course is offline in the form of worksheets and team discussion. Hence assessing the student's performances on certain criteria can help understand if more support is required to ensure that the student journey is happening as expected.

Given below is a recommended Teacher Rubric for evaluating your student teams' performances as a whole for every module.

Teacher Rubric

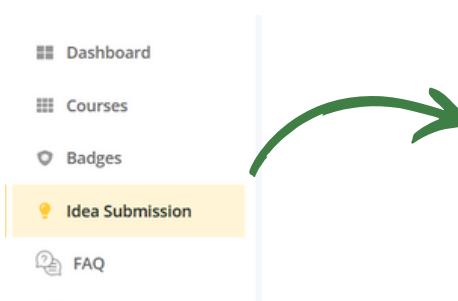
Criteria/ Scale	0	1	2
Comprehension <ul style="list-style-type: none"> Are all the learning objectives of the module met? Are all the key-concepts clearly understood by the students? <p><i>Note: You can use the worksheets and the Check For Understanding responses of your students to check for comprehension</i></p>	Not met. Greater support required.	Partially met. Better support required.	Fully met. Support worked well.
Participation <ul style="list-style-type: none"> Are all the students actively participating within a team to complete the required tasks? 	Not active. More push required.	Active but with constant push.	Active with minimal push.
On-time Completion <ul style="list-style-type: none"> Are all the students showing up and finishing their online and offline tasks in the allotted time? 	Poorly met. More reminders required.	Well met but regular reminders were necessary.	Well met with minimal reminders.

If your response is '0' or '1' for any of the criteria below, think of what you as a mentor can do to make the course better for the students.

Note: You can use the rubric at the end of each module to assess the student performance.

5. Complete the program

Ideal Submission



Once the final idea is made by the teams, help them upload their idea on the '**Idea Submission**' page. The ideas will be evaluated and scored only if the team's idea has been submitted in the 'Idea Submission' page. Instruct them to save as draft and complete the form. Before submitting, you can make sure the idea is new and useful and everything is filled properly.

Once the idea is submitted, it cannot be changed.

Here is a sample of idea evaluation parameter to check the quality of a team's idea before submitting.

Evaluation Parameters:

The Ideas are evaluated mainly based on 5 attributes. The 5 attributes are the following:

- **Novelty**

How New / Novel is the idea?

- **Useful**

How Useful is the idea?

- **Feasibility**

Do the Budget, Material Requirements and Technological Requirements available locally and at affordable prices.

- **Problem**

Impact of the problem?

- **Cost of Make and Sell**

Viability to make the product or to sell it in the market

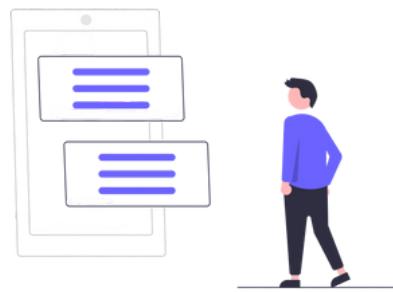
Make sure the ideas are not copied from other places.

Make sure the details are properly filled in the idea submission form.

Survey: Pre and Post

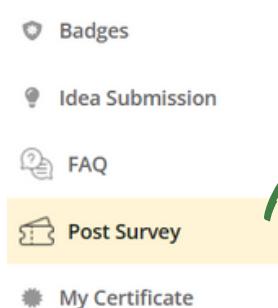
We are deeply grateful to you for playing the role of a guide and mentor to your students in their problem-solving journey but the effectiveness of any course has to be determined through proper surveys and analysis of the same. And since you, in your capacity as a guide and a mentor, have been the closest to the ground, your input on the effectiveness of the course is extremely valuable to us. The pre and post survey is used to capture this feedback.

All of your responses will be analyzed to build a better product in the future.



Pre - Survey

You would have already filled the pre-survey while registering yourself on the platform. Similarly, for students as well, the first they do when they login to the platform is fill in the pre survey.



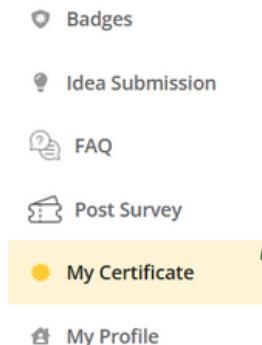
Submitting Post-Survey

To submit your responses, login with your user-name ID and password on to the **UPSHIFT** Powered by unisolve portal and click on the '**Post-Survey**' tab on the MAIN MENU in the left side. You can fill up the survey once all the students in your school have completed the program.

The Pre and Post Survey for teachers and students together gives us valuable information about the program experince, it's effective and other such feedback.

Surveys are an important part of teachers and students' journey. Make sure you and each of your students have individually done the surveys.

Certificate



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The **UPSHIFT** Certificate recognizes your contribution and commitment to the program. Make sure to download these. Certificates will be available in the '**My Certificate**' page for teachers but only after the post survey is completed. Don't forget to collect them.

Your students certificates will also be in the '**My certificates**' page after logging into their profiles. Once they finish idea submission and complete their individual post-survey, they will be able to download their certificates. Remind your students to collect them.

Certificates are important as they show your participation, commitment and completion of the program .

Post Program

What next for student teams?

Evaluation

The ideas submitted on the platform will be evaluated based on the criteria given before. They will be evaluated by industry experts, mentors and experts from their respective fields.

The shortlisted ideas can then be further supported by different stakeholders!

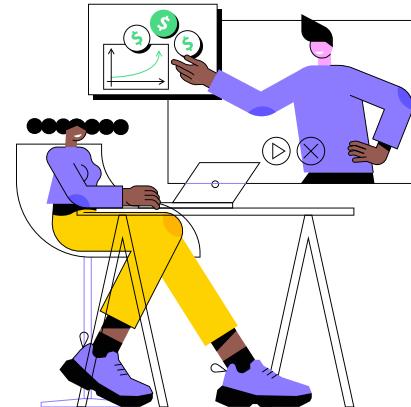


Bootcamp

Bootcamps are intense but fun workshops conducted for student teams to work on their solutions closely.

Shortlisted teams get the chance to be mentored and guided by experts as they work on their ideas & prototypes.

Further evaluation of ideas will also happen in the bootcamps.



Finale

Finales are big events where student teams of the top ideas get recognized and awarded for their innovative solutions that will help solve problems in the real world.

The teachers of the respective teams are also recognized for their effort and support.



Ways to Contribute Further

What next for teachers?

Dear Guide Teachers,

We express our heartfelt gratitude to you for supporting the student teams on their problem solving journeys. Your commitment towards the students will lead them to be problem-solvers of our world.

Powered by UniSolve

The aim of **UPSHIFT** is to foster critical thinking, creative problems solving and design thinking skills in students to give them confidence to face the world and make it a better place. Even though the program officially ends with the finale, you and your students can carry forward the problem solving attitude in school! We want this program to help in making these skills a part of their everyday life, not just win in the finale.

To do so, your guidance has and will continue to play a critical role in your students' lives. Encourage the students and motivate them to take on new challenges and become more aware and sensitive about their surroundings, so that they can grow up and be responsible citizens. Your guidance not only instills problem solving skills but also makes them aware of the SDG's which are crucial to future of the planet and the betterment of people's lives.

As you continue to inspire students, we encourage you to turn your classrooms into places where they can continue to solve problems around them fearlessly. Show them the value of collaborating. Show them what it takes to solve problems. Experience building a better community for all. Experience finding like-minded people. Keep doing all of the amazing things you already do!

