

2 lessons

**50
minutes**

Age range

**7 - 11
years**

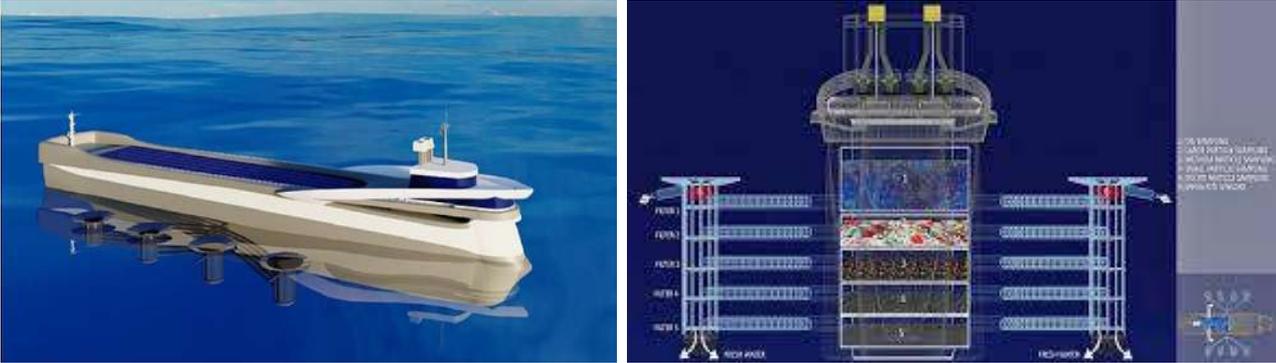


PLASTIC

Changemakers

MODULE 3: STUDENT WORKSHEETS
INNOVATION & CREATIVITY

Changemaker Reading Comprehension: Information sheet 1

 <p>Image © 2016 Ryan Lash</p>	<p>Name:</p>	<p>Haaziq Kazi</p>
	<p>Age (at time of invention):</p>	<p>13</p>
	<p>Country of origin:</p>	<p>India</p>
	<p>What is the problem they noticed?</p>	
	<p>People are producing a huge amount of plastic waste, ranging from 6 tons per person, per year in India, to 90 tons per person, per year in the USA. While brushing his teeth and watching the water circle the drain, he had an idea of a special ship that would clean the plastic out of the ocean.</p>	
<p>What did they invent?</p>	<p>ERVIS, an innovative ship that cleans the plastic off the surface of the ocean.</p> <p>It's a large boat, powered by renewable energy. It has saucers that float on the surface, creating whirlpools that collect the waste into the ship. Inside the ship is a large filtration system that separates out the different types of waste.</p> <p>He wanted the ship to:</p> <ol style="list-style-type: none"> 1. Clean the plastic from the ocean 2. Analyze the waste it finds to see where it comes from 3. Stop the plastic being left in the ocean by ships in the first place 	
		
<p>Features:</p>	<p>Cost:</p>	<p>Challenges:</p>
<p>It doesn't harm animals in the sea. It's powered by solar power and renewable natural gas.</p>	<p>Unknown</p>	<p>The initial design was circular, but this was not hydrodynamic enough, so he changed the shape.</p>

Changemaker Reading Comprehension: Information sheet 2



Image © UNICEF LACRO/2021

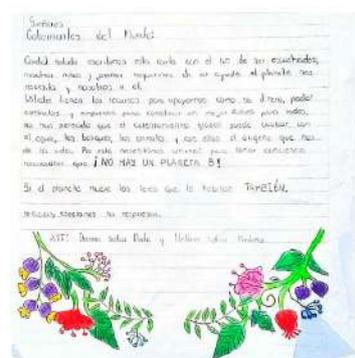
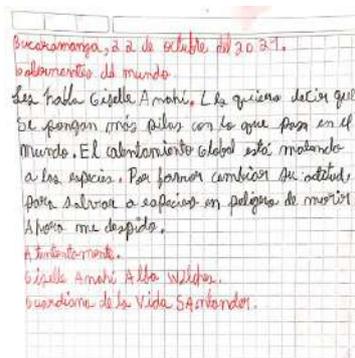
Name:	Francisco Vera
Age (at time of invention):	12
Country of origin:	Peru/Colombia

What is the problem they noticed?

Francisco noticed that there were beautiful waterfalls in Villeta in Colombia which have turned green because of pollution. He also saw fires in the Amazon rainforest, caused by climate change. He was worried about the animals that would be affected.

What did they invent?

Colombia is one of the countries which is most affected by climate change and so he wanted to do something to help. He set up “Guardianes por la vida”, a social movement for children and adults, to raise awareness of climate change and its impact. They want countries to make changes to help reduce the negative effects of climate change. When he attended COP26 (a big meeting of world leaders) he encouraged many children to write letters to those leaders, which he took and shared with them.



Features:	Cost:	Challenges:
Many people can get involved	Free	Encouraging world leaders to not only listen, but make big changes.

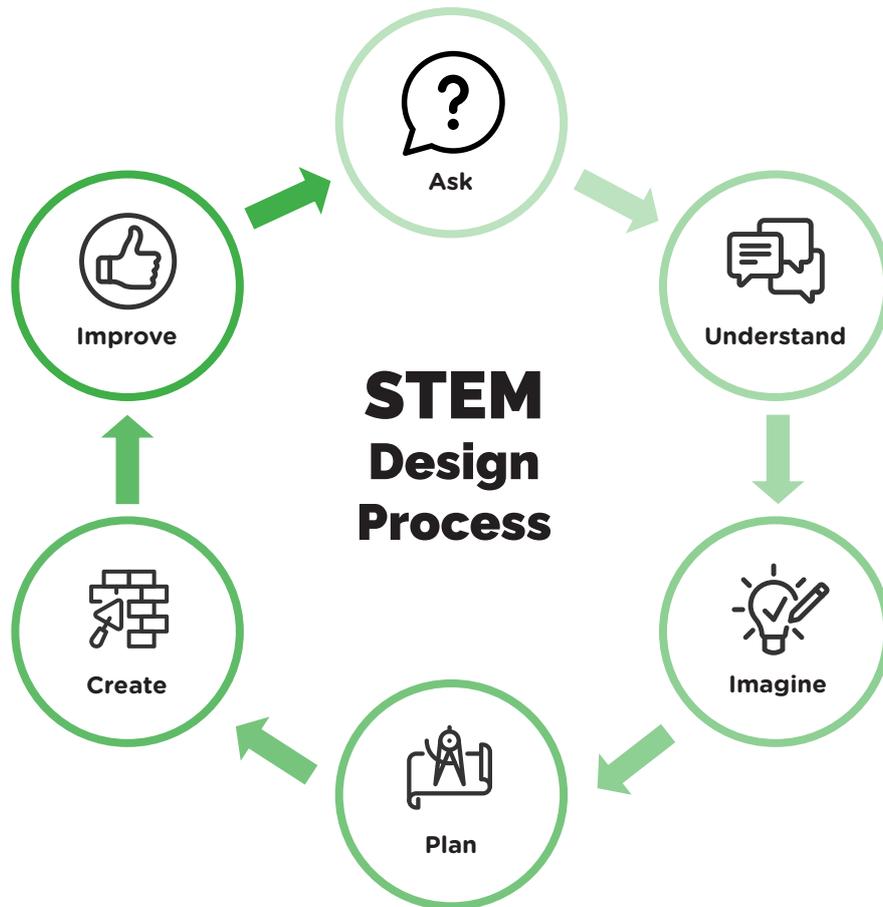
Changemaker Reading Comprehension: Information sheet 3

 <p>© annadu.org</p>	Name: Anna Du	
	Age (at time of invention): 12	
	Country of origin: USA	
What is the problem they noticed?		
<p>She was collecting garbage on the beach when she saw some tiny pieces that she just couldn't pick up.</p> <p>She researched microplastics (tiny pieces of plastic) and realized what a big problem they cause in our oceans.</p> <p>Fish have been eating microplastics which is bad for their health.</p>		
What did they invent?	<p>Anna invented a robot which uses an infrared camera (that looks at how hot or cold something is) to find microplastics on the floor of the ocean.</p> <p>She has also made a more complicated robot that tries to predict (guess) where plastics might be.</p>	
 		
Features:	Cost:	Challenges:
<p>It doesn't harm animals in the oceans. It has sensors to collect plastic as well as a camera and various lighting to spot plastic. It uses power sources on shore.</p>	<p>Free</p>	<p>Lack of data to train artificial intelligence.</p>

Plastic Consumption: Images for discussion



STEAM Design Process



Parent/teacher guiding questions page with example questions to encourage thinking

Examples:

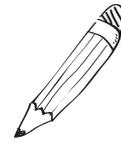
- Tell me about what you're doing?
- Why do you think...?
- How do you know...?
- Why do you think this happened?
- What will happen next?
- How did this happen?
- What can you do about it?

Name: _____

Date: _____



Changemaker Template Worksheet



Name of inventor:	
What is the problem they noticed?	
What did they invent?	
Draw a picture of their invention:	
Any other notes: (what impact has it had? Did they face any challenges? What features does it have?)	
<ul style="list-style-type: none">•••	

Name: _____

Date: _____

- Innovation name:
- Names of learners involved:
- Materiality (*What is it made out of*):
- Problem addressed:
- Impact made (how many people and who will it help):
- Sketch:
- Features: *Can you use it more than once? What if it breaks?*
Does it have more than one purpose?
- How much will it cost? Cost of materials, cost to make one
- Potential challenges

PLANNING SHEET

Name of inventors:		Draw a picture of their invention:
What is the problem you are working to fix?		
What is your invention?		
What are the features?		
What is the impact?		
What materials do you need?		

Sentence starters for feedback worksheet



Student Feedback Sentence Frames



Student feedback Positive

- Excellent job on...
- Terrific job on...
- You did a superior job on...
- I enjoyed...because...
- The strongest part of your work was...
- The best thing about your work is...

Student Feedback Needs to Improve

- One suggestion would be...
- I think you should add...
- Don't forget to....
- I was wondering if...
- I think a better choice may be
- I strongly suggest...
- I am confused by
- Think about...

Students Feedback Questions I have

- What are...
- What do...
- What is...
- Should you...
- Why is...
- Where is...
- Where will...
- How do...
- How will..
- How does...
- Did you consider...

Final innovation submission

Name: _____

Date: _____

- Names of children in the group and innovation title

- What is the problem they are tackling?

- What is their idea for the solution?

- What are its features? Sketch box

- The impact

- How does it benefit animals? How does it benefit the environment? People? The community?

- What materials are needed?

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