



# THE SOLUTION STAGE

## TEACHER'S NOTES

### Learning Objectives:

- Experience expressing an idea as an impactful solution using techniques from the real world.
- Share your solution with the world!

To solve complex problems, lots of different people have a role to play. In this section your students will take on the role of scientist, inventor, entrepreneur, artist or journalist. It's up to you to decide which role you give your students and how to run the activity.

First, pick one of the 5 roles for your students below. You could link this to the curriculum subject area you teach.

Scientist	Inventor	Entrepreneur	Artist	Journalist
Prove it	Design it	Pitch it	Express it	Describe it
Scientists research the facts, test and experiment and then use the evidence.  They are fact finders!	Inventors solve problems by finding new ways to do things.  They are designers and makers!	Entrepreneurs spot good ideas, persuade others to support them and make them a reality.  They are business leaders!	Artists are performers and creatives of all kinds who take ideas and express them in ways that engage our emotions.  They inspire us to think differently!	Journalists tell us what is happening in the world.  They share the news!
Science, Maths, Geography	Design and Technology, Computing, Coding	English, Business Studies, Public Speaking, Leadership	Creative Arts, Dance, Drama, Music, Creative Writing, Poetry, Filmmaking	English, Humanities, Social Studies, Geography

Read through the instructions for that role and use the ideas and discussion questions to think of a task for your students. You could spend 15 minutes, an hour, or a whole day on it! If you're not sure, start with the worksheet.



When students are finished, find a way for them to share ideas with each other and your school community. Then share them on the Generation Earthshot website and using the hashtag #GenerationEarthshot on social media!

## Scientist

Your students are scientists. Scientists research the facts, experiment, test and use the evidence. They are fact finders!

**Learning objective:** Understand the importance of gathering scientific evidence, and how to do it.

## Quick activity

Explain to students that they are going to think about how to use evidence to prove whether or not their solution will work. This is always a scientist's first step.

To do this they need to write down their:

- Hypothesis: How will their solution work?
- Evidence: What information will prove it works?
- Research: How will they find this information?

You can use the **Scientist worksheet** for this activity.

In the research stage, decide whether students will use information that already exists or make an experiment of their own.

## Guiding questions

*How could you test whether your solution will work? How would you know if it was making a difference? What data would you need? How could you collect it? Would you need to make any calculations?*

## Extension ideas

- Spend time researching the science behind this issue in depth.
- Set up an experiment to test whether your solution will work.
- Plan a field trip to gather the data yourself.



# PROVE IT

## HYPOTHESIS

We believe that if .....

The result will be .....

.....

## EVIDENCE

We will measure .....

This will tell us .....

.....

## RESEARCH

To test this we will .....

.....

.....

### What next?

How could you bring your solution to life and share it with the world?



## Inventor

Your students are inventors. Inventors solve problems by finding new ways to do things. They are designers and makers!

**Learning objective:** Understand how to plan, test and improve a solution.

## Quick activity

Ask students to create a storyboard or draw a cartoon strip showing how your solution will work in the real world. You can use the Inventor worksheet for this activity.

Each square should be a new step in the process, showing what happens before, during and after the solution has been put into practice. This will help students break down what is needed and find any unexpected issues. If they do find issues, find new ways to do it! That's what inventing is all about.

## Guiding questions

*How would your solution work in the real world? Could you draw a design or build a model? What materials would your solution need? What do you need to test? Are there any unexpected problems?*

## Extension ideas

- Draw a diagram of your solution with labels describing each part and include a list of the materials needed to make it.
- Build a physical model - a 'prototype' - out of available materials. Or even build the solution itself if you can! See if it works. If it doesn't, try and develop it further so that it does.
- Explore how you could use digital skills or coding to bring your solution to life.



# DESIGN IT



**SOLUTION** .....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

## What next?

How could you bring your solution to life and share it with the world?



## Entrepreneur

Your students are entrepreneurs. Entrepreneurs spot good ideas and persuade others to support them to make them a reality. You are business leaders!

**Learning objective:** Understand how to persuade others that a solution is important.

## Quick activity

Ask students to write a speech or a presentation explaining why this solution is so important. The Entrepreneur worksheet has sentence starters that they can use.

When they've finished writing, they can practice in pairs or small groups. Remind students to give each other feedback that is kind and constructive, suggesting how they could make it better.

Then perform them to each other, another class or a group of parents.

## Guiding questions

*Who is your audience? What do you want them to think and do? What information do they need to know? How can you persuade them to help you? What questions might they have? How can you capture their attention?*

## Extension ideas

- Make an advertisement for your solution, encouraging people to use it.
- Write a business plan explaining how you will make solution a reality - what resources do you need? Where could they come from?
- Host a Dragons' Den pitching session! Invite other students to watch and act as judges.



# PITCH IT



Ladies and gentlemen, thank you for joining us.

**We have a problem** .....

.....

.....

**Our solution is** .....

.....

.....

**You might be asking** .....

.....

.....

**That's a great question. The answer is** .....

.....

.....

**Our dream is** .....

.....

.....

**You can help by** .....

.....

.....

Thank you for your time.

## What next?

How could you bring your solution to life and share it with the world?



## Artist

Your students are artists! Artists take ideas and share them with the world in beautiful ways. They are performers and creatives of all kinds!

**Learning objective:** Understand how to express a solution and share it with others, through art.

## Quick activity

Ask students to write a poem that explains why their solution is so important. There is no right answer. It's all about students sharing their own perspective.

First ask them to think about the problem you are trying to solve and why it matters to them. How does it make them feel? Then ask them to think about how their solution could help. What would the world be like? They could imagine a world where their solution has worked. What would it look / sound / smell / taste / feel like?

You could use the **Artist worksheet** to help you get started. In this poem each new line should start with the letter from the word Earthshot. The rest is up to your students! When they have written their poem, they can decorate it for display.

## Guiding questions

*How could you get the attention of the public for this idea? How can you get the attention of the public for this idea? Where would you put it? How can you make them care? How can you tell a story? How can you explain the impact?*

## Extension ideas

- Make a big poster to bring your solution to life. Each student starts with a section and then put them all together! Display your posters around your classroom or school.
- Make a song or a dramatic performance, persuading others why your solution is needed.
- Put on an exhibition to share your solution with others, through art!





# EXPRESS IT

POEM TITLE .....

E .....  
A .....  
R .....  
T .....  
H .....  
S .....  
H .....  
O .....  
T .....

## What next?

How could you bring your solution to life and share it with the world?

SOLUTION STAGE

Worksheet

GENERATION  
EARTHSHOT



THE  
EARTHSHOT  
PRIZE

ROYAL  
FOUNDATION  
OF THE DUKE AND DUCHESS  
OF CAMBRIDGE



## Journalist

Your students are journalists. Journalists tell us what is happening in the world. You are sharers of the news!

**Learning objective:** Understand how to communicate in a factual way, in order to give your audience all the information they need.

## Quick activity

Ask students to imagine that the year is 2030 and their solution has become a reality. They are going to write a report for the national newspaper, on the front page!

Fill in the blanks on the Journalist worksheet, or ask students to design their own front page. Make sure you have a headline, a summary, a longer description and an image.

## Discussion questions:

*How would you report on this idea? Who is your audience? What are the key facts about the idea that they need to know? Can you summarise it in a few sentences? What other information might they need to know?*

## Ideas

- Make a TV news report on video, with interviews and discussion about the solution.
- Write a detailed case study for a magazine explaining why the problem you are tackling is so important.
- Write an opinionated blog persuading others of why you think this solution is so important.



# DESCRIBE IT

## THE DAILY EARTHSHOT

Headline



Summary

.....

.....

.....

Description 1/2

.....

.....

.....

.....

.....

.....

.....

.....

.....

Description 2/2

.....

.....

.....

.....

.....

Image

.....

.....

.....

.....

.....

### What next?

How could you bring your solution to life and share it with the world?



## Share your ideas with the world!

When you're finished, we'd love to see your students work! You can submit them through the Generation Earthshot website to receive student certificates and a letter of appreciation from the Prize Council.

You can also share them with the world on social media using the hashtag #GenerationEarthshot and follow The Earthshot Prize social media channels.

## What else could you do?

Once you have completed the framework you can start again using a different Earthshot as the starting point and students can take on a different role to showcase solutions. In this way there are 25 different pathways through the framework. Students will become expert at generating ideas very quickly!

At the end of every cycle ask students to reflect on their learning and acknowledge how far they have come. You can ask them:

- *What they enjoyed most and what would they do differently next time.*
- *How do they feel about the ideas generated? What surprised them?*
- *What would they like to do next?*

You could also discuss how their work relates to the Sustainable Development Goals or Global Goals. This is a set of 17 ambitious goals for people and the planet, agreed by all 193 members of the United Nations in 2015. A grid of the Global Goals is included in this toolkit. Ask students which goals their solution positively affects. The more they discuss, the more they will see links to other Global Goals. This will show them that their solution is part of a global effort to build a sustainable global environment, society and economy.

If an idea really captures students' imaginations they could really bring it to life by setting up a project team, building an action plan and getting started. Is it something your whole school could get involved with? What about the wider community? Could you raise awareness and work with local people to help the idea go further? Could you contact local organisations or government and ask them to support? Think big and brilliant things can happen!

Whatever they do, we'd love to see your students work. Please share it with us via the Generation Earthshot website and by using #GenerationEarthshot on social media.

And don't forget to encourage students to watch the annual Earthshot Prize awards! You can find out how to do this at <https://earthshotprize.org/>. Host a watch party at school or encourage students to discuss the winning ideas they liked most. All the winners will have started their journey with an idea, so encourage students to believe that they could be a winner too one day!