

Making Waves

Inventing for a better ocean

KS2 Teacher Guide



Will your imagination change the world?

Take part in the Making Waves: Inventing for a better ocean challenge!

The ocean covers more than 70% of our planet, and is essential to all life on Earth. But human factors like overpopulation, travel, noise and industrialisation have taken their toll on life beneath the waves.

We need to build a better future for our oceans with science, invention, and innovation at the heart of it all. The more we understand our oceans, the better we can learn to look after them and bring them back to health.

That's why we've partnered with Dogger Bank Wind Farm and South Tyneside Council to bring you our latest invention challenge:

Making Waves! Inventing for a better ocean.

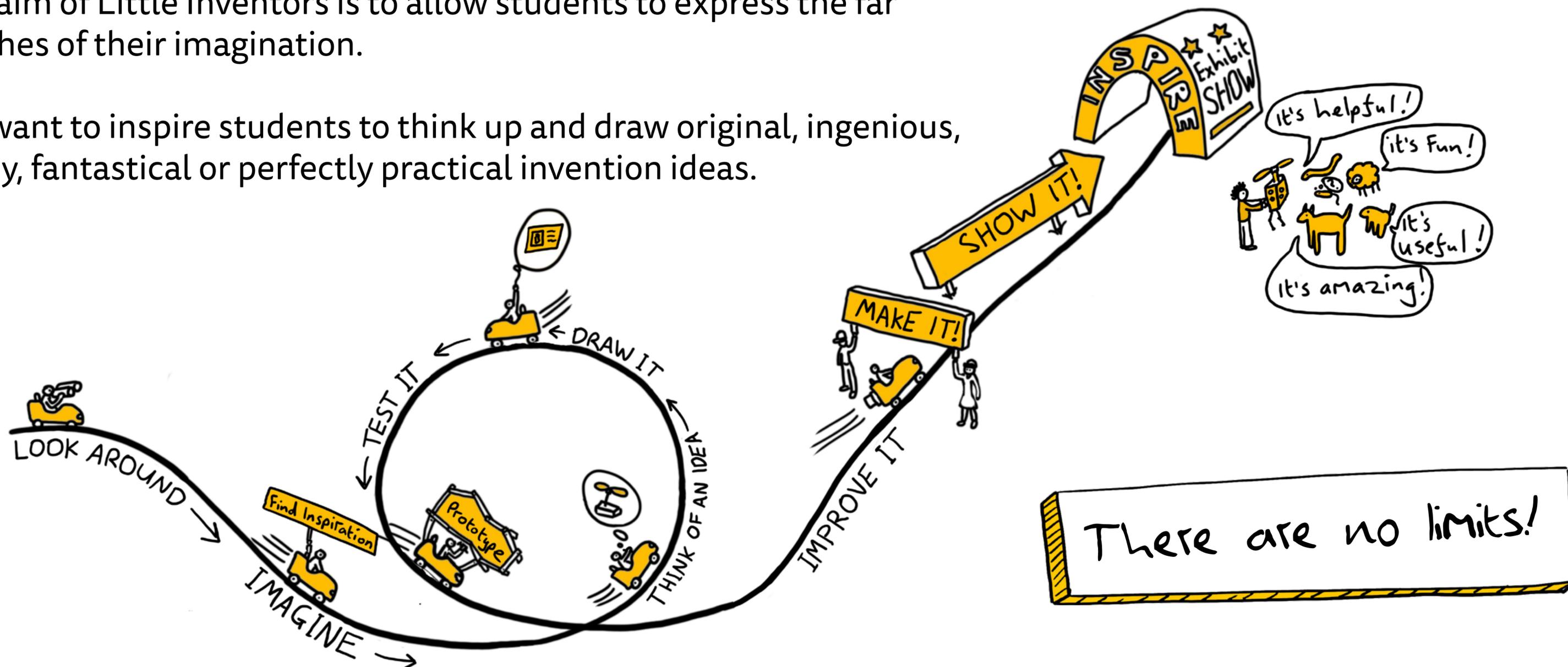
So listen up, because we're about to head out into the big blue!



What's the aim of the project?

The aim of Little Inventors is to allow students to express the far reaches of their imagination.

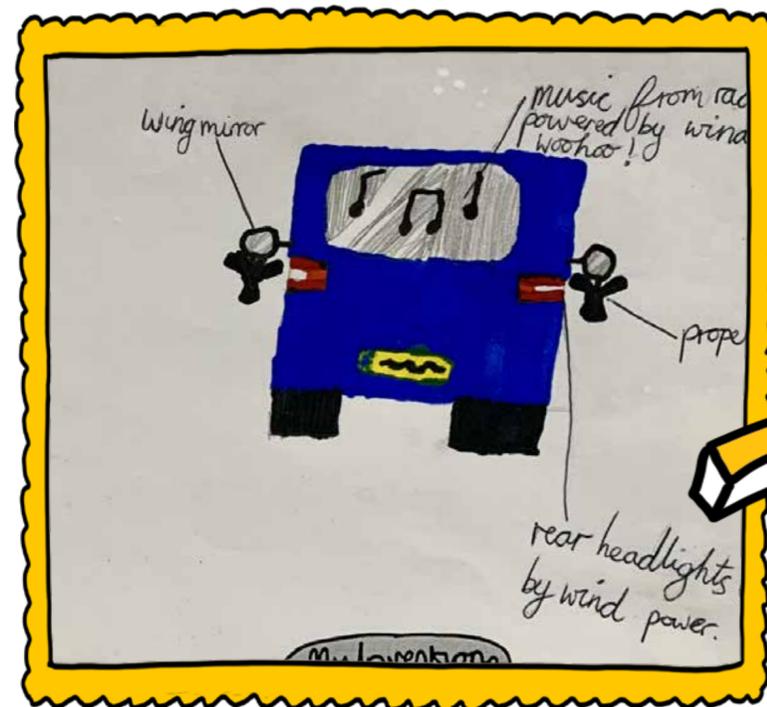
We want to inspire students to think up and draw original, ingenious, funny, fantastical or perfectly practical invention ideas.



What's in it for my students?

Students will be invited to draw and submit their own inventions to appear on the online invention gallery, where they will be reviewed by the Little Inventors team and Dogger Bank wind farm.

Their idea might be chosen as a Little Inventors Team Favourite, turned into an animation, or brought to life by one of our Magnificent Makers!



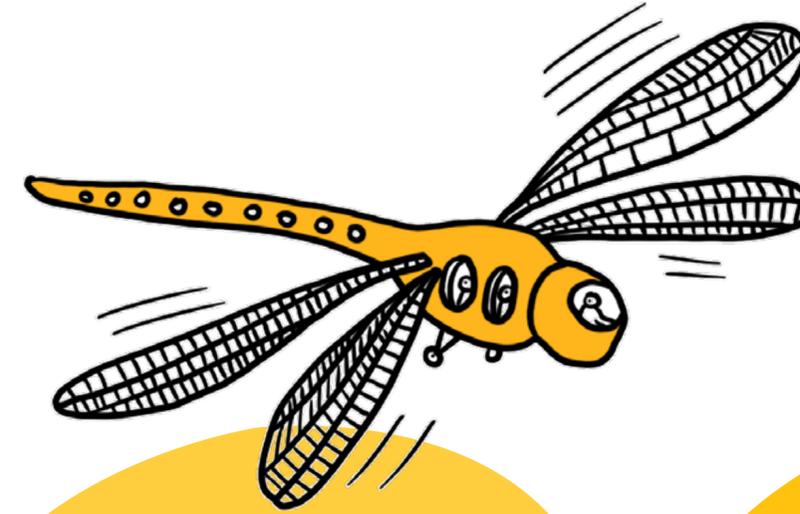
Wind Mirrors by Isaac, age 9



Brought to life by Ford Aerospace

In 2024 Isaac's was shortlisted for Young Innovator award at The Engineer's Collaborate to Innovate Awards!

Key Project Dates



Teacher training
session & launch

15th October
2024

Challenge
close

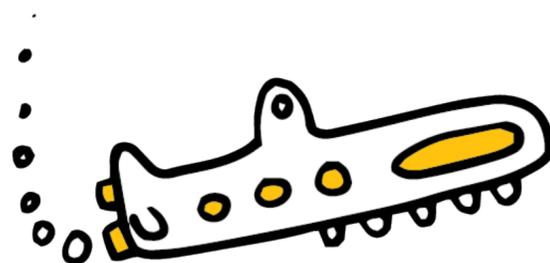
30th April
2025

Winner
selection

May
2025

Bringing to life
process

June - July
2025





Invention Challenge



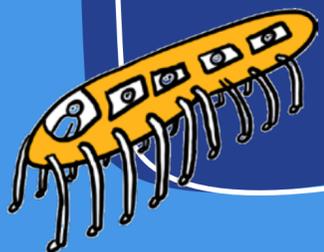
Surfing, sailing, water-skiing... there's no end to the ways you can explore the ocean and the fun you can have doing it! But the way we travel really matters, as how we produce and use energy is the biggest reason for pollution on Earth. It's the main cause of climate change. So we have to change how we live so we can take better care of our planet.

Let the ocean power your imagination and let's start inventing for a better future!



Can you invent a new way to travel across the ocean or to have fun in the ocean that doesn't use any electricity or fuel?

Think about human powered inventions that use no fuels such as skis, surfboards, catapults or bicycles. Could you combine two existing inventions or come up with something totally new?!

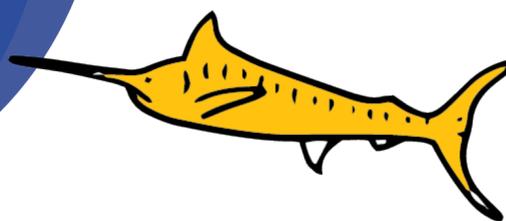


Learning content

Students will explore ocean themed topics through a **creative lens**, delving into the **wonders of the ocean**. Using the presentations in the resource pack you will introduce them to creative thinking techniques and teach them the content they need to know to come up with their own **brilliant inventions**.

Students will get creative about how they can **invent a new way to travel across the ocean**. The activities will allow students to **gather information** and creative ideas to develop some unique and exciting sparks of inspiration that will guide them on to designing their final invention!

The presentations are also available as **narrated videos** which can be played directly to your students to speed things up or used for yourself to revise the content.



Resource pack checklist



Use this Resource pack checklist to make sure you have all of the core materials to hand to deliver the challenge!

All resources are available at southtyneside.littleinventors.org

Your lessons and activities can be adapted to suit your specific learning environment and students' needs



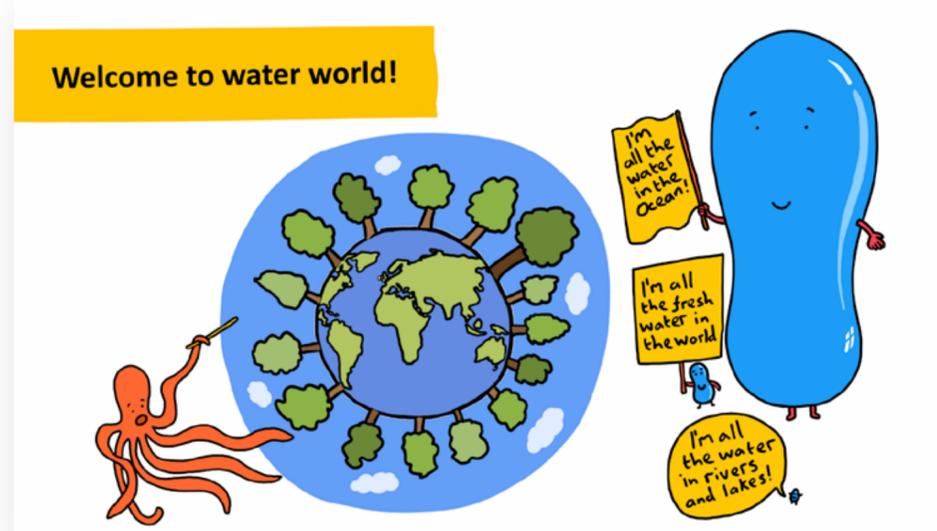
- Introduction Presentation
- Challenge Launch Video
- Challenge Presentation
- Activated Challenge Presentation
- Activity Sheet: Mix-up machine
- Activity Sheet: Ocean mind map
- Activity Sheet: Travelling without a trace
- Challenge Cards
- Invention Challenge Video
- Invention Drawing Sheet

Digital teaching resources



Introduction Presentation

25 - 30 mins



Challenge Presentation

50 - 60 mins



Activated Challenge Presentation

14 mins

Printed resources

60 - 120 mins



Mix-up machine

Cut out the odd machine parts and rearrange them on the sheet to make something new! Stick them down when you're happy with it. You can also draw your own parts to add to your creation. Add colours to bring it to life!

DOGGER BANK WIND FARM South Tyneside Council Little Inventors

Activity sheet Mix-up machine

Travelling without a trace

The way we travel and transport goods creates a lot of pollution. What other ways could we travel that creates less pollution?

DOGGER BANK WIND FARM South Tyneside Council Little Inventors

Activity sheet Travelling without a trace

Challenge cards

Oceans: Making waves

Cut up the cards and pick one to get started. What does this make you think about? What problem do you need to solve? What invention can you come up with? You can also make up your own ocean challenge!

Invent a way to reduce noise pollution from drilling underwater	Invent a new type of house for a fish or other ocean creature
Invent a way to make boats sound quieter underwater	MAKE UP YOUR OWN CHALLENGE!
Invent a way to clean up oil spills	Invent something inspired by a coral reef

DOGGER BANK WIND FARM South Tyneside Council Little Inventors southtyneside.littleinventors.org

Challenge cards

Ocean state of mind

Use this mind map to think up ideas for how to protect the ocean

DOGGER BANK WIND FARM South Tyneside Council Little Inventors

Activity sheet Ocean mind map

My Making Waves Invention

Draw your invention here! Use a black pen, add colours and labels

Invention name _____
First name _____
Age _____
School _____
Town/city and country _____

Tell us more!
(Who it is for, what it does, how it works!)

Upload your idea at southtyneside.littleinventors.org to get feedback. Who knows, it could be made real!

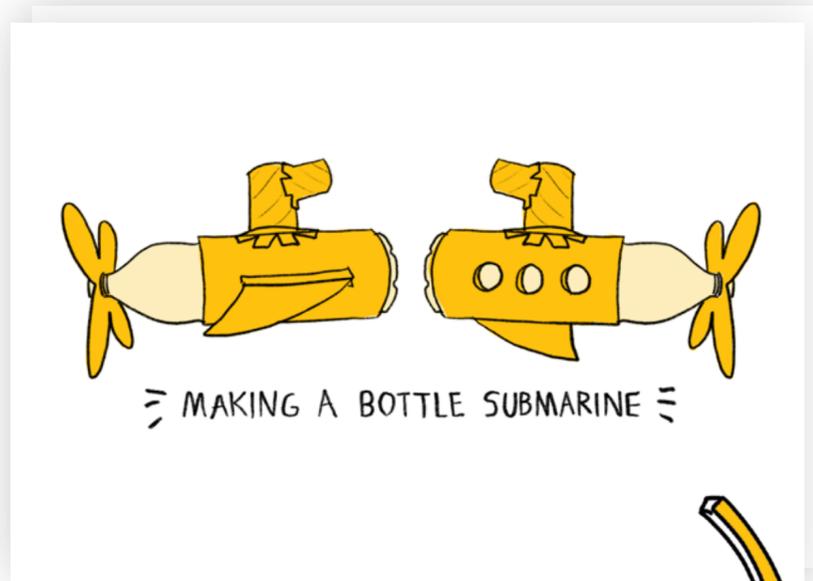
Invention drawing sheet

The Challenge cards and Activity booklet can be shared between multiple students

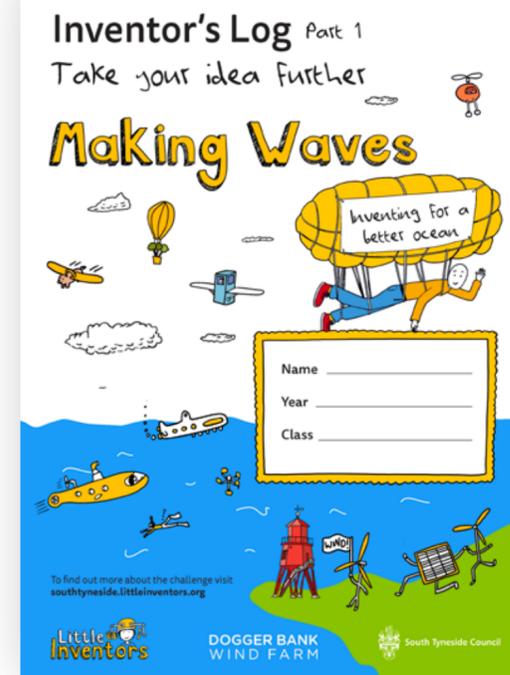
Go further!

30 - 180 mins

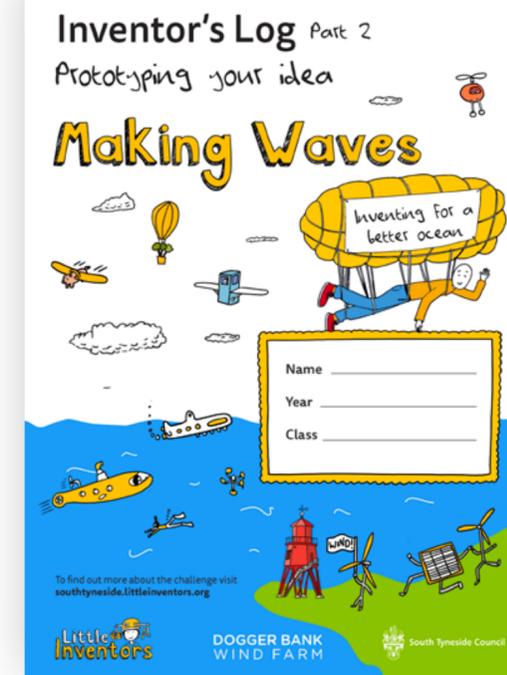
Extension activities for students who want to continue their great work. These activities can form many hours of additional learning and can be dipped into during classtime or at home.



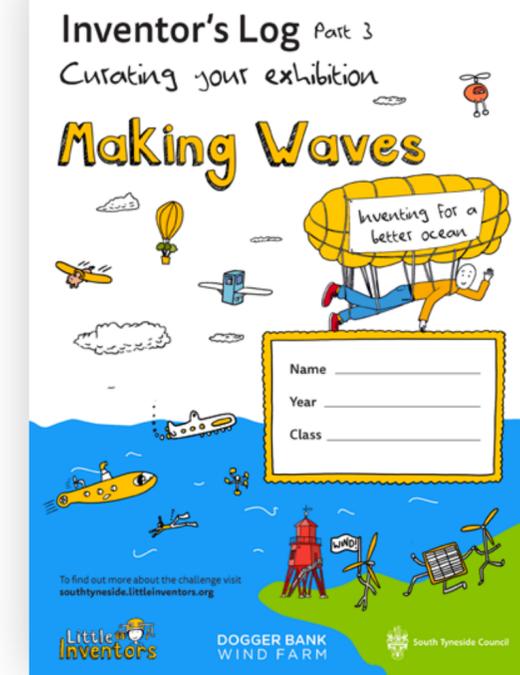
Submarine Prototyping Activity



Take your ideas further



Prototyping your idea



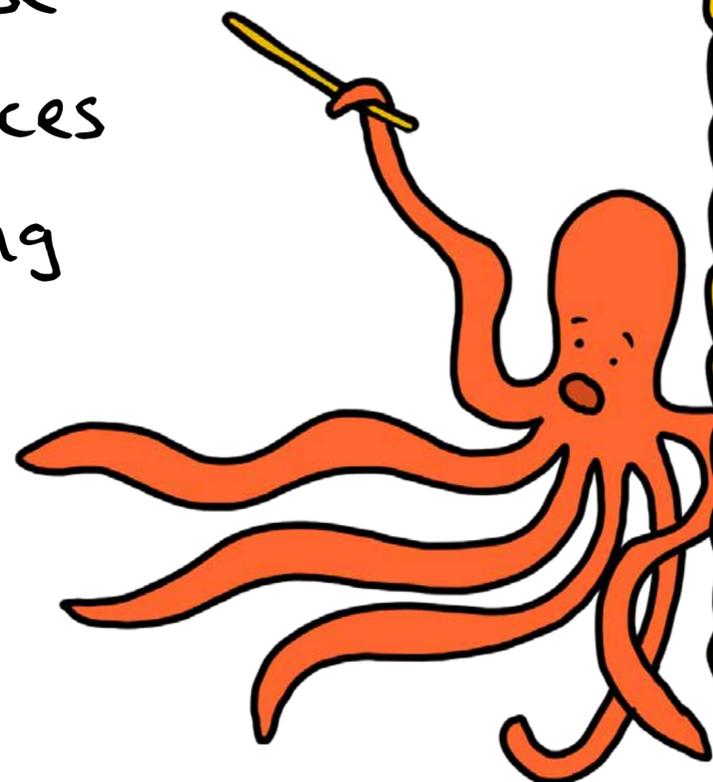
Curating your exhibition

You can also find a video tutorial at southtyneside.littleinventor.org

Tips on using the resources

The resources are designed to be worked through from top to bottom intersected with hands-on activities along the way to keep the students engaged and developing their creativity and inventing skills.

It's important to familiarise yourself with the resources before delivering anything to your class.



In addition to the printed materials your class will need:

- . Pens and coloured pencils
- . Scissors
- . Junk materials for students that prefer to think with their hands rather than sketching (e.g. cardboard boxes, plastic bottles, pipe cleaners...anything destined for trash that can be re-used to make a model)
- . Additional materials for prototyping are on the submarine prototyping activity

What next?

Celebrate all of the hard work completed by the whole class. You may want to explore ideas of how you can showcase all of the inventions at your school.

How about an invention exhibition? You could invite the school community to come and explore all of the fantastic ideas!



[Download the Classroom Exhibition Materials at southtyneside.littleinventors.org](https://southtyneside.littleinventors.org)

We're here to help

If you have any questions or need any help please get in touch with Ellie or Craig at

hello@littleinventors.org

We wish you and your students the best of luck with the challenge and can't wait to see the inventions!

