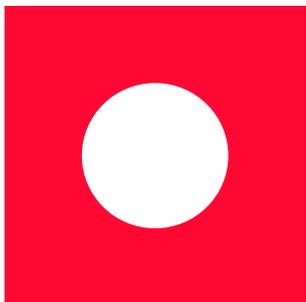


# ***Volvo Ocean Race Sustainability Education Programme***



**Teacher's Guide**  
TOPIC 4



# My Positive Plastic Footprint

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# Introduction

Welcome aboard the Volvo Ocean Race Sustainability Education Programme. The race is putting sustainability at its heart and is focusing on taking action to 'Turn the Tide on Plastic' – the rapidly growing and critical problem of plastic polluting the ocean, highlighted by the United Nations Environment's Clean Seas campaign.

The Volvo Ocean Race supports this much-needed campaign, through our sustainability team, education programme and positive actions. It truly is a race for the ocean and we believe Together, we can Turn the Tide on Plastic!

This fun programme will help you and your students (aged 6-12 years) discover the excitement of sailing through the Volvo Ocean Race, the importance of the ocean and how ocean plastic pollution is damaging our blue planet. It will also show you ways to combat ocean plastic pollution and how YOU and your students can make a difference by becoming Volvo Ocean Race Champions for the Sea!

There are four topics:

1. What is the Volvo Ocean Race?
2. What is ocean plastic pollution?
3. How to reduce ocean plastic pollution
- 4. My Positive Plastic Footprint**

We have developed resources for each topic

- Powerpoint Presentation
- Worksheets (for age groups: 6-8yrs, 8-10yrs & 10-12yrs)
- Student booklet 6-8 years
- Student booklet 8-12 years
- Suggested cross-curricular activities
- Evaluation quiz

Resources are available in English, Spanish, Portugese, Swedish, Dutch and Chinese

This teacher's booklet identifies the curriculum undertaken in each worksheet. Different cross-curricular activities are also optional in this booklet.

Worksheets are colour coded for each age group

- Blue 6-8 yr/old
- Red 8-10 yr/old
- Green 10-12 yr/old



She is a Laysan albatross from Midway Atoll in the Pacific Ocean and is featured throughout the education resources. Wisdom's worksheets will enable your students to learn about each topic in a fun way.

**Please remember to fill in the feedback survey when you have completed the programme.**

**All materials are available for download and can be emailed to students or if you choose to print please print any materials on sustainable and recycled paper.**

Refer to the table below to see what curriculum subjects are undertaken using Topic 4 worksheets.

	Worksheet 1	Worksheet 2	Worksheet 3
Subject	Upcycle	Circles & Lines	My Positive Plastic Footprint
Geography			
History			Historical use of items
STEM	Engineering & Design	Manufacturing & Production	
Language	New words, word match, memory	Word matching Research & Report writing	Write a pledge Comprehension/word matching
Global Citizenship	Circular economy concepts	Learning from nature	How to make a positive change
Art	Crafts	Crafts	Creativity & Decoration of Pledge

STEM: Science, Technology, Engineering & Math

## Materials available:

- 1. Powerpoint presentation online** available for download - with notes on key concepts of how to reduce ocean plastic pollution. This informative presentation has helpful information on how to create a Positive Plastic Footprint and inspires students to make a difference.
- 2. Information booklets** for ages 6-8 years and 8-12 years. These booklets are a great reference for fast facts and information on the topic for you and your students.
- 3. Students to complete 3 worksheets** in time allocated by you. Can be homework or in class.
- 4. Challenges:** at the end of every worksheet students will find a challenge – students may need guidance completing these challenges e.g. upcycling plastic to create an art piece
- 5. Certificate & Badges**
- 6. Optional classroom activities**

# Optional Cross-Curricular Classroom Activities

## STEM

### Fantastic Bioplastic



Make your own bioplastic in class! A bioplastic is a plastic made from natural and renewable sources such as vegetable fats and oils, cornstarch or banana peels. These plastics can biodegrade naturally back into the environment without causing pollution.

#### Skills:

- Measurement
- Observation
- Collecting
- Communication

#### Need:

- A cooker or hob for heating
- A saucepan
- Baking parchment
- A toothpick
- 10ml distilled water
- 0.5-1.5g glycerol
- 1.5g cornstarch
- 1 ml of white vinegar
- 1-2 drops food coloring (if you would like your plastic to be a colour)

#### Directions:

1. Combine all ingredients into the pot
2. Boil the mixture until it is clear and thick
3. Pour in 1-2 drops of food colouring if you would like to colour the bioplastic
4. Pour it onto baking parchment in the shape you want (CAUTION: Mixture is hot, only mold into shape you want when the mixture is warm)
5. Remove any bubbles you see by using a toothpick  
Other option:  
Make a mold or use a mold and spray with nonstick spray before pouring the mixture into the mold
6. Allow the mixture to cool for 2 days or until fully hardened, then use!  
Alternatives: if you would like the plastic to be more rubbery add a little more glycerin, the less glycerin the more brittle the plastic will be.  
Please note: Once the plastic has cooled and hardened it can no longer be molded or shaped, you must do it whilst it is still warm

#### Extension:

##### Reflection Session

Ask the students the following questions:

Did you think we could make our own plastic?

I wonder why the glycerin makes the plastic more rubbery?

I wonder how long will our bioplastics last compared to plastics made from oil?

Do you think this type of plastic is bad for the environment?

Ask your students to find out what the very first plastic was made from? Was it a bioplastic? (See your Plastics timeline in Topic 2 presentation)

What is the best way to dispose of a bioplastic? Can they find out online.

## STEM & PHYSICAL ACTIVITY

### Circular and linear processes



#### Skills:

- Teamwork & co-operation
- Counting/recording
- Comparison/analysis
- Co-ordination
- Learning about processes
- Logical thinking

#### Need:

- Space for teams to move around
- 2 large cardboard boxes per team (one for 'resources' and one for 'waste')
- Recovered clean plastic cut up into pieces (enough to fill one large box per team)
- Empty small boxes (5 per team) e.g. lunch boxes or recovered ice cream tubs

#### Directions:

1. Divide the group into teams of 4 or more.
2. Some teams are 'Linear' and stand in a line. At the start of the line is the 'Production Leader'. At the end of the line is the 'Production Finisher' and 'Production Recorder'. Other teams are 'Circular' and form a circle. At the 'start' of the circle is the 'Production Leader' and the 'Product Finisher' and 'Production Recorder' are at the 'end' (i.e. next to the 'Production Leader').
3. All other team members stand in a line/circle between the start and end.
4. At the start of line/circle there is a large cardboard box of resources (cut up plastic). Each Production Finisher has four of the lunch boxes. The Production Leader starts the game with one of the lunch boxes and fills it with plastic from the resources. It is then passed along the 'production line' to the Production Finisher and each time a full lunch box reaches the end the Product Recorder counts it. Lunch boxes can only travel in one direction along the line. For the linear teams the Product Finisher will need to empty the resources into the waste box before sending an empty lunch box back along the line to the start. The circular team will be able to empty the resources back into the resource box and pass the box directly to the Production Leader.
5. Set a length of time for teams to record as many finished 'Products' as possible.
6. At the end of the game students examine: the difference in the amount of waste between linear and circular teams; the difference in the amount of resources each team has left over - did any team run out of resources?; the difference in numbers of final products recorded.

#### Option:

Appoint one or more independent 'Quality Controllers' who walk between teams and ensure that all 'finished' products are up to standard i.e. full to the top with plastic.

#### Option for younger children:

Teams stand in a line or circle. One big box of resources at each start point and empty boxes for waste at each end point. Children pass handfuls of plastic along the 'Production line'. They can't drop any plastic on the ground – it must be picked up and sent to the end of the line/circle if it is dropped. At the end of the line the plastic must go in the waste box but the circular group can put it back in the resources box.

#### Reflect with the students on the following:

Which team runs out of resources soonest? Who produces most waste? Who reuses most plastic? Discuss which works the best – line or circle? Which is best for achieving the R's?

# LANGUAGE & DRAMA

## *Ocean Rescue Reporter*



Students to pretend they are news reporters for ocean conservation news show

### Skills:

- Research
- Communication
- Language
- Drama

### Need:

- Access to computer
  - Access to internet for research
  - Access to video recording device –class IPAD or phone
- Alternative: Students report is given at the top of the classroom with no video recording

### Directions:

1. With your students:
  - a. Watch Sky Ocean Rescue Reporting online:  
<https://news.sky.com/feature/sky-ocean-rescue-10734494>
  - b. Look up online report:  
[https://www.volvoceanrace.com/en/news/10507\\_Millions-of-micro-plastic-particles-found-in-European-waters.html](https://www.volvoceanrace.com/en/news/10507_Millions-of-micro-plastic-particles-found-in-European-waters.html)
2. Ask your students to research a news story online on ocean health and plastic pollution
3. Ask them to prepare a news story with the key headline and the report on paper, then to prepare three slides maximum to show to the class with photos (no text) on them to display their report.
4. The final part of the project is for your students to present their story with their slides in Sky Ocean Rescue reporter style to the class or school.

### Extension:

Allow questions and answers session after each presentation for the class/school. Ask the class or school to commit to the Clean Seas pledge online on [www.volvoceanrace.com/pledge](http://www.volvoceanrace.com/pledge) to help clean up our ocean.

### For younger students:

Read your students an article and show a video from above links. Ask them to draw a picture that tells the story you have just informed them about. Then ask them to present their drawings and tell you and the class three main facts about that story from their picture.

## LANGUAGE & DRAMA

### DEBATE: 'Linear better than circular'



#### Skills:

- Teamwork
- Communication
- Comparisons
- Researching

#### Need:

- Room for debate
- Tables
- Chairs
- Access to internet for research

Select two teams of 6, the affirmative team is 'linear is better than circular' and the negative team is 'circular is better than linear'. Have half the students selected to be researchers and other half as speakers. Give the debating teams allocated time to research and practice what they want to say for the debate. Tell them to use Topic 2, 3 & 4 booklets and to research their topic online also.

The rest of the class can be the audience and you can give them different questions to ask, as well as encouraging them to ask their own questions after the debate. For the debate the affirmative team will go first with two minutes to present their argument, then the negative team shall take two minutes to give their argument. After this you can open the debate to the floor for questions for some minutes, then allow the teams some time to come up with their final statements in the debate and allow the teams to have two minutes each again to speak, this time the negative team go first.

Teachers can be judges or you can allow the class to vote for either team and have majority rules to decide the winning team.

## ART

### Upcycle old plastic bags into a jump rope/skipping rope



#### Skills:

- Creativity
- Fine motor skills
- Understanding concepts of upcycling

#### Need:

- Old plastic bags (approximately 12 for one jump rope)
- Scissors
- Duct or Scotch Tape

#### Directions:

1. Ask students to bring in any old plastic bags that might be at home or in school
2. Cut the plastic bags open into a rectangle and cut off the handles
3. Cut each rectangle into strips
4. Tie the strips together end to end to the desired length of the jump rope
5. Take six long strips and tape them together at one end. Then tape these strips to the back of a chair as a placeholder.
6. Braid the six strips together one over the other like a plait into one long braid the desired length of your jump rope.
7. Repeat above steps with six more strips.
8. Twist the two braids together tightly and make sure there is enough weight in the rope so that it swings well for jumping over.
9. Tape the ends of the braids together with duct or scotch tape which will be the handles for the jump rope. The students will have just made their own jump rope from upcycled plastic bags and can now use it for games during their playtime!

## Challenges, Certificates & More info

Once the students complete the worksheets and challenges for each topic you can print the badge and attach/stick it to their certificate. When all four badges are acquired your student has become a Volvo Ocean Race Champion for the Sea! Please register your students and let us know how many students completed the Sustainability Education Programme.

Be sure to sign up and give your contact details as throughout the race we will be developing more resources, sending out newsletters and hooking up with some of the sailors to give interviews for schools through live and recorded webinars!

Also if you want to organise a Volvo Ocean Race day in your school we can virtually visit your classroom from one of the race locations to speak with your students on sustainability and ocean plastic pollution!

To find out more check out [www.volvooceanrace.com/education](http://www.volvooceanrace.com/education) and log into our Sustainability Education section for teachers where you will find out lots more information and fun facts and resources on the Volvo Ocean Race and all the topics in the programme.

## Track the boats

Follow the race online with the TRACKER or download the Volvo Ocean Race App to keep up to date on all the news and how the teams are doing!

## Want to see the boats?

Don't forget to book your classroom's place on one of our tours and workshops in the Race village as soon as possible! Stopover dates for each race village are below. School workshops are only run during the weekdays.

Host City	Stopover Dates
Alicante	11 - 22 October 2017
Lisbon	31 October - 5 Nov 2017
Cape Town	24 Nov - 10 Dec 2017
Melbourne	27 Dec 2017 - 2 Jan 2018
Hong Kong	17 January - 7 Feb 2018
Guangzhou	1 - 5 February 2018
Auckland	24 Feb - 18 March 2018
Itajai	4 - 22 April 2018
Newport	8 - 20 May 2018
Cardiff	27 May - 10 June 2018
Gothenburg	14 - 21 June 2018
The Hague	24 - 30 June 2018

## Visit the Museum!

Our **Volvo Ocean Race Museum** in Alicante is open to schools and is perfect for school tours, day trips and workshops. For more info see [museovolvoceanrace.com](http://museovolvoceanrace.com)

To book into a school workshop in the race village or for more information on the education programme contact:

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This education programme was created by marine biologist and ocean advocate Lucy Hunt

Illustrations & design by [wearesmall.es](http://wearesmall.es)

### Also see:

UN Environment Clean Seas Campaign  
([cleanseas.org](http://cleanseas.org))

Ellen MacArthur Foundation

(<https://www.ellenmacarthurfoundation.org/circular-economy>)

Circular Ocean

([www.circularocean.org](http://www.circularocean.org))

## Thanks for joining us, Together let's Turn the Tide on Plastic!

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