

How does plastic affect the environment?



Age 11-14



60 minutes

Curriculum links

- Investigate how human pollution impacts the environment
- Understand how plastic pollution affects marine organisms

Resources



Slideshow 4:

How does plastic affect the environment?



Student Sheet 4a:

Common plastic waste

Student Sheet 4b:

Plastics in the ocean

Student Sheet 4c:

Marine life cards



External Link:

Sea turtle with a straw up its nostril

Lesson overview

In this biology Key Stage 3 (KS3) lesson, students learn how plastics affect the marine environment. This lesson focuses on the physical harm caused by plastics to marine organisms. Included are teacher resources that promote students to become advocates for reducing plastic waste to protect our oceans.

Lesson steps

Learning outcomes

1. What is the most common trash? (10 mins)

Students order the types of waste found washed on beaches from the most to least common.

- Order most common types of plastic waste

2. How does plastic affect the environment? (15 mins)

Students move around the classroom to investigate how different types of plastics waste impact the environment.

- Describe how plastic waste impacts the environment

3. Marine life cards (10 mins)

Students have a set of marine animal cards. They are presented with information and must decide which animal is going to be most and least effected.

- Predict how plastic waste impacts a variety of marine organisms

4. Plastics advocacy (20 mins)

Students apply what they have learned by choosing one of two activities. Either making a poster or writing a letter.

- Formulate solutions to plastic waste issues

5. Marine animal reflection (5 mins)

Students write a reflection on what they have learned in the lesson from the perspective of a marine animal.

- Predict how plastic waste impacts a variety of marine organisms

Extension or home learning

Completing the “Plastic advocacy” task. This will involve redrafting the letter or poster to a professional standard. Where possible, to be completed on a computer and printed out.

TEACHER GUIDANCE 4 (page 1 of 3)

HOW DOES PLASTIC AFFECT THE ENVIRONMENT?

Step Guidance

Resources

1
10
mins



Students are introduced to the topic by first considering what everyday products are most commonly found in our oceans.

- Using slide 2 alone, ask students to order these everyday items from most to least commonly found in the ocean.
- Note that, depending on your class, this can be done with or without Student Sheet 4a.
- Reveal the answers to students, as shown on slide 3,
- Using slide 4, introduce the topic and learning objectives.

Slideshow 4:
Slides 1-4

Student Sheet 4a:
Common plastic waste

2
15
mins



Students now have an appreciation of the abundance of different materials. Next, they move to different stations around the room and discover how different objects can affect the environment.

- Print out slides 21-26 and place around the room. For larger classes print two copies.
- Hand out Student Sheet 4b.
- Students move to each station filling in two sections of the table titled, 'Impact on the environment', and 'How can we prevent this?'
- Once several students have completed and returned to their seats, ask all students to return. Review the sections allowing all students to fill in missing sections.

Slideshow 4:
Slide 5

Student Sheet 4b:
Plastics in the ocean

Print:
Slides 21-26

3
10
mins



In step 3, students must consider how different factors will affect marine organisms. They must use knowledge acquired in step 2 to make predictions.

- An optional starter to this activity is described overleaf. Use slide 6 to introduce this or delete if not using.
- Using slide 7, introduce the task to students. Explain that they will be predicting how different statements will effect the marine organisms shown on the board.
- Note that, depending on the class, you can either do this activity from the board or using Student Sheet 4c.
- Reveal statement 1 on slide 8. Allow students to discuss, in pairs or groups, and rank which organisms are affected most to least. Review choices made by groups as a whole class discussion.
- Repeat for statements 2 and 3, respectively shown on slides 9 and 10.

Slideshow 4:
Slides 6-10

Student Sheet 4c:
Marine life cards

Video:
Sea turtle with straw up its nostril

TEACHER GUIDANCE 4 (page 2 of 3)

HOW DOES PLASTIC AFFECT THE ENVIRONMENT?

Step Guidance

Resources



Recently footage of a turtle having a plastic straw removed from its nostril became hugely popular on social media. The footage was taken by Christine Figgner, marine biologist at Texas A&M University. Initially they assumed it was a barnacle or worm. You may want to introduce step 3 with the video. Pose students the question: "Can you guess what has got stuck in the turtle's nostril?" This video is 8 minutes long so you may wish to use just a short excerpt.



This video is hosted on YouTube and you may need to unblock this service, liaising with your IT department.

The link for the video is:

Sea Turtle with Straw up its Nostril *NO* TO PLASTIC STRAWS

<https://youtu.be/4wH878t78bw>



Watch the video before presenting it to the class. Depending on the age of your class, consider whether it is too graphic. This video contains inappropriate / strong language.

4
20
mins





Students now understand how plastics harm marine organisms. In this step, students attempt to find solutions to the problem. They are introduced to advocacy and create their own campaign material.

- Using slide 11, introduce students to scales of change.
- Using slide 12, students consider what changes individuals can make to reduce physical harm caused by plastic. Hand out post-it notes. Ask students to work in pairs or groups and write their ideas on to a post it note. Facilitate students to share their ideas in a whole class discussion.
- Using slide 13, the teacher highlights more changes individuals can make to reduce physical harm caused by plastic.
- Directing students to slide 14, explain what an individual can do to create a bigger change.
- Introducing the plastic advocacy task, show slide 14. Ask students to choose either option 1 or option 2. Students can either write a letter to their local government or create a poster for their community.
- Ensuring students progress, show students slides 16 and 17 to co-create a success criteria. Facilitate a discussion on:
 1. "What makes a good campaign poster?"
 2. "What makes a good letter?"
- Ask one student to stand by the class board and list the classes' shared success criteria.
- Ask students to begin Plastic Advocacy task. Circulate to offer fast feedback.

Slideshow 4:
Slides 11-17

TEACHER GUIDANCE 4 (page 3 of 3)

HOW DOES PLASTIC AFFECT THE ENVIRONMENT?

Step	Guidance	Resources
5 5 mins	 <p>Students reflect on the lesson from different perspectives.</p> <ul style="list-style-type: none">· Using slide 18, ask students, “Describe what you would think of this lesson if you were...”1. A turtle.2. A drinks manufacturer.3. A fisherman.· Collect student's response.	Slideshow 4: Slide 18-19
+ 20 mins	 <p>As there is limited time in the lesson, ask students to complete their plastic advocacy task. This will involve either redrafting their letter or poster to a professional standard. Where possible, completing on a computer.</p>	