

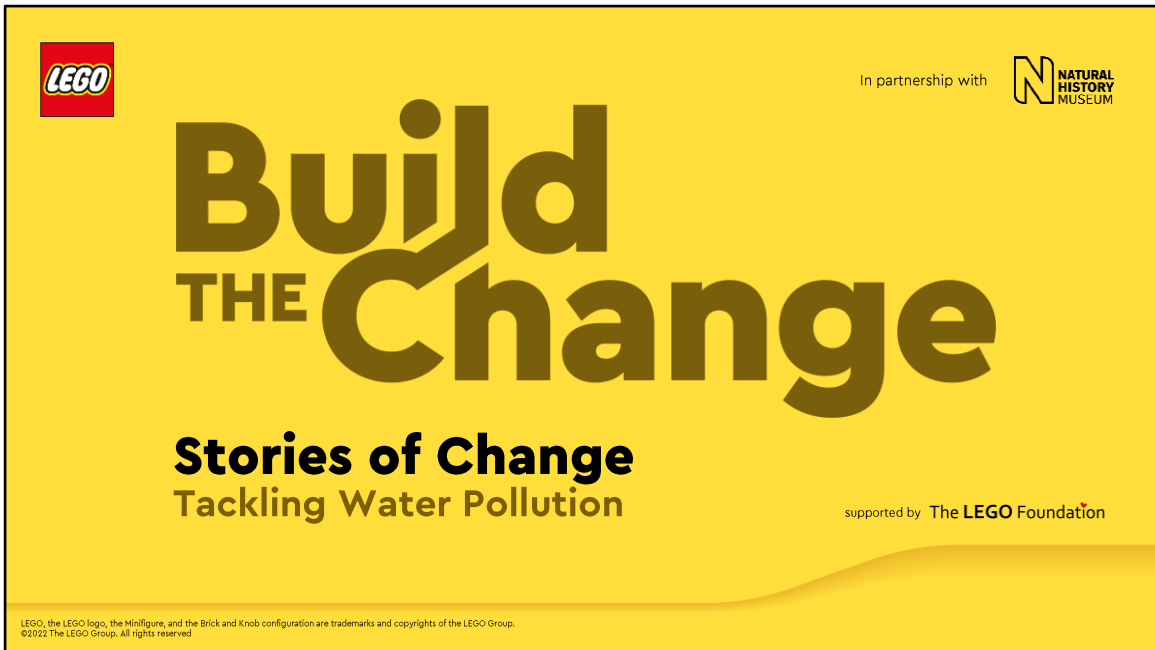
PRINTABLE SPEAKER'S NOTES for HUMAN IMPACT SESSION 2B: STORIES OF CHANGE - TACKLING WATER POLLUTION

Link to PDF classroom presentation:

http://www.LEGO.com/cdn/cs/sustainability/assets/blte4f5595f407a3383/Hi_BtC_2B_SoC_Water_Pollution.pdf

Italics = suggested speaking script. Standard text = notes to educator.

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Welcome back!

In this session we look at ways humans have impacted modern day dinosaurs around the globe.

Can anyone remember which dinosaurs are still alive today?

Birds!

We will also be looking at ways that humans can have a positive impact on nature.

Our Topic



Human Impact Tackling Water Pollution

Today's topic is Water and the problem of pollution.

Water environments have many different types of habitats: from coral reefs to rivers, coastal wetlands to garden ponds.

Water is an incredibly important home for so many living things.

Unfortunately, there is, and has been, a lot of negative human impact on water environments.

In this session we will explore some of these but also ways in which humans are tackling pollution to positively impact water environments.

Please note: We have deliberately kept this slide very high level as following slides introduce the topic in more detail, including definitions of some of the key words.

But before we hear more, let's look at a few poll questions...

Poll

1



Definitely not.

2



Not sure.

3



Yes, for sure!

Do you think humans do enough to protect our planet's water environments — rivers, seas, ponds, and oceans?

Build the Change

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ONLINE POLL – Question 1

Click the link on this slide (<http://www.LEGO.com/sustainability/buildthechange/polls/hi-poll-2ba?CMP=EMC-LCE>) to open the poll in your browser.

Ask the group which option best represents their view – remind them that there are no wrong answers.

Use a show of hand to find out the class's top choice, enter it, and move on to the results screen where you can compare the class's view to those expressed in other Build the Change sessions around the world.

Your classes' answer will be combined with the answers from other sessions around the world, anonymously, adding your children's voices to the poll.

Poll

1



No, I wouldn't know where to start.

2



Not sure.

3



Yes, for sure!

Do you feel you can help rivers, seas, ponds and oceans?

ONLINE POLL – Question 2

You should be able to click through to this next poll question at the end of the previous one but if you lose it, the direct link is here:

<http://www.LEGO.com/sustainability/buildthechange/polls/hi-poll-2bb?CMP=EMC-LCE>

Awesome Words



**Single-use
Plastic**



Pollution



Industrial

AWESOME WORDS

OK class, here are some of the key words we will need for today's session. Does anyone know what these words mean?

Single-use plastic -----

This describes plastic that is used for a short time and then thrown away. Plastic bags, straws, food wrappers – these are just a few things that are made of single-use plastic.

The problem is, this type of plastic can take up to 400 years – yes 400 years – to break down. This means that if it ends up in the wrong places, it's out there creating damage in nature for a very long time, polluting water, land and air.

Pollution -----

This describes anything that, when added to the environment, is harmful, toxic and very bad for the health of the planet and everything on it.

Can you think of any types of pollution?

Potential answers/prompts

- Smoke from factories
- Fossil fuels
- Car pollution
- Air pollution
- Oil spills

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AWESOME WORDS (CONTINUED)

Can anyone name a type of water pollution?

Potential answers/prompts

- Oil spills
- Waste from households, especially single use plastic
- Waste from industry / factories
- Chemicals from farmland

Industrial -----

Industry describes anything that is involved with making or selling products.

This might include factories making cars, mining and digging in the ground to find metals, or even farming animals and plants for people to eat.

There are lots of different types of industries all around the world.

Beaks

from the Natural History Museum



Our friends at the Natural History Museum will help us learn about nature in this course!

They have incredible water bird beak specimens in their collections. Let's have a closer look at some of them!

What do you notice about them?

Why are they different shapes?

What can the beaks tell us about the bird?

Notes about these specimens for teachers: The Museum has lots of bird specimens and beaks in its collection. From studying our specimens closely, scientists can learn how different birds might feed and how different types of pollution might affect them.

Scientists have learned that:

- Some birds have long straight beaks for prodding into mud
- Some birds have spoon shaped beaks for sweeping through the water to detect small creatures to eat
- Some birds have small dainty beaks for catching insects
- Some birds have hooked for catching prey and tearing meat
- Some birds have wide beaks to scoop up water and prey

Warm-up: Water Pollution



WARM-UP ACTIVITY

Time for an activity! This activity starts with a discussion:

What are the different reasons birds need water?

Potential answers/prompts:

- for food
- cleaning
- travelling
- resting

Class discussion: *what are some local areas of water that birds use?*

Class discussion: *what things might make water not safe for birds?*

Potential answers/prompts:

- Waste and litter including plastic
- Oil spills
- Agricultural pollution

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WARM-UP ACTIVITY (CONTINUED)

Class demonstration:

Tank/jug of water, teacher tips in different types of 'pollution' and observe what happens.

'Pollution' items include:

- **Oil** – to demonstrate oil spills (will sit on top of water)
- **Pieces of plastic, cut into different sizes** – to demonstrate plastic pollution (some will float, some will sink). Please remove the plastic pieces before disposing of the water.
- **Food coloring** – to demonstrate some industrial pollution (will disperse throughout water, might be able to see it)
- **Vinegar** – to demonstrate invisible industrial pollution (will disperse throughout water, might be able to smell it, but not see it)

Questions for discussion

What happens when we add the different types of pollution to the water?

How will each type of pollution impact birds and other animals?

Differentiation – can the children predict what will happen before each type of pollution is added?



CASE STUDY VIDEO

Now let's dive into the case study video on the impact water pollution has on birds around the planet and how people are trying to resolve these challenges.

Play the video, "Stories of Change: Tackling Water Pollution"

(http://www.lego.com/cdn/cs/sustainability/assets/blt3c4a31bdbdef1843/Hi_BtC_2B_SoC_Water_Pollution_16x9_EN.mp4)



CASE STUDY: The Andean Flamingo

Who here has seen a flamingo before? There are 6 different types, or species of flamingo!

The vulnerable Andean Flamingo lives really high up in the Andes mountains, in Bolivia, Argentina, Peru and Chile. They love wetland areas especially in the winter and salt flats in the summer.

Sadly, their water habitat is under a lot of threat from human activity. The salt flat areas have a lot of mining nearby which releases a lot of harmful chemicals into the water (Borax).

The mining also creates a lot of mud which flamingos sadly get trapped in. To make matters worse, some humans steal flamingo eggs.



So how are people trying to help?

There is still lots to learn about the Andean Flamingo but thankfully people recognized that it was in trouble and declared it endangered in 2010.

This means the flamingo is now protected.

One organization has started to educate local businesspeople, workers, villagers and any others that might have once caused harm to the flamingos.

This is actually a very important part of helping nature – educating people to appreciate and care for the animals and plants in trouble.

What do you think might happen if more people understood why the flamingo is in trouble?

Other organizations are trying to set up protected flamingo corridors so that there are safe areas for them to travel through.



CASE STUDY: The Scaly-sided Merganser

Wow, quite a mouthful! Can you say it three times quickly!?

These water birds are a close relative of ducks. They live in areas in China, Siberia and throughout other parts of Asia too.

Sadly, the scaly-sided merganser is now endangered, with probably fewer than 5,000 birds living in the wild. They have been impacted by a few things, including illegal hunting, getting caught in fishing nets and river pollution.

They are also impacted by water dams. These are structures built by humans that help us get water to cities and farmlands. However, building dams destroy the merganser's water habitat. This means the birds struggle to find somewhere safe to live and nest.



So how are people trying to help?

Like the flamingos, a big part of helping them is in educating people about why we need to protect them.

A group of scientists are working on a plan to help this bird. It involves:

- *Investigating ways to reduce the impact on the mergansers when dams are built*
- *Suggesting ways to reduce river pollution*
- *Banning hunting of mergansers*
- *And helping local communities to understand the dangers of fishing nets to these birds*

A lot to get done, but hopefully we can protect this wonderful species.

Time to reflect

...on the case studies



TIME TO REFLECT

This slide is an opportunity to reflect and take in all of the information they have just heard.

If you are using the printable Build the Change Course Journal

([http://www.LEGO.com/cdn/cs/sustainability/assets/blt46c9f2b09eb3a32f/](http://www.LEGO.com/cdn/cs/sustainability/assets/blt46c9f2b09eb3a32f/course_journal_HI.pdf)

[course_journal_HI.pdf](http://www.LEGO.com/cdn/cs/sustainability/assets/blt46c9f2b09eb3a32f/course_journal_HI.pdf)), ask the children to write down what stood out for them in those case studies in the box indicated for this session.

Time to create...

Choose one type of pollution: plastic, oil or agricultural

Something that can remove pollution from water

Something that stops pollution getting into the water

Choose one area of water: pond, river or ocean

TIME TO CREATE

This is a hands-on creative challenge to protect birds -- whether the ones from the case studies or birds local to you -- from water pollution.

Now it's time for a challenge.

We would like you to design and create something that helps protect any of the birds you heard about today, or any others you already know about, from water pollution or other threats to water environments.

We have two creative challenges for you to choose from today:

1. *Remove pollution from the water*
2. *Stop pollution from getting into the water in the first place*

You might want to start by choosing a water habitat

- *River*
- *Sea or ocean*
- *Pond*
- *Lake*

And also decide on what type of pollution you would like to protect your bird from:

- *Oil*
- *Waste, such as single-use plastic*
- *Chemicals*

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TIME TO CREATE (CONTINUED)

Once you're done, be ready to share with the class.

Encourage your class to express their ideas using any creative materials available, e.g.,:

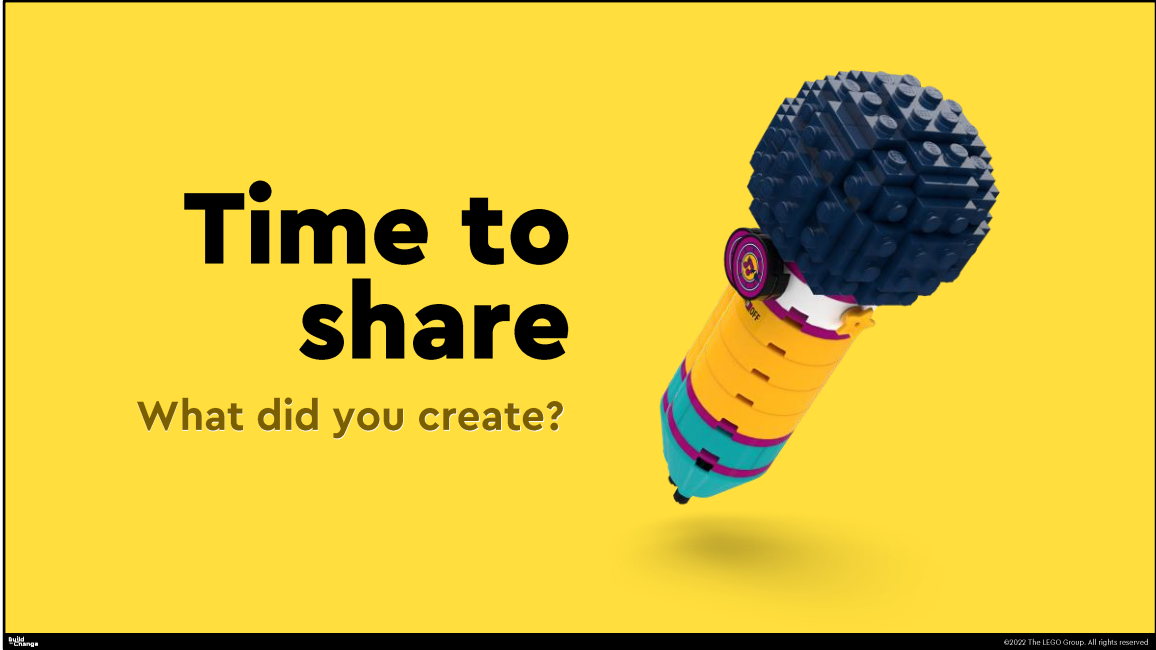
- Crafting materials – build your solution from cardboard, paper, pipe cleaners, etc.
- Pen and paper – illustrate and explain your idea on paper.
- LEGO® bricks – build your solution from any bricks you have available.

If you like, you can use our printable ideas cards to let children write out an explanation of their idea/creation: http://www.LEGO.com/cdn/cs/sustainability/assets/blt05a1a38185a2557e/BtC_Idea_description_card.pdf



TIME'S UP

Bring this up once the "time to create" is up.



TIME TO SHARE

Show this slide while you give children a chance to share what they designed.

How does your idea work?

Which type of bird is it protecting?

What would you hope might be the impact of this idea for birds and other wildlife?

One thing you did well, one thing you'd like to improve and one thing you like about someone else's idea.

Teachers: Don't forget to upload photos and descriptions of your kids' ideas to our public galleries on LEGO.com, using the QR code on the last slide of this presentation.



TIME TO QUIZ

It is the end of the session! Yay!! Well done everyone!

We'll be finishing up with a quick quiz on some of the things we learned today.

Quiz question 1

Why do penguins have two layers of feathers?

- A** They are fashion icons.
- B** They change color at night.
- C** The layers keep them warm and dry.
- D** The second layer protects them if the first layer falls out.



Correct answer: C – the tips of the feathers help to create a waterproof layer. Underneath, the feathers are fluffy which helps to create a warm layer.

Quiz question 2

Which of these are big problems for water birds?

- A** Oil spills.
- B** Single-use plastic ending up in rivers, lakes, and the ocean.
- C** Chemicals being released into rivers.
- D** All of these.



Correct answer: D – all of these are types of water pollution and can have a negative impact on birds and many other living things.

Quiz question 3

Why is it important to teach people about endangered species?

- A** It might help them to care more about nature and want to help protect them.
- B** It will give them vacation ideas.
- C** It's useful information for trivia contests.
- D** Just to let them know.



Correct answer: A – We cannot protect something we do not care about, we cannot care about something we do not know.

Over to You

What can you do to help?

1. Help teach others why we need to help endangered species.
2. Write to your local town hall and ask what they are doing to protect local waterways.
3. If you have ponds, lakes or a river near you, ask a teacher or parent to help you check on it.

That brings us to the end of the session.

Before you go, here are a few ideas on how you can get involved and start helping today's dinosaurs yourselves.

Global

How to plan a beach or river clean up

https://worldoceanday.org/resources/coastal-and-inland-cleanup-guide/?gclid=CjwKCAjw6fyXBhBgEiwAghiZsuZFTLMzNh40v2iZ9d5hdVkQuQMzPA39xVYDi89yJ5mk1UqcnAhtjRoCdVQQAvD_BwE

What other young people are doing to help

<https://www.natgeokids.com/uk/kids-club/cool-kids/general-kids-club/meet-young-changemaker-rhenan/>



From the Planet Earth and
everyone at the LEGO
Group and the Natural
History Museum, thank you
for building the change

**See you next
time!**

Before we wrap up, remember that your ideas matter and you need to share them whenever you get the chance.

Let's put our minds together and come up with the inspiration the planet needs!

Thank you for being awesome changemakers!

Hey, Educators!

Upload your kids' awesome ideas!

Don't forget to send photos and descriptions of your class's creations to our galleries on LEGO.com!

Scan the QR code with a phone camera to get started.



Time to create...
...something to protect
birds from water pollution.



Don't forget to upload your kids' creations to our gallery on LEGO.com!

Note: you will need to be signed with your LEGOID username and password to upload.

Just scan the QR code above with a phone camera to get started or use this URL:

<http://www.LEGO.com/sustainability/buildthechange/challenges/hi-challenge-2b/upload?CMP=EMC-LCE>

Images and descriptions will be moderated and put into this gallery: <http://www.LEGO.com/sustainability/buildthechange/challenges/hi-challenge-2b/gallery?CMP=EMC-LCE>