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COURSE PACK: Biodiversity and Climate Change

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LEGO

A note to educators from the LEGO Group

Hi there,

At the LEGO Group, we are committed to becoming global leaders in Learning through Play.

This means helping to equip the builders of tomorrow with the knowledge and skills they need to become engaged and successful 21st century citizens, including creativity, design thinking, and the confidence to know that their voices and opinions matter.

Dealing with the effects of our changing climate and environment is one of the key challenges that these young people will face. This course offers young learners a way to gain hands-on knowledge about how climate change affects a range of species, as they create their own solutions to environmental challenges and debate and discuss their ideas. Any materials can be used in the creative sessions from pen and paper to cardboard to LEGO® bricks: as long as they allow creative young minds and hands to devise solutions to the pressing real-world challenges presented in the sessions.

This Course Pack PDF contains everything you need to run the perfect Build the Change course for 7 to 12 year olds that suits your educational setting – we hope that these materials will help enable you to bring the experience of learning through play into your setting in a way that is practical for, and relevant to, your young learners.

Thank you,

Kathrine Kirk Muff Vice President, Social Responsibility The LEGO Group

Let's get started! \rightarrow

Biodiversity + Climate Change

What's in the Course Pack?

In this document you'll find everything you need to run **Biodiversity and Climate Change**, a <u>Build the Change</u> Learning through Play course created by the LEGO Group.

In this course, **children (7-12)** will learn about **animals**, their **habitats**, and how they are threatened by the effects of **climate change**. They will **create imaginative solutions** to these real-world challenges and **share their ideas** with others.

At the heart of the sessions are hands-on creative activities called "Time to Create." For creating the children's solutions and ideas, **LEGO bricks can be used but are not required** – feel free to use pen and paper, glue, string, clay or any other creative materials you have available.

This Course Pack contains:

Lesson plans for **ten 45-minute classroom sessions** to mix and match to create anything from a day-long to a months-long program.

These include...

- **Running orders** for each session with suggested timings.
- Links to the presentations for 7-to-12-year-olds used in each session + accompanying speakers notes.
- Links to **online polls and quizzes** integrated into the sessions.
- Links to supplemental printable materials like worksheets, fact files, and activity sheets.
- Links to **templates** for creating locally-relevant classroom materials and contacting key people from the local community to share the children's ideas.

Tips for adapting the sessions for curriculum, local relevance, and

age/ability.

Facilitation tips and tricks for getting the best ideas out of kids.

Background reading for educators on climate change

and <u>biodiversity</u>, and <u>links</u> to additional online resources from around the web.







Build the Change lesson plans

In the following section, you'll find suggested plans for a number of Build the Change sessions, each of which is about **45 minutes long.**

These can be mixed and matched to create anything from a day-long event to a months-long program of activities.

Just click on the bricks or the links to go to the lesson plan for each session.

KEY SKILLS	
Creative problem solving & design thinking	
Speaking & listening	
Teamwork & Collaboration	
Project-based learning	
STEM/STEAM	
Citizenship	



Like LEGO Bricks, these sessions can be <u>rearranged and</u> <u>recombined</u> in different ways to produce the timings + course length that fits your learning environment and course needs.

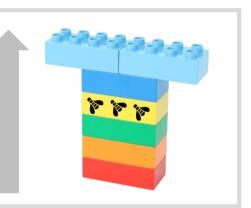
Suggestions for building up a course of sessions

The foundation for every course should be the **two introductory sessions,** and you should finish with the **Big Challenge** followed by **Showcase Day**.

But there are lots of ways add intermediary sessions and spread out the timings in an overall program. Below are examples of programs which could run from a single day to the course of many weeks.

6-SESSION, 6-WEEK COURSE EXAMPLE

- Week 6: SHOWCASE DAY
- Week 5: THE BIG CHALLENGE
- Week 4: CASE STUDY: BEES
- Week 3: DISCUSS & COLLABORATE
- > Week 2: INTRO 2
- Week 1: INTRO 1

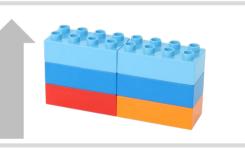


4 PART, 1-WEEK COURSE EXAMPLE

- A Day 4: SHOWCASE DAY
- A Day 3: THE BIG CHALLENGE
- A Day 2: CASE STUDY: TIGERS
- A Day 1: INTRO 1 + INTRO 2 (combined)

3 PART, 1-DAY COURSE EXAMPLE

- A Part 3: SHOWCASE DAY
- A Part 2: THE BIG CHALLENGE (90 min version)
- A Part 1: INTRO 1 + INTRO 2











INTRODUCTORY SESSIONS

These two sessions will take kids through the basic concepts of climate change and its effects on animals and habitats, and set them off on their journey of learning through play.

We highly recommend running these two sessions at the start of any Build the Change program.





INTRO SESSION 1:

Animals, Habitats, and Climate Change

INTRO SESSION 2:

Threats to Habitat from Climate Change





INTRO SESSION 1

Animals, Habitats, and Climate Change (45min)



A session to kick off a program of Build the Change activities, with background info on climate change and a concrete hook for thinking about it: animals kids care about and how it affects their environments.

Remember, LEGO bricks are not necessary for this session. You can use any creative materials available to you.

Link to Session Presentation PDF

http://www.lego.com/cdn/cs/sustainability/assets/blt7a5bf97a973ee07c/1_Intro1_BtC_Biodiversity.pdf

Link to Printable Speaker's Notes for the presentation

http://www.lego.com/cdn/cs/sustainability/assets/blt55620be12c01fc57/notes_1_Intro1_BtC_Biodiversity.pdf

SECTION	CONTENT	MATERIALS	TIMING (~45 min)
Opening	Velcome to Build the Change! The LEGO Group have created a program or children all around the world to create and share their ideas for the ture. The topic we will be exploring and ideating on this time is climate hange and the impact it has on something called biodiversity – we will arn all about what these words mean in the sessions.		2 min
Stage- setting	Includes a video, "Welcome to Build the Change," to introduce students to the concept of Build the Change, Climate Change and its impact on animal habitats.	Online video (link on slide in presentation)	8 min
Poll reflection	A "show of hands" group poll about the class's feelings and sense of agency around sustainability issues (What concerns you most? Do you feel you can help the environment?) Teacher shows how class result compares with results from all children globally and reflects with class on similarities/differences.	Online poll (link on slide in presentation)	2 min
Stage- setting	Further introductions and a video on the topic of global warming. Includes Awesome Words a vocabulary section highlighting potentially new words for the class.	Online video (link on slide in presentation)	5 min
Time to create	Ask the children to choose one wild animal they care about to build, draw, or create. After a short share, referencing the habitat topic earlier, ask them to create the animal's habitat. Ask them to think about what it needs to eat, where will it get water from, where will it shelter. Children can work individually or in groups with any creative material or medium that is available. Creative materials Printable descriptic cards PD (optioned)		15 min
Sum up & next steps	Once the children have finished their creations, ask them to display them somewhere until the next session, when they will revisit. If time, ask the children to share a bit on what they have created.	Storage space needed for kids' creations	5 min
End of session quiz	Two questions based on information learned during the session. The teacher opens an online poll, asks for show of hands and then displays correct answer.	Online quiz (link on slide in presentation)	3 min





INTRO SESSION 2

Threats to Habitat from Climate Change (~45min)



Following up from the previous lesson where children built an animal and its habitat, this session focusses on the impact of climate change on those habitats and what that means for the animals who rely on them.

Remember, LEGO bricks are not necessary for this session. You can use any creative materials available to you.

Link to Session Presentation PDF

http://www.lego.com/cdn/cs/sustainability/assets/bltf44699825f2b3e5c/2_Intro2_BtC_Biodiversity.pdf

Link to Printable Speaker's Notes for the presentation

http://www.lego.com/cdn/cs/sustainability/assets/blt9ab899774369ed93/notes_2_Intro2_BtC_Biodiversity.pdf

SECTION	CONTENT	MATERIALS	TIMING (~45 min)
Opening	Welcome back! Last time we talked about the environment, climate change and started exploring a species that we care about. Today we will be thinking about what happens when habitats change, when resources like food and water disappear. Awesome words vocabulary also included.	Introduction 2 presentation PDF (used throughout the session)	5 min
Case Study: Polar Bears	Play the Polar Bear Case study video (which begins with a recap on "what is global warming" from the previous session.) Reflect as a class on what has happened to polar bears. Why are they struggling? What has happened to their habitat?	Online video (link on slide in presentation)	5 min
Poll reflection	Take a "show of hands" poll about the class's feelings about the plight of polar bears and compare it to views of other classes around the world.	Online poll (link on slide in presentation)	3 min
Time to create	Ask the children to go and collect their creations from previous session. Once settled, ask them to start removing things from their animal's habitat to simulate climate change impacts like overheating, rising sea levels, lack of water, etc. As they do, encourage them to consider the impact it is having. Children can work individually or in groups with any creative material or medium that is available.	Creations from Intro Session 1 Printable idea description cards PDF (optional)	15 min
Sharing	Break the children into smaller discussion groups. Each child has the materials (optional)		10 min
End of session quiz	Three questions linked through poll link. Teacher asks for show of hands for each possible answer. Then reveals answer and congratulates everyone for giving it a try.	Online poll (link on slide in presentation)	5 min
Sum up & next steps	Recap on what they have learned today.		2 min



← Back to start





INTERMEDIARY SESSIONS

You can mix and match any number of these sessions after the two introductory sessions and before the two wrap up sessions to further lead children through the basic concepts of climate change and its effects on animals and habitats, setting them off on their Learning through Play journey.

CASE STUDY SESSIONS







Bees & Other Insects



<u>Tigers</u>







Custom local case study



DISCUSS & COLLABORATE SESSION

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CASE STUDY SESSION 1 Polar Bears (~45min)



One of a set of intermediary sessions where kids "Build the Change" to protect specific animals from the effects of climate change. Any number (or none) of these sessions can be mixed and matched to suit learners, curricula, and timing.

Remember, LEGO bricks are not necessary for this session. You can use any creative materials available to you.

Link to Session Presentation PDF

http://www.lego.com/cdn/cs/sustainability/assets/bltd65bf19f6e289c08/CaseStudy_PolarBears_BtC_Biodiversity.pdf

Link to Printable Speaker's Notes for the presentation

http://www.lego.com/cdn/cs/sustainability/assets/bltdb60cdfef369a3f3/notes_CaseStudy_PolarBears_BtC_Biodiversity.pdf

SECTION	CONTENT	MATERIALS	TIMING (~45 min)
Opening	Welcome back! Last time we looked at the impact climate change can have on habitats and the animals living there. Today we will all be working on ideas to help a specific group of animals – Polar Bears. Recap on what biodiversity is and review some Awesome Words.Polar Bear Ca 		2 min
Polar Bear Case Study	class on what has happened to polar bears and polar animals in general (link on slide in		5 min
Time to create	Children are tasked with creating something that can help protect our polar bear friends and other polar animals. Children can work individually or in groups with any creative material or medium that is available.	Creative materials <u>Printable idea</u> <u>description</u> <u>cards PDF</u> (optional)	20 min
Time to share	Ask the class to share what they have created to help polar bears. Writing materials (optional)		10 min
End of session quiz	Quiz questions to check the class's understanding of the session's content. Teacher asks for show of hands for each possible answer, then reveals answer and congratulates everyone for giving it a try.	Online quiz (link on slide in presentation)	5 min
Sum up and next steps	Recap on what they have learned today.		3 min





CASE STUDY SESSION 2 Bees & Other Insects (~45min)



One of a set of intermediary sessions where kids "Build the Change" to protect specific animals from the effects of climate change. Any number (or none) of these sessions can be mixed and matched to suit learners, curricula, and timing.

Remember, LEGO bricks are not necessary for this session. You can use any creative materials available to you.

Link to Session Presentation PDF

http://www.lego.com/cdn/cs/sustainability/assets/bltf9572161a73e8f0c/CaseStudy_Bees_BtC_Biodiversity.pdf

Link to Printable Speaker's Notes for the presentation

http://www.lego.com/cdn/cs/sustainability/assets/blt69e3a42db67bdb43/notes_CaseStudy_Bees_BtC_Biodiversity.pdf

SECTION	CONTENT	MATERIALS	TIMING (~45 min)
Opening	Welcome back! Last time we looked at the impact climate change can have on habitats and the animals living there. Today we will all be working on ideas to help a specific group of animals – bees and other insects. Recap on what biodiversity is and review some Awesome 		2 min
Poll reflection	Polling question: the group's feelings about how the case study species is affected by climate change.	Online poll (link on slide in presentation)	2 min
Bee Case Study	Play the Bees and Other Insects Case study video. Reflect as a class on what has happened to bees and insects in general. Why are they struggling? What has happened to their habitat?Online vid (link on slip presentat)		5 min
Time to create	Children are tasked with creating something that can help our bee friends and other pollinators from the effects of climate change. How can we protect bees across the planet or in our own neighborhood? Children can work individually or in groups with any creative material or medium that is available.	Creative materials <u>Printable idea</u> <u>description</u> <u>cards PDF</u> (optional)	20 min
Time to share	Ask the class to share what they have created to help bees and other insects. Writing materials (optional)		7 min
Poll follow-up	The same polling question from earlier – how does the class feel <i>now</i> on slide i about how the case study species is affected by climate change?		2 min
End of session quiz	Quiz questions to check the class's understanding of the session's content. Teacher asks for show of hands for each possible answer, then reveals answer and congratulates everyone for giving it a try.		5 min
Sum up and next steps	Recap on what they have learned today.		2 min



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CASE STUDY SESSION 3 Tigers (~45min)



One of a set of intermediary sessions where kids "Build the Change" to protect specific animals from the effects of climate change. Any number (or none) of these sessions can be mixed and matched to suit learners, curricula, and timing.

Remember, LEGO bricks are not necessary for this session. You can use any creative materials available to you.

Link to Session Presentation PDF

http://www.lego.com/cdn/cs/sustainability/assets/blt549b353825271061/CaseStudy_Tigers_BtC_Biodiversity.pdf

Link to Printable Speaker's Notes for the presentation

http://www.lego.com/cdn/cs/sustainability/assets/blta83afde75c27b757/notes_CaseStudy_Tigers_BtC_Biodiversity.pdf

SECTION	CONTENT	MATERIALS	TIMING (~45 min)
Opening	Welcome back! Last time we looked at the impact climate change can have on habitats and the animals living there. Today we will all be working on ideas to help a specific group of animals – tigers. Recap on what biodiversity is and review some Awesome Words.Tiger Case 		2 min
Poll reflection	Polling question: the group's feelings about how the case study species is affected by climate change.	Online poll (link on slide in presentation)	2 min
Tiger Case Study	Play the Tiger case study video in the presentation. Reflect as a class on what has happened to tigers and animals threatened by sea level rise in general. Why are they struggling? What has happened to their habitat?		5 min
Time to create	Create Children are tasked with creating something that can help protect our iger friends against sea level rise. Children can work individually or in groups with any creative material or medium that is available.		20 min
Time to share	Ask the class to share what they have created to help the case study species. Writing materials (optional)		7 min
Poll follow-up	The same polling question from earlier – how does the class feel <i>now</i> about how the case study species is affected by climate change?		2 min
End of session quiz	Quiz questions to check the class's understanding of the session's content. Teacher asks for show of hands for each possible answer, then reveals the correct answer and congratulates everyone for giving it a try. Online quiz (link on slide in presentation)		5 min
Sum up and next steps	Recap on what they have learned today.		2 min



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CASE STUDY SESSION 4 Sea Turtles (~45min)



One of a set of intermediary sessions where kids "Build the Change" to protect specific animals from the effects of climate change. Any number (or none) of these sessions can be mixed and matched to suit learners, curricula, and timing.

Remember, LEGO bricks are not necessary for this session. You can use any creative materials available to you.

Link to Session Presentation PDF

http://www.lego.com/cdn/cs/sustainability/assets/blt11ef99bcf6d8db1e/CaseStudy_Turtles_BtC_Biodiversity.pdf

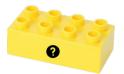
Link to Printable Speaker's Notes for the presentation

http://www.lego.com/cdn/cs/sustainability/assets/blt2727e988d869d2a6/notes_CaseStudy_Turtles_BtC_Biodiversity.pdf

SECTION	CONTENT	MATERIALS	TIMING (~45 min)
Opening	Welcome back! Last time we looked at the impact climate change can have on habitats and the animals living there. Today we will all be working on ideas to help a specific group of animals – sea turtles. Recap on what biodiversity is.Sea Turtle 		2 min
Poll reflection	Polling question: the group's feelings about how the case study species is affected by climate change.	Online poll (link on slide in presentation)	2 min
Sea Turtle Case Study	Back to Build the Change Session 3 Deck and play the sea turtle case study video. Reflect as a class on what has happened to turtles and animals threatened by temperature changes in general. Why are they struggling? What has happened to their habitat?		5 min
Time to create	Children are tasked with creating something that can help protect our turtle friends against climate change. Children can work individually or in groups with any creative material or medium that is available.	Creative materials Printable idea description cards PDF (optional)	20 min
Time to share	Ask the class to share what they have created to help tigers. Writing material (optional		7 min
Poll follow-up	follow-upThe same polling question from earlier – how does the class feel now about how the case study species is affected by climate change?Online poll (link on slide i presentation)		2 min
End of session quiz	Quiz questions to check the class's understanding of the session's content. Teacher asks for show of hands for each possible answer, then reveals the correct answer and congratulates everyone for giving it a try presentation.		5 min
Sum up and next steps	Recap on what they have learned today.		2 min



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CUSTOM CASE STUDY SESSION Locally-relevant case study



The optional generic Build the Change session below can be tailored to get your learners engaged with a locally relevant issue they care deeply about.

Remember, LEGO bricks are not necessary for this session. You can use any creative materials available to you.

Link to Editable <u>Template PPT to create a custom presentation</u> http://www.lego.com/cdn/cs/sustainability/assets/blt346479dc9131f380/CaseStudy_Local_BtC_Biodiversity.pptx

NOTE: Speaker's notes in the PPT slides.

SECTION	CONTENT	MATERIALS	TIMING (~45 min)
Before the session	 Teacher fills in the <u>custom case study PPT</u> to present a local issue which represents a challenge to be solved. Is there a local animal or plant species threated by the effects of climate change? Is there a local habitat (like forest, grasslands, etc.) which is threatened by the effects of climate change? Are you affected locally by changes in weather, like heat, floods, droughts, etc.? Are you affected by sea level rise? Are local crops at risk? Optional: share one or more habitat fact sheets with children before the session (<u>Forest / The Poles / Outdoors / Oceans</u>) 		
Opening	Welcome the children back and let them know today you will be looking at something local to you. Choose some Awesome Words to also ensure children have the vocabulary needed to understand your example.	Customised PPT presentation, created in advance as above – used throughout the session. 3-5 "Awesome Words," created in advance.	2 min
Poll reflection	Polling question on case study species.	Relevant polling question, created in advance, for traditional offline show-of- hands poll	2 min
Case Study: Local	Take the children through the 5 minute presentation you have created on a local species and the challenges it is facing.	Custom 5-minute presentation of local issue, created in advance.	5 min
Time to Create	Children are tasked with creating something that can help solve the local problem/challenge. Children can work individually or in groups with any creative material or medium that is available.	Creative materials <u>Printable idea description</u> <u>cards PDF</u> (optional)	20 min
Time to Share	Ask the class to share what they have created to help your local species.		7 min
Follow-up Poll	The same polling question from earlier – how does the class feel now?	2 nd show-of-hands poll with same polling question , created in advance.	2 min
End of session quiz	Three questions created by the educator to check understanding of content.	3 quiz questions, created in advance.	5 min
Sum up and next steps	Recap on what they have learned today.		2 min



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DISCUSS & COLLABORATE SESSION (~45 MIN)



This is a unique session that focusses more on discussing, collaborating and deciding on three key instructions to grown-up decision makers to help protect the planet from the effects of climate change. **Unlike the other sessions, there is no hands-on creation section and no creative materials are needed**.

Link to Session Presentation PDF

http://www.lego.com/cdn/cs/sustainability/assets/blte0add8b524d26401/Discuss_Collab_BtC_Biodiversity.pdf

Link to Printable Speaker's Notes for the presentation

http://www.lego.com/cdn/cs/sustainability/assets/blt5928baf0cb0bd052/notes_Discuss_Collab_BtC_Biodiversity.pdf

SECTION	CONTENT	MATERIALS	TIMING (~45 min)
Opening	This session will be a little different from the others. We will be discussing what is most important to us when protecting the planet. And at the end, we will be sharing our top three ideas for a better planet with the LEGO team who will then put the ideas from you and other children from around the world in front of leaders.	<u>Discuss and</u> <u>Collaborate PDF</u> <u>presentation</u> (used throughout)	5 min
Introduction	In the introduction we will revisit why the Earth is so special and touch on climate change once again. We then introduce the concept of decision makers and the need to make our ideas heard.	Online video (link on slide in presentation)	10 min
Discussion time	 Class starts in small groups, with each coming up with their three instructions to world leaders. Half of the groups merge into one of two larger groups and discuss and collaborate, merging or discarding instructions until each group again has just 3 instructions. Finally the full class comes together to decide on which three instructions they would like to send to the LEGO Group. 	Discuss and Collaborate worksheets PDF (optional, printed) Colored stickers for voting (optional)	15 min
Sharing	Educator brings up an online form used to send 3 instructions to the LEGO group and shows the children their ideas being sent in.	Online submission form (link on slide in presentation)	10 min
Sum up	Recap on what they have taken part in today.		5 min







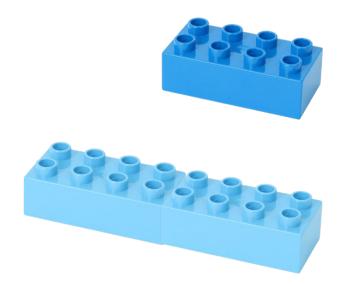
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WRAP UP SESSIONS

In the Big Challenge, children will put together everything they've learned as they build solutions to challenges faced by an animal of their choice whose habitat is threatened by climate change.

This is followed up with Showcase Day, a celebration of children's voices where their voices can be heard, and they see what others have made at an exciting final event where their ideas are shared with their community.



THE BIG CHALLENGE

Putting together everything they've learned.

SHOWCASE DAY

Sharing children's ideas with the community.



THE BIG CHALLENGE (~45min)



In this session all previous skills and learnings are applied to the children's own choice of project/species. The objective is for children to create something to showcase to their community, including other children and decision makers. At the end, you can also upload what they've made to the LEGO Group - we'd love to see them!

Remember, LEGO bricks are not necessary for this session. You can use any creative materials available to you.

Link to Session Presentation PDF

http://www.lego.com/cdn/cs/sustainability/assets/bltc5406fdca64677f5/3 BigChallenge BtC Biodiversity.pdf

Link to Printable Speaker's Notes for the presentation

http://www.lego.com/cdn/cs/sustainability/assets/blt3b7fa0e67f3e4b81/notes 3 BigChallenge BtC Biodiversity.pdf

SECTION	CONTENT	MATERIALS	TIMING (~45 min)
	To allow more time for building, consider asking the children to research a affected by climate change before the session.	and choose an a	animal
Before the session	Our <u>Printable Animal Fact Cards PDF</u> provides some examples which may inspiration.	help those stru	ggling for
	We have also provided a <u>template letter to local decision makers</u> if you'd share the children's ideas after the session.	like to contact	them to
Opening	Welcome back! Today is going to be a little bit different. We are all going to be taking everything we've learned in the previous sessions and using it to help other animals. The ideas we create will be sent to the LEGO Group, who will share them with global leaders as much as they can to help inspire change.	Big Challenge presentation PDF (used throughout)	3 min
	Consider also sharing the ideas with local decision makers, experts, etc.		
Choose your animal	Encourage the children to think about a species that they would like to help. It can be an animal that lives locally or something from anywhere on the planet. Optionally, once they have their animal, ask them to consider the habitat they live in and to write a few sentences describing it. As a final discussion, task them with exploring what impacts of climate change might affect their animal.		10 min
Time to create	Now it's time for the Big Challenge. Using their creative materials, the children are tasked with creating something that will help their animal in the fight against climate change. Script provided to facilitate this.		20 min
Writing Time	Students write a description of what they have built on description cards description and place them next to their creations.		5 min
Sharing	Ask the class to share what they have created to help their species.		5 min
Sum up and next steps	Let the class know what the next step is showing their ideas to others during the final 90 minute session, Showcase Day.		2 min
After the session	Educator takes photos of each build and its description and uploads it to the LEGO group via the upload tool link provided. Can be done when convenient after the session.		Post- session

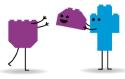












The special extended session allows children to showcase their ideas from the Big Challenge for protecting their chosen species from the effects of climate change. The session should ideally be run with guests from the local community, in person or online, who are in some way involved with making decisions at any scale that impact the environment.

Link to Sesion Presentation PDF

http://www.lego.com/cdn/cs/sustainability/assets/bltff46c7ce663d8ccf/4_ShowcaseDay_BtC_Biodiversity.pdf

Link to Printable Speaker's Notes for the presentation

http://www.lego.com/cdn/cs/sustainability/assets/blt98deb0f06cd2db92/notes_4_ShowcaseDay_BtC_Biodiversity.pdf

SECTION	CONTENT	MATERIALS	TIMING (~75 min+)
Opening	Introduce the children to what is happening for the session and that you have a very special guest here to hear about their ideas.	Showcase Day PDF presentation (used throughout)	5 min
Guest introduction	Give time to the guest(s) to introduce themselves and take questions from the children.		15 min
Showcase Time	ime for the children to showcase their ideas in whichever format best uits your class. It might be a presentation per group. It might be an expo/exhibition style walk around with the guest.		45 min+
End of session poll	Two final questions on kids' views on environmental challenges and their ability to effect change concludes the course.	Online poll (link on slide in presentation)	5 min
Sum up and next steps	Recap on what you have covered and achieved over the course. Massive high fives!!!!		5 min



← Back to start





TAILORING THE SESSIONS

We know that every educator has their own style, and their own needs based on their learning setting – e.g. the time they have available for sessions, the age and ability of their learners, the specific place where they teach, and the curriculum context in which they operate.

We have tried to create Build the Change sessions which are as flexible as possible, and in the following pages are our suggestions for tailoring them to fit your specific needs:



FITTING INTO CURRICULA



FACILITATION TIPS AND TRICKS - getting the best ideas out of learners



CATERING FOR AGE AND ABILITY



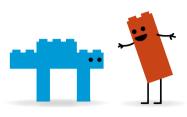
CREATING LOCALLY-RELEVANT SESSIONS



Fitting into Curricula

The Build the Change team recognize fully that you, the educator, are the expert on what is relevant for your class in the context of your local curriculum. We also know how important it is that activities you choose have an outcome that builds towards your national curriculum objectives.

While curricula vary from country to country and state to state, this Build the Change course offers a number of **cross-cutting skills and knowledge areas** that form part of many national and regional curricula for the 7-12 year old age range:



SKILLS	Knowledge
Creative problem solving & design thinking	Life Science/Biodiversity/Biology
Speaking & listening	Environmental Science/Habitats & Ecology
Teamwork & Collaboration	Earth Science/Geography/Climate Change
Project-based learning	Spoken Language/Vocabulary
STEM/STEAM	
Citizenship	

SKILL AREAS

CREATIVE PROBLEM SOLVING & DESIGN THINKING

The LEGO Group see creativity as one of the core skills needed to start children on a journey of lifelong learning, and Build the Change sessions are designed to develop this - each session begins with a brief initial immersion in a real-world topic followed quickly by hands-on creation and sharing of original ideas.

Examining the world around them through a range of lenses and perspectives, children are tasked with generating ideas that will make a positive impact on the environment and their society. They are encouraged to take their ideas and make them a reality, connecting the dots between great ideas and impact using creativity. The aim is to build confidence and understanding that their voices matter as part of their global and local society.



The sessions encourage children to explore the world around them and the causes and effects of the issues the planet faces, thinking critically on how we might address them. Using a learning through play approach, and by setting up a space where children feel safe to test and iterate, problem solving as a skill is nurtured and has a heavy presence throughout.

The courses give students a platform on which to experiment with and prototype their ideas, helping them build an understanding of how real-world problems can be addressed. The design thinking flow also helps students draw the links between multiple disciplines and creativity. Technological aspects of the course also nurture the ability to move seamlessly between analogue and digital tools.





The lessons are designed to give children opportunities to develop their speaking, listening & comprehension skills as they create, present, and discuss ideas. Chances to present and share well-structured reflections and narratives on their creations to the broader group are built into the "Time to Reflect" moments within the sessions.

Much of the content is scenario- and situation-based, giving opportunities to communicate big, visionary and future-facing ideas, and allowing space to develop articulation skills.

"Exit ticket" quiz questions at the end of each session give the educator an immediate assessment on understanding in the group.

Build ™Change

Fitting into Curricula

TEAMWORK & COLLABORATION



Build the Change is designed to give the educator freedom on whether children work individually or as groups, or both at different points in the sessions. The activities encourage children to work together, to listen to others' ideas, to find solutions and work together to present them to others. There are opportunities to delegate specific roles to members of each group or to open it up to a team discussion and empower the children to decide.

KNOWLEDGE AREAS



This course encourages children to explore the natural world using a learning through play approach and touches upon elements of life sciences, physical sciences and environmental sciences.

This course investigates the specific concepts of climate change and global warming, and the impacts of rising temperatures on animal species both around the world and more locally – the concept of cause and effect.

Students will learn about the interdependencies that exist between natural cycles such as food chains and pollination, about different species groups, about habitats and the resources they hold, and the challenges specific species and habitats are facing. The Big Create also offers space for students to do their own research to choose an animal species threatened by climate change and to address the challenge of protecting it. Students will understand that earth's resources are finite and need protecting wherever possible.

A key objective of Build the Change is to build advocacy.

civic engagement and self-efficacy in the children who take

part. Children should leave the sessions feeling their ideas

opportunity to think and speak critically on environmental

and social issues and to look at facts and evidence when

are valued and have the power to inspire, influence and

The discussion session specifically gives students the

impact the planet and everything on it.

• Key interdependencies: pollination; food chains

CITIZENSHIP

forming their opinions.

- Key habitats: arctic; ocean; mangrove; pine forest; local parks & gardens
- Key species: polar bear; bees & other insects; sea turtles; tigers.
- Additional, potentially more local, species are available int the supporting materials



The course content spans the globe and its many habitats so students will be exposed to different geographies, landscapes, climates and systems.

- Key areas of the globe: North pole, Siberia and India. Opportunities to explore more local areas available.
- The Earth's climate, in terms of climate change, global warming, and human & animal habitats.



In addition to outcomes described under the speaking and listening skills sections above, language skills are developed through the acquisition of new vocabulary, adapting language to different contexts, and imaginative writing.

The materials are available in English, Spanish, and Danish (with more to come) so also have the potential for use as part of foreign language practice.

Catering to ages and ability

The presentations included with this pack were designed primarily with **7-12-year olds** in mind.

TO ADAPT THESE, EDUCATORS MAY WISH TO...

• Alter spoken scripts to suit younger children.

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- Create more in-depth presentations for older children.
- Use the included Fact Sheets and Activity sheets, aimed at older children.

The core experience of creating one's own solution to a real-world problem, however, scales naturally to take account of age and ability – because learners are constructing their own learning experiences, most challenges work across all age groups.

A challenge like "**invent something to clean the air**" for example, will be interpreted and executed very differently depending on whether the learner is four (a flying broom) or forty (an autonomous fleet of modified multi-rotor drones fitted with the latest carbon-dioxide absorbing kit.)



Most importantly, both learners will have had a highly joyful and personal experience of learning through play as they understand and respond to the problem at the level which they are able.

The next page looks at some examples of how tasks can be adapted for more support through to more challenge – scaling up and down.



Examples of scaling up and down

We have tried to design the sessions to be low-entry but offering high ceilings, allowing the children to take their exploration wherever they want. The area where differences in ability will be most evident, and different styles of facilitation needed, is during the Creation Time in most of the sessions. Children are encouraged to explore individually or as a small group, with the emphasis on a child-led experience. We realize that not every child works well with this level of open-endedness and have made a few suggestions on how more support might be provided as well as how more challenge might be added for those children who require it.

Let's look at the biggest questions or tasks first:

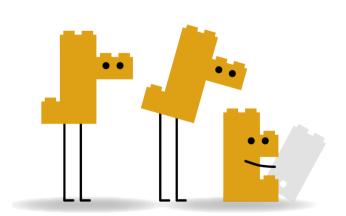
CHOOSE AN ANIMAL THAT YOU WOULD LIKE TO HELP AGAINST CLIMATE CHANGE.

Support needed

• Work with the child to make it more local and easier for them to relate to. Go through species that they would know locally and once decided, talk them through how this species might be impacted by climate change. The easiest links are usually loss of habitat or loss of food and water. Sadly, most species will be facing these adversities.

Challenge needed

• Ask the child to think about other geographies and explore species they might know too much about. Allow them time to do a little research to quench their thirst for knowledge. Their research will also hopefully give them pointers on how that species is being impacted by climate change.



DESIGN SOMETHING THAT WILL HELP SPECIES X AGAINST CLIMATE CHANGE.

Support needed

- This is a big open-ended question. For some, they might be intimidated and not know where to start. This is natural but hopefully by the second or third time they go through the process, they will be used to the approach.
- First, encourage them by letting them know anything is possible and there are no right or wrong answers – remove any concerns of failure.
- Secondly, get them into the mindset that they are a scientist, testing and trying things out. Or a designer making prototypes where nothing is perfect but the idea is there.
- Lastly, if they need a little more support, highlight a real-world example (from the case study videos for example) and ask them to adapt it to their area. The bee hotels from the bee case study – what would they look like in their town? The sea turtles' nests and the need to protect/raise them – which animals in their town might need help if water levels went up? How might they help them?

Challenge needed

- Given the high-ceiling nature of this task, there is a lot of room to make their designs as complex as they wish. If they finish their creations quickly, try for example tasking them with adding annotations to their creation with sticky notes, describing each component of their idea. Perhaps ask them to detail cause and effect in their creation – what happens and how does it impact their species?
- Additionally, you could ask the child to think about how they might pitch this idea to world leaders. If time allows, get them to create a sketch pitch poster. Tell them to imagine they have space on a wall in the local town hall – what would they put there to "sell" their idea?

General facilitation tips and tricks

Getting the best ideas out of young learners.



You are educators so we are super aware that you are likely to know this already, but in the spirit of sharing, here are a few workshop facilitation techniques we use in the LEGO Group:

- Keep questions open-ended whenever possible.
- Encourage reflection.
- Ensure that the tone is kept light, hopeful and fun (it is easy to go gloomy when talking about topics like climate change.)
- If the question feels too big and general for them, try to bring it back to something they can relate to, something local perhaps.



We need your help in conveying the energy behind some of the statements that aim to empower and motivate children. Imagine it's the most important thing you've ever said to them. Then times it by a million.

In the immersion material, we have tried to give enough information about the topics without making it too prescriptive for the children. This is especially relevant when it comes to the Big Create challenge at the end – when they get to choose what species they would like to explore. While it's only natural that they might revert to the case studies they have already heard, we would love educators to encourage the students to choose a new species, something personal to them or indeed one from the additional animal fact cards.

CREATIVE SECTIONS

We all know what it is like to be stuck on first steps when given an open-ended creative exercise: frozen, no ideas in sight, panic starting to set in.

We also know that it is normal to feel this way but here are some tips to spark that first step into creativity overload!

- Go back over key points from earlier that session. Do any jump out to the student? Expand on those.
- Give your own wacky ideas (the sillier the better) on what you would do. This helps relax the student and reminds them that anything is possible. It's important that the students don't feel the constraints on creativity that we often do as adults.
- If there are creative materials in front of the student, tell them to let their hands do the thinking. Get them to start putting objects together randomly. Is anything appearing? Any shapes? Does it remind them of anything? This is a great way to break that idea freeze.

Once the students are creating their ideas, spend a moment with each group or individual to ensure they are giving thoughts to the following:

- How is it positively impacting the species?
- Is it a new idea? If not, what can you add to make it even cooler and unique?
- What are the causes and effects in their idea?
- Keep them on theme. Everyone loves to build a space rocket swimming pool dinosaur machine, but is it going to help the planet? Maybe... hold that thought ;)

When it comes to sharing their creation encourage them to use a simple structure:

- Which animal did they build something for?
- What are the challenges that species is facing?
- What is their creation?
- How does it help the species?

Facilitation tips and tricks



Build the Change is perfect for working in groups, but we would recommend no more than 4 children per group. This is simply to ensure everyone gets to input and play an important role.

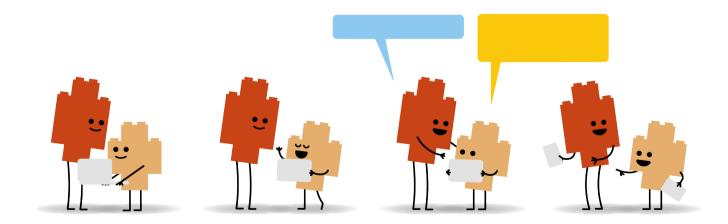
Depending on the students, it might be worth delegating roles. For example, some of the roles that have worked in the past include:

- a project manager (to lead the group)
- a communicator
- a writer (to capture the story almost like a journalist)
- a designer
- an architect/engineer

This list is far from exhaustive on the roles within a creative design project, so feel free to come up with completely different ones based on your students.

SPEAKING MOMENTS

At the LEGO Group, we love building microphones out of LEGO bricks and handing them to those whose turn it is to speak. It works wonders and adds a bit of fun.



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Making it locally relevant

The LEGO Team recognizes that making parts of the course locally relevant can be extremely valuable, whether that be through local case studies within the course content or engaging with local stakeholders on the class's showcase day.

Using the template provided in the educator pack, the educator prepares a 5-minute presentation on a local issue which represents a challenges to be solved.

Suggestions:

- Is there a local animal or plant species threated by the effects of climate change?
- Is there a local habitat (like forest, grasslands, etc..) that is threatened by the effects of climate change?
- Are you affected locally by changes in weather, like heat, floods, droughts, etc..?
- Are you affected by sea level rise?

LOCAL CASE STUDY

Think about how issues like these affect animals and their habitats.

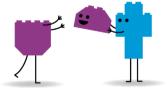
There is also opportunity to introduce new "Awesome Words" to ensure children have the vocab that might be needed for your example.

LOCAL GUEST FOR SHOWCASE DAY

In the educator pack, we have provided a template letter/email that can be sent to local stakeholders, inviting them in to hear the students' ideas.

Examples of the kinds of people and groups you might reach out to include:

- Local town officials or community leaders
- Local mayor
- Environmental groups
- Sustainability-focused businesses
- School directors/principals/heads
- Heads of relevant topics at the school
- Environmental scientists, engineers, designers, and other experts















EDUCATOR BACKGROUND MATERIALS



Some background information on climate change and biodiversity, plus some online links to help save desk research time and for answering learners' questions.

Factsheet for Educators: Climate Change

Basic background to help prepare you for leading the session and answering children's questions.

Climate change is "a long-term change in the average weather patterns that have come to define Earth's local, regional and global climates" (from NASA, <u>https://climate.nasa.gov/resources/</u> <u>globalwarming-vs-climate-change/</u>).

Climate change includes both human-driven **global warming** and natural warming, and the results of that warming as explained below.

Global warming is the process of our planet heating up due to human impact.

• This is due to excessive build up of greenhouse gases in our atmosphere like water vapor (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3).

Scientists are concerned that some human activity – like burning fossil fuels – contributes to an excessive build-up of greenhouse gases.

• At normal levels, these gases all contribute to the **greenhouse effect**, trapping the Sun's heat inside Earth's atmosphere to keep us safe from the subzero climate of outer space. But with the rising levels of these gases, the Earth's atmosphere is heating up as too much heat is trapped.



EFFECTS OF CLIMATE CHANGE INCLUDE...

Extreme weather and temperatures.

- Longer, more intense heat waves.
- Hotter and colder extremes more common as the atmosphere shifts out of balance.
- Natural disasters like crop failures, droughts, and wildfires more common around the world.

Threats to natural and human habitats as ecosystems are knocked out of balance.

• Organisms like reptiles, amphibians, plants and bees who depend on specific temperatures to survive are under threat.

- Animals like Great White sharks migrate to new areas as water temperatures change.
- Plant habitats unbalanced, including making areas too hot to sustain traditional food crops.

Melting glaciers + polar ice caps.

- Sea levels rise.
- Arctic and Antarctic habitats disappearing, threatening native species like polar bears.
- Human + animal habitats under threat as rising sea reclaims the land.



AWESOME WORDS INCLUDED IN THE SESSIONS

Impact - A strong effect - something that has the power to change something else.

Greenhouse gas - These are gases in the Earth's atmosphere that stop heat from escaping into space.

Polar – This simply means the North and South pole.

Arctic - This is the area, or region, around the North Pole.

Antarctic - This is the area, or region, of the South Pole or Antarctica

Sea level - This is the average level of oceans around the world.

Reduce - This means to decrease something, make something less, or to cut back on something.

Reuse - Reuse is making sure we use something again and again instead of throwing it away.

Factsheet for Educators: Biodiversity

Basic background to help prepare you for leading the session and answering children's questions.

The term **Biodiversity** refers to the wide range of species of plants, animals, fungi, and bacteria that live on planet Earth.

To survive, all these creatures need a **habitat** suited to their needs in terms of temperature, water, and food.

When one species' population is thrown out of balance, it affects all the others – if the plants or animals which a species eats disappear, for example, or if the loss of a species' predators leads to overpopulation and the outbreak of disease.

This includes our own species, *Homo Sapiens*. As part of the Earth's web of life, we rely on a wide range of species: from food crops to pollinators like bees to a range of plants and animals which act as carbon sinks to keep us and our habitat happy and healthy.

The degree of biodiversity – the number of diverse species that there are – is a good indicator of an environment's "health."

Species whose existence is threatened are **endangered**. If the threat to them continues, in time their populations will dwindle and disappear and they will become **extinct**.

Of the endangered species on the International Union for Conservation's $\underline{\text{Red List}}$, about 20% are threatened by the effects of climate change.

If greenhouse gases continue to rise unchecked, scientists predict we could lose up to 50% of living species by 2100 as environmental changes make their habitats unsuitable. Humans can make a difference by working together to combat and reduce the effects of climate change on these species and their habitats.

One way governments are doing this is through the <u>UN Framework Convention on Climate Change</u>, originally signed by 154 countries in Rio De Janeiro in 1992.

The treaty established responsibilities for nations to pass laws and take action to mitigate the effects of climate change, including targets around emissions of greenhouse gases. These targets were further defined in the 1997 Kyoto Protocol and the 2015 Paris Agreement.

Currently they seek to limit the total average global temperature rise to 1.5°C (2.7°F) above pre-industrial levels.

This may not sound like a lot, but a difference of just half a degree Celsius could mean 50% fewer species losing half their geographic range, 50% fewer people experiencing water scarcity, and 10 million fewer people losing their homes to sea level rise.

Member countries meet every year at <u>COP</u>, the UN's climate change conference, to examine progress towards that goal.



AWESOME WORDS INCLUDED IN THE SESSIONS

Habitat - A habitat is simply the place where living things live. The space provides shelter, food and water to the living things that call it home.

Biodiversity – This is the number or variety of species living in an area.

Prey - Prey is an animal that is hunted for food by another animal.

Pollen - Pollen is what makes plants create seeds and it needs to travel from male plants to female plants.

Pollinate - Once these tiny grains of pollen reach a female flower, then pollination happens and seeds start to form.

Nectar - This is a sugary liquid produced in the flower of the plant.

Food Chain - a series of living things that need another to survive.

Reptile - A cold blooded animal that has scales or hard plates on its skin.

Additional resources online

Climate Change and Biodiversity

ADULT-ORIENTED

- United Nations Climate Action: <u>http://www.un.org/en/climatechange</u>
- NASA climate resources: <u>http://climate.nasa.gov/</u>
- New Scientist's articles on climate change: <u>http://www.newscientist.com/article-topic/climate-change/</u>
- COP26 site (UN Climate Change conference in Glasgow, Scotland, UK in Nov 2021): <u>http://ukcop26.org/</u>
- More about the LEGO Group's sustainability mission: <u>http://www.lego.com/en-gb/aboutus/sustainability/environment/</u>
- WWF info on climate change: <u>https://www.wwf.org.uk/climate-change-and-global-warming</u>
- WWF on threats to biodiversity from climate change: <u>https://www.wwf.org.uk/wildlife-warming-world</u>
- IUCN Red List of endangered species: <u>https://www.iucnredlist.org/</u>

KID-ORIENTED

- NASA's "Climate kids" site: <u>http://climatekids.nasa.gov/</u>
- National Geographic Kids on climate change: <u>http://www.natgeokids.com/uk/discover/geography/general-geography/what-is-climate-change/</u>
- National Geographic site on biodiversity: <u>https://www.nationalgeographic.org/encyclopedia/biodiversity/</u>
- American Museum of Natural History kids' site: <u>https://www.amnh.org/explore/ology/biodiversity</u>





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MORE FROM THE LEGO GROUP

A few words on why we think Learning through Play and engaging children with sustainability issues is so important, and about our free global program Build the Change.

The LEGO Group on Learning through Play and Sustainability

OUR COMMITMENT TO LEARNING THROUGH PLAY

The LEGO Group and the LEGO Foundation are committed to becoming a global force for learning through play. We aim to redefine play and reimagine learning with hands-on learning experiences like Build the Change, where children are actively engaged through a meaningful and enjoyable experience, testing and trying out things with others. Success for us is seeing more and more children around the world become creative, engaged, and life-long learners. Educators can use Learning through Play to support student's depth of knowledge and understanding, with the application of this knowledge into practical skills and nurturing a lifelong motivation to learn new things.

On the <u>LEGO Foundation website</u>, you can find more information and access the <u>LEGO</u> <u>Foundation knowledge base</u> and in particular the white papers on <u>What we mean by</u> <u>Learning through Play</u> and <u>Learning through</u> <u>Play at school</u>.



OUR COMMITMENT TO SUSTAINABILITY

We're playing our part in building a sustainable future and creating a brighter world for our children to inherit. We're joining forces with children and parents, educators, our employees, partners, charities and experts to have a lasting impact and inspire the children of today to become the builders of tomorrow. We are proud of the journey we are on and recognize that there is much more to do and learn. We will continue to do everything we can to achieve our ambitions.

On our <u>sustainability website</u> you can find more information about our initiatives, ambitions and progress.

What is Build the Change?

Build the Change is the LEGO Group's flagship sustainability education program. Deceptively simple and effective, it has been tested with kids at events around the world for over a decade.

