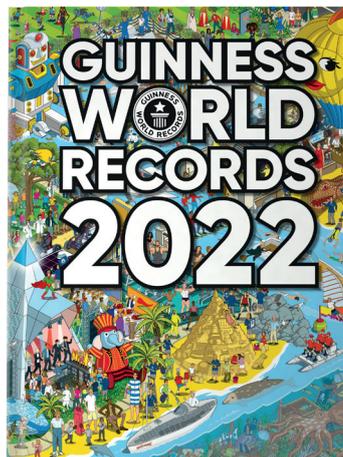


# REBUILDING THE EARTH



## LESSON 1 Explore

### *Lesson objectives*

- To define what a nature-based solution is
- To explain how nature-based solutions are key for rebuilding the Earth
- To compare different nature-based solutions in a class discussion

### *Curriculum links*

#### Science:

- Identify scientific evidence that has been used to support or refute ideas or arguments
- Recognise that environments can change and that this can sometimes pose dangers to living things
- Ask relevant questions and use different types of scientific enquiries to answer them

#### English:

- Explain and discuss students' understanding of what they have read, including through formal presentations and debates, maintaining a focus on the topic and using notes where necessary

#### Equipment list:

- Case studies from *Guinness World Records 2022* or others you have selected

### *Lesson explanation*

Rebuilding the Earth is all about restoring a balance with the environment and how this is key for creating a healthy planet, where humans can live and work in partnership with nature. Nature-based solutions are methods that use nature or imitate natural processes for the benefit of people and the environment. They have huge potential to help towns and cities become more resilient to climate change, and benefit people's health and the economy. This lesson is designed to explore the concept of nature-based solutions, using examples from *Guinness World Records 2022*.

### *Step by step*

Humans have transformed our landscapes, through draining wetlands, cutting down forests, ploughing over wildflowers and polluting rivers and seas. Rebuilding the Earth means creating healthier and more sustainable places for people and wildlife into the future. We can't just restore areas already set aside for nature, like national parks. We also need to rebuild the Earth in our towns and cities. Rebuilding the Earth in these places also means bringing people and wildlife together, which can be a really positive thing for our health and well-being.

Nature-based solutions are methods that use nature or imitate natural processes for the benefit of people and the environment. This means helping to tackle global challenges, such as climate change and loss of species, as well as helping with local issues such as flooding, drought and fire risk. An example of a nature-based solution is the creation of a large park near an urban area, which could help to provide flood protection, improve water quality and create habitat for lots of plants and animals.

1. Explore the idea of nature-based solutions by running a carousel lesson, using case studies from the Guinness World Records book or case studies of other nature-based solutions you have explored. By providing multiple examples, your students will be able to understand different nature-based solutions and compare them to one another. The case studies we recommend are:

- Largest Vertical Garden

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- Largest Vertical Farm
- Largest Landfill Reclamation project
- First/Largest 3D Printed Reef
- Whitest Paint

2. Use information from the different case studies to create posters, including information about the nature-based solution and a picture to provide an example. Place these posters around the room and ask your students, in groups, to move from poster to poster and look at the different nature-based solutions. As your students move around the class, they should answer the following questions about each:

- What is the nature-based solution?
- How does it help?
- What effect does it have?
- What challenges might you face with this nature-based solution?
- Do you think this is a good or bad solution? Why?

### ***Scaffolding and stretching***

You could scaffold this lesson by asking students to compare just two of the case studies instead of all five. You could also provide a worksheet with the questions and some helpful prompts, key words or sentence starters on them.

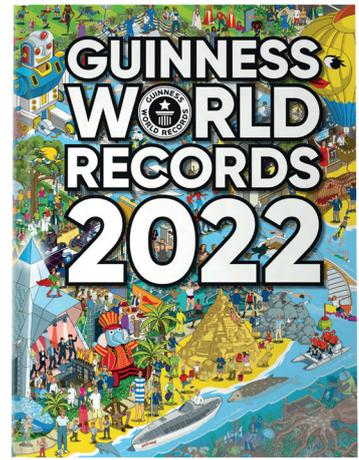
You could stretch this lesson by asking your students to research their own nature-based solutions, creating a profile that answers the questions used in the class discussion. Or you could ask your students to provide an opinion on which they think the best nature-based solution is and why. Students could also consider which nature-based solutions may work best in the country they live in and why others may not work.

### ***Climate links***

Nature-based solutions are helping communities to adapt to the impacts of climate change, particularly in urban areas where many people and buildings are at risk.



# REBUILDING THE EARTH



## LESSON 2 Challenge

### *Lesson objectives*

- To understand how nature-based solutions can help in rebuilding the Earth in urban environments
- To apply understanding of the impact that nature-based solutions can have on different locations within an urban space
- To develop a plan for a town or city which uses nature-based solutions to protect and enhance the environment

### *Curriculum links*

#### Science:

- Identify scientific evidence that has been used to support or refute ideas or arguments
- Recognise that environments can change and that this can sometimes pose dangers to living things

#### Art and design:

- Use drawing, painting and sculpture to develop and share their ideas, experiences and imagination

#### Geography:

- Understand types of settlement and land use

#### Equipment list:

- Plain paper, such as flipchart paper
- Colouring pens or pencils

### *Lesson explanation*

Nature-based solutions can be great and practical ways to make space for wildlife and habitats in towns and cities, as well as effective methods for protecting the environment, now and into the future. In this lesson, students will apply their understanding of nature-based solutions to the challenge of designing a nature-based town or city. Students should be split into three or four groups, each focusing on developing one aspect of the town plan. At the end of the lesson, students will come back together to feedback on their ideas.

### *Step by step*

1. Designing towns and cities with nature in mind is an effective way to help rebuild the Earth. In this lesson, what students learned about nature-based solutions in the first lesson will be applied to designing a nature-based town. Begin by dividing students into four groups; each group will focus on different parts of the city's design. If your class size is large, you could split your students into smaller groups and assign each section to multiple groups. The different focus areas are:

**Parks and gardens** – by including parks and gardens in a town, we can increase the amount of green space in the area and provide homes for wildlife. These spaces could be as big or as small as you want, from a few trees or a plot of grass alongside a road, to a large National Park with lots of different habitat types. These spaces don't just have to be forests or grassland - instead, they could be a meadow, wetland or even a combination of all of them.

**City centre** – space can be limited in the centre of a town, but there are still actions that can be made to create homes for wildlife. Taking

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advantage of any spare space is a great idea – you could plant grass or seeds on the buildings’ rooftops, or plant trees to throw shade over the road. You could even create a vertical forest along the walls of a skyscraper, just like the Bosco Verticale in Milan! You could also add window boxes, green balconies, or green walls to houses. All of these can help to cool the city, produce cleaner air and provide habitats for insects and birds.

**Water** – many towns and cities are built along water ways, and for many animals these rivers, canals, ponds and lakes provide drinking water and a safe way to move around urban spaces. During floods, water ways can be dangerous to towns and cities. You could minimise this risk by avoiding building directly by water ways, or by creating wetlands, which act as sponges for rain and flood water. Introducing plants such as reeds into a river can slow the water down, while planting trees and shrubs nearby can take up some of the water too.

**Housing** – areas with lots of houses can be an amazing resource for wildlife. The areas around houses, such as terraces, gardens, balconies, and walkways can provide habitats for wildlife and a space where people can enjoy nature. They can also help to clean the city’s air and water and reduce the risk of flooding. Houses can also be home to bird boxes, bug hotels, bat bricks, ponds, log piles, wildflowers, and more homes for wildlife.

2. Your students should reflect on some of the nature-based solutions they learned about in the last lesson. Each group should discuss how they think their area should look and create a wish-list of specific features to include. They could do this by creating a poster, mood board or annotated map. Some questions your students may wish to think about when designing their area are:

- What nature-based solutions would you include in your district?
- How would these features provide benefits for nature in your town/city?
- What benefits would these features provide for people in your town/city?

3. At the end of the lesson, allow each group the opportunity to feed back to the class about their ideas, providing answers to the different questions above to justify their thinking.

### ***Scaffolding and stretching***

You could scaffold this lesson by providing examples of cities and towns that have nature-based solutions, or by providing a list of nature-based solutions that your students can pick from. You could also design a cut and stick activity, where your students are given lots of images of solutions, such as trees and ponds, and asked to layer them over a map of their focus area.

You could stretch this lesson by asking students to design an annotated map with their focus area drawn onto it, or to research other nature-based solutions that they could use in the planning of their town. They could also compare the nature-based solutions, explaining why they chose the ones that they did and why they are the best fit for their town.

### ***Climate links (to be weaved throughout)***

Urban areas are likely to be hit by a combination of climate change impacts, including increased risk of flooding and rising temperatures. Integrating nature-based solutions into these areas is an effective way of combatting these challenges.



# REBUILDING THE EARTH

## LESSON 3 Communicate

### *Lesson objectives*

- To describe what a nature-based solution is
- To demonstrate this understanding by communicating what nature-based solutions are
- To create a presentation based on the students own ideas for a nature-based town or city

### *Curriculum links*

#### Science:

- Identify scientific evidence that has been used to support or refute ideas or arguments
- Recognise that environments can change and that this can sometimes pose dangers to living things
- Report and present findings from enquiries, including conclusions, relationships, and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations

#### English:

- Explain and discuss their understanding of what they have read, including through formal presentations and debates, maintaining a focus on the topic, and using notes where necessary
- Participate in discussions, presentations, performances, role play, improvisations, and debates

#### Equipment list:

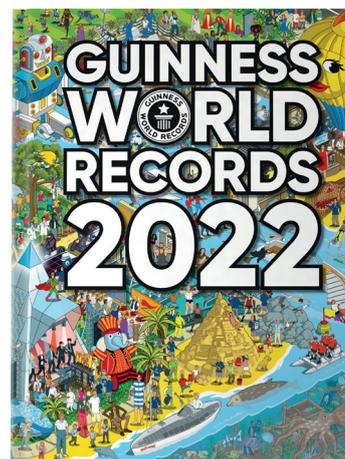
- Plain paper, such as flipchart paper
- Colouring pens or pencils
- Art supplies for making papier-mâché (newspaper, plain flour, water, salt, table covering, paint, Vaseline and paintbrushes)
- Plasticine
- Card, child-friendly scissors and tape

### *Lesson explanation*

Encourage your students to share their understanding of nature-based solutions by creating a presentation that they can deliver to friends and family or to the rest of the school during an assembly. Your students' presentation can communicate their vision for their nature-based town, including everything they have learned about nature-based solutions and the impacts they can have. This lesson will be spent creating the presentation, deciding who will be speaking and creating visual aids to help communicate key ideas.

### *Step by step*

1. The focus of this lesson is to prepare a presentation based on the work that the students have conducted over the previous lessons. Applying their understanding of nature-based solutions, your students should present their plan for a nature-based town or city, explaining the benefits of this approach and including real life examples such as world record achievements.
2. It may be helpful for the presentation to include information on why they designed a nature-based town and how it can be helpful for the environment. Students should prepare the key points they want to get across and may benefit from preparing flash cards, or other written prompts for the presentation during this lesson.



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3. Alongside the oral presentation, visual aids can be helpful when explaining your ideas to your audience. This could include creating the maps, annotated drawings, or even models that your students want to bring along with you. They could include Lego models, papier-mâché, or natural materials collected from the school grounds.

4. Alongside presenting on their nature-based town plan, your students could also think if any of the ideas in the plan could be applied to make your own school and its grounds more nature-based. Recommendations like adding bird boxes, planting trees or putting solar panels on the roof are all things that your class could mention.

### ***Scaffolding and stretching***

You could scaffold this lesson by providing sentence starters for students to write a script, or by creating a template presentation for them to use. You could also encourage students to create a spider diagram of their ideas to help them decide on what they would like to contribute to the presentation, or by providing sentence starters for their script.

You could stretch this lesson by asking your students to contribute a creative writing piece or script, including information about what they have learnt and how others can make changes too. They could also compare the different nature-based solutions they have learnt about.

### ***Climate links (to be weaved throughout)***

This presentation will bring together the content from the last two lessons, giving your students the chance to explain and justify the nature-based solutions they recommend. There are clear links in these solutions helping to both mitigate further climate disruption and building the natural defences of urban areas against the impacts of climate change.

