

DESIGN FOR A BETTER WORLD

Teacher's guide



practicalaction.org/schools/design-for-a-better-world

**Practical
ACTION**

Design for a better world is an exciting design project for pupils aged 14years+. It introduces them to the Sustainable Development Goals (SDGs), a set of seventeen goals developed by the United Nations to address global problems, including climate change, poverty and lack of global access to basic services such as clean water and energy.

After exploring the role that technology can play to help meet the SDGs, pupils are tasked with developing their own designs for products and/or systems that could address a Global Goal.

Introduction to The Sustainable Development Goals

Use Power Point slides 2-4 to introduce the Sustainable Development Goals (SDGs). The pupil sheet *Sustainable Development Goals* will help them to see a summary for each of the seventeen Global Goals that if acted upon collectively, aim to end global poverty by 2030.

The 3min video animation of the World's Largest Lesson found here vimeo.com/138852758 provides a useful summary of the SDGs. An activity sheet *Notes on the World's largest lesson* is provided to help pupils to record the key points from the video and answer questions to reinforce their understanding.



Resources

PowerPoint slides 2-4

Pupil activity sheets (per pupil)

- *Sustainable Development Goals*
- *Notes on the World's Largest Lesson*

Extension/homework activity

If you choose to explore the Global Goals in more detail, we recommend our Global Goals: String Activity and Who's responsible? They help pupils to learn about how the goals relate to one another and who is responsible, including designers for reaching the targets.

These activities along with posters and display material can be downloaded from here: practicalaction.org/global-goals

Global goals and targets for 2030

This activity supports pupils to explore the role of technology to help deliver some of the Global Goals.

Introduce the activity that will encourage pupils to explore some of the Global Goals and their targets in more detail.

Split the class into small groups and give each group the *World facts and Global Goals* sheet. Use PPT slide 5 to introduce the activity where pupils match the Global Goal symbols with their world facts and targets.

The next step is to take a look at the role that technology can play to reach five of the Global Goal targets. The five goals selected are ones where the need for technology is fairly clear.

Allocate one Global Goal per small group and ask the pupils to stick their Global Goal symbol and target onto the activity sheet *Can technology help?*

Use PPT slide 6 and hand out the *Global Goals: Technology solutions?* sheet that shows a range of pictures of different technologies. Ask the pupils to select the technologies that they feel could help reach their Global Goal. Once selected, they can cut out the pictures and stick them onto their *Technology and Global Goals* sheet. We suggest then that they annotate the sheet with reasons why they think their chosen technologies will help reach their Global Goal.

You might want to ask whether they felt that any of the technologies could help reach more than one goal.

To extend this activity ask pupils to add their own ideas of any technologies that they feel could be used to help reach their Global Goal. Ask each group to provide a little feedback on their ideas.

Resources

Pupil activity sheet (one per group)

- PPT slides 5-6
- *World facts and Global Goals*
- *Can Technology help?*
- *Global Goals: Technology solutions?*

Equipment (one set per group)

- Scissors
- Glue sticks

Design for a better world task

Using PPT slides 7-9 introduce the pupils to their main design task. Their brief is to design a technology or system that will help reach one of the Global Goal targets.

For this design task we suggest that pupils carry out the activities highlighted below. *The Design for a better world* sheets are provided for pupils to capture their work.

Resources

PPT slides 7-9

Activity sheets (one each/pair or small group)

- *Global Goals (Zero Hunger, Clean water and Sanitation, Affordable and Clean energy, Sustainable cities and Climate Action)*
- *Design for A Better World (Research, Research findings, Design ideas, Final idea).*

Research

A set of five Global Goal pupil sheets on *Zero Hunger, Clean water and Sanitation, Affordable and Clean energy, Sustainable Cities and Climate Action* are useful starting points for pupils to research into their chosen goal area.

Following their research they are expected to present evidence that shows that they have explored:

- A Global Goal and identified a problem to solve
- Existing technologies that could help reach the Global Goal target.

Design ideas

Now the pupils have identified the problem they will try to develop a solution for, encourage them to develop their design specification. Then produce a range of annotated designs that include the advantages and disadvantages of each.

Final design

Pupils present a final design that includes annotations about how the technology or system works and it could help to reach a Global Goal target.

After the pupils have completed their own project, you might encourage them to present their ideas to the rest of the class. In particular focusing on how their ideas could offer a solution to help reach a Global Goal target.

Ingenious solutions

Practical Action is working in many countries to help reach people to reach the Global Goal targets by 2030. To find out about a range of our international projects visit practicalaction.org/our-work/projects

The following links will give you links to Practical Action's videos that relate to the Global Goals in this project.

Global Goal 2 Zero Hunger

Four videos including the *Zeer pot* video showing how a clay pot fridge is benefiting people with no access to refrigeration practicalaction.org/schools/videos-food-and-agriculture

Global Goal 6 Clean Water and Sanitation

Three videos including *Pump It Up!* Showing how a water pump brings fresh water to a community in Bangladesh practicalaction.org/schools/videos-water-sanitation

Global Goal 7 Affordable and Clean Energy

Five videos including *Solar in Peru* practicalaction.org/schools/videos-energy

Global Goal 11 Sustainable cities and Communities

Using waste to produce biogas cooking in Bangladesh practicalaction.org/schools/videos-marvellous-microbes

Global Goal 13 Climate Action

Five videos including *Beat the Flood* that introduces flood proof housing in Bangladesh

practicalaction.org/video-beat-the-flood-1 and

other Climate Action interventions

practicalaction.org/schools/videos-climate-change

What next?

We hope that you and your pupils have enjoyed the design challenge and that it has inspired you to feel part of a global movement for change.

As a teacher there are many other opportunities to encourage pupils to take further action. Here are some recommendations:

- Have a look at Practical Action Schools other STEM challenges here practicalaction.org/schools/stem-challenges
- Join the World's Largest Lesson to help pupils make change in their own communities tes.com/worldslargestlesson/taking-action
- Share the toolkit with your pupils on how they can join youth organisations who are working together to advocate for change and to hold their government to account for their commitments to the Global Goals tes.com/worldslargestlesson/taking-action