

# WIND POWER CHALLENGE

In this project, you can find out about renewable energy in Peru, then design and make a model wind turbine!

Practical  
**ACTION**



# Peru

Peru is a country in South America.

What do you already know about Peru?



# Living in Peru

Abigail and Marco (the two children on the right) live with their friends and family high in the mountains of Peru.

They live in a remote rural village and they don't have any electricity in their houses or their school. This limits how much they can study and the type of businesses their parents can run and earn money from.



Many people around the world face the same or similar problems to Abigail and Marco, trapping them in poverty.

In 2015 the United Nations (UN) called a meeting with leaders from over 30 countries to work out how best to work together to solve some **of the world's biggest problems**.

They identified **17 Global Goals** to end poverty in the world by **2030**.

They called them the **Sustainable Development Goals**  
Or the **Global Goals**



**THE GLOBAL GOALS**  
For Sustainable Development

# The Sustainable Development Goals (SDGs)

<b>1</b> NO POVERTY 	<b>2</b> ZERO HUNGER 	<b>3</b> GOOD HEALTH AND WELL-BEING 	<b>4</b> QUALITY EDUCATION 	<b>5</b> GENDER EQUALITY 	<b>6</b> CLEAN WATER AND SANITATION 
<b>7</b> AFFORDABLE AND CLEAN ENERGY 	<b>8</b> DECENT WORK AND ECONOMIC GROWTH 	<b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE 	<b>10</b> REDUCED INEQUALITIES 	<b>11</b> SUSTAINABLE CITIES AND COMMUNITIES 	<b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION 
<b>13</b> CLIMATE ACTION 	<b>14</b> LIFE BELOW WATER 	<b>15</b> LIFE ON LAND 	<b>16</b> PEACE, JUSTICE AND STRONG INSTITUTIONS 	<b>17</b> PARTNERSHIPS FOR THE GOALS 	 <b>THE GLOBAL GOALS</b> For Sustainable Development

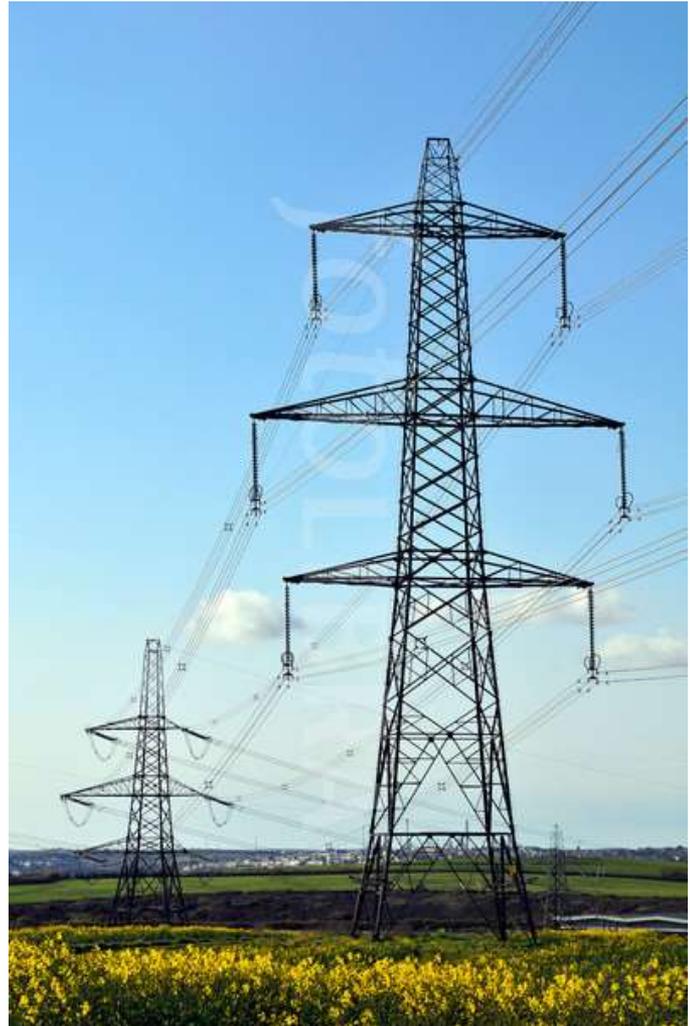
Making a  
**NATIONAL**  
**GRID**

# Making a National Grid

 Imagine you are an electricity pylon and the string you have been given is an electric cable.

 Use the string to connect as many people as possible to the power stations so they can get electricity.

**Question:** Often towns and villages are connected to more than one power station. Why do you think that is important?



# Renewable energy

In areas in any country where the National Grid does not reach there are alternative ways of producing energy.

**Question:** Can you name the different energy sources in these pictures?



What is a  
**WATT?**

# Did you Know?

A large offshore wind turbine (one in the sea) can produce up to 8 MW (or 0.008 GW) of electricity.

A large onshore wind turbine (one on land) can produce up to **2 MW** (or **0.002 GW**) of electricity.

A coal-fired power station can produce **2 GW** of electricity.

**So you need a lot of wind turbines to get the same amount of electricity as a coal-fired power station.**

To see how much **power** we are using right now go to:

[mygridgb.co.uk/dashboard](https://mygridgb.co.uk/dashboard)



Your  
**WIND POWER  
CHALLENGE**

## A few ground rules



You must fix your wind turbine to the desk.



When operating your model you must not touch it.

Other than that, anything goes.  
Do your research to help you make the best design.

**Good luck!**



Imagine you are engineers working together to find a way to bring electricity to Marco and Abigail and their community.

Can you design, make and test a wind turbine that will pick a cup of pennies off the floor?

**At the end of your challenge you could take a photo of your design to share with others.**

**Remember to leave time to work out how you are going to do this.**

# Feedback

## Teamwork

How well did you work together? Or did you have to work independently?

## Developing ideas

What ideas did you try out and how did you change your design as a result?

## Final design

How successful was it? How would you improve it if you had more time?



**You will be pleased to know that Abigail and Marco's lives have been much improved as a result of Practical Action working with their community to build lots of wind turbines. They now have electricity in their school.**

**Their teacher said:**

**'Our school now has electricity, hot water even tiled bathrooms! The children's lives have improved, now they have facilities as good as or even better than in the city!'**

This is just one way Practical Action is working with other organisations towards achieving the Sustainable Development Goals.



# Practical **ACTION**

We hope you  
enjoyed the  
**Wind power  
challenge**

For more information and resources go to:  
[practicalaction.org/schools](https://practicalaction.org/schools)

