

Code a better tomorrow

**The Sustainable Development
Goals Challenge**

with Robo Wunderkind



Table of contents

| | |
|-------------------------------|----|
| Key Information for Educators | 1. |
| Challenge Road Map | 2. |
| Intro into SDG for Students | 3. |
| Projects Overview | 6. |

Key Information for Educators:

"The Sustainable Development Goals (SDGs), also known as the **Global Goals**, were adopted by the United Nations in 2015 as a **universal call to action** to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity.

The 17 SDGs are integrated—they recognize that action in one area will affect outcomes in others and that **development must balance social, economic and environmental sustainability**.

Countries have committed to **prioritizing progress for those who are furthest behind**. The SDGs are designed to end poverty, hunger, AIDS, and discrimination against women and girls.

Creativity, knowledge, technology and financial resources from all of society is necessary to achieve the SDGs in every context."

We have facilitated a broader discussion and **creative challenge among students** all over the world. Our aim is to **support Global Goals** and encourage the younger generation to use creativity and technology in order to make the world a better place for everyone! We chose **3 Sustainable Development Goals** to focus on during the '**Design a better tomorrow**' Robo Wunderkind Challenge.



Challenge Road Map

Participants: Students from Grade 1 to 6 can participate individually or in groups. Each school can have as many groups as they want.

1



Sign Up for the Challenge
at Your School

 **Jan 20th, 2023**

2



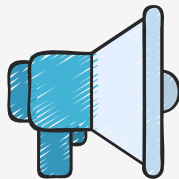
Watch a Kick Off Video

3



Make 1-3 Creative Project(s) in your classroom to introduce your students to the topic and inspire them to create their own projects. The challenge ideas and supporting materials are provided by Robo Wunderkind.

4



Announce the challenge
to your students and help them to prepare their projects if needed.

5



Submit the Projects: We would need the following information: project idea, pictures of the project, code screenshots, short video (1-3 min long) of students explaining and showing the project.

 **March 17th, 2023**

6



**Winners Announcement
Ceremony**

 **TBD**

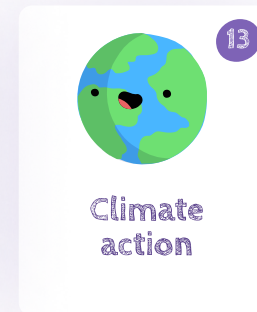


Intro into SDG for Students

Facilitate a Discussion & Motivate Students:

- What is so special about our planet earth?
- What are the most important things we (humans and animals) all need to be happy on Earth?
- What are the problems we humans face right now? How did we cause them?
What is climate change? What causes it? How does it affect nature?
- What is inequality? What is poverty? What causes it? How does it affect some people?
- Can you think of some examples from your life that are related to these problems?
How do we humans plan to deal with these problems?
- What are the Global Goals or Sustainable Development Goals?
- What are their reasons? Do you have some ideas on how we can make a change?
- What projects/companies do you know that are taking climate actions already?

Talk about some of the Sustainable Development Goals but Focus on the Following:



Introduce the Challenge:

Today we are going to talk about one of the Sustainable Development Goals in detail and think of some sustainable solutions. We will plan, sketch and create a project to solve a challenge using the Robo Wunderkind robotics set and coding app!



Introduce the steps in the Discuss Design Thinking Process:

Discuss The Design Thinking Process:

Recall what you do when you solve a challenge or work on a project. Try to think of some universal steps.

Can you name them?

Are there any universal steps that help people and also engineers to work on projects and solve challenges?

Why is it important to have those steps?

1

Define a problem (for example clean water in Haiti) or a challenge you would like to solve (write it down)

2

Brainstorm all possible solutions (write them all down, as many as you can!)

3

Evaluate & choose one solution

4

Sketch your solution (draw & write)

5

Work on the solution with Robo Wunderkind:

- 1 Build a robot and code it
- 2 Create some props & environment (Photo + Video)

6

Finalize your solution:

- 1 Check if everything is working as you expect
- 2 Check for bugs

7

Reflect in writing

- 1 What worked well
- 2 What was fun
- 3 What else you would need

8

Take pictures and videos of your solution & code



Intro into SDG 6



Learn about Water Use



Project 1:

Clean water and sanitation

Water Consumption

All living creatures need water, some of them can live in salty water but most animals including us humans need fresh water. There is some progress that humans have made in increasing access to clean drinking water and sanitation. Billions of people; mostly in rural areas, still lack these basic services. How can we find a solution to this problem using robotics & technologies?

Challenge

There is water inequality that should be addressed with a help of technologies.

Project Idea

Smart Irrigation & Water Use Controller

Project Description

Even if we all know that we should be very attentive to water use, sometimes we leave the water running or use too much water to water plants. Many farmers are struggling with this problem while cultivating crops & plants. Robotic technologies can improve water use efficiency of irrigation systems, by enabling us to create an efficient water schedule to keep plants healthy and remotely control their systems using smart devices.

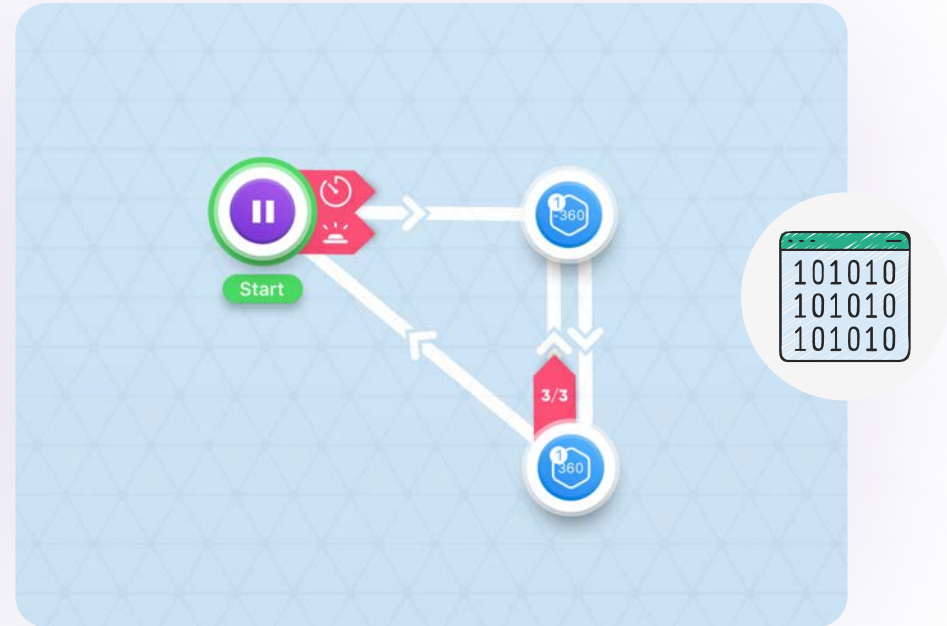
The Robotic Smart Water Controller

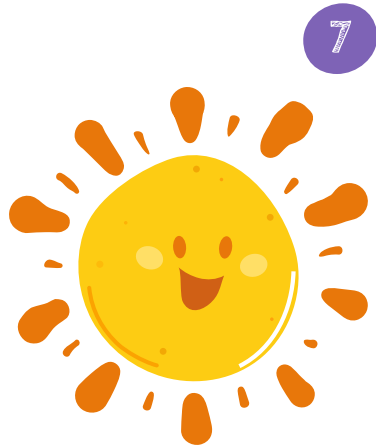
helps to save water by keeping a schedule for watering the plants.



Some other ideas for inspiration:

Robotic water purifier
Robotic water delivery
Robotic rainwater harvesting





Intro to SDG 7



Learn about renewable energy sources



Project 2:

Affordable and Clean Energy

Renewable Energy Sources

As the number of people living on planet earth is growing, so is the demand for energy. In order to supply everyone all over the world with energy and still be sustainable in the way we treat our planet, new clean and renewable energy sources should be used. How can we find a solution to this problem using robotics & technologies?

Challenge

We need to use affordable, clean and renewable energy sources

Project Idea

Robotic EV Charging Station

Project Description

It's important to know what kind of energy we are using every day; is it renewable or not? What are the sustainable energy sources we can use for devices in our lives? Cars and transport are one the most energy consuming machines we use everyday. Is there any chance to make them sustainable? In many cities today, we can find charging stations for electric cars. How do these stations work?

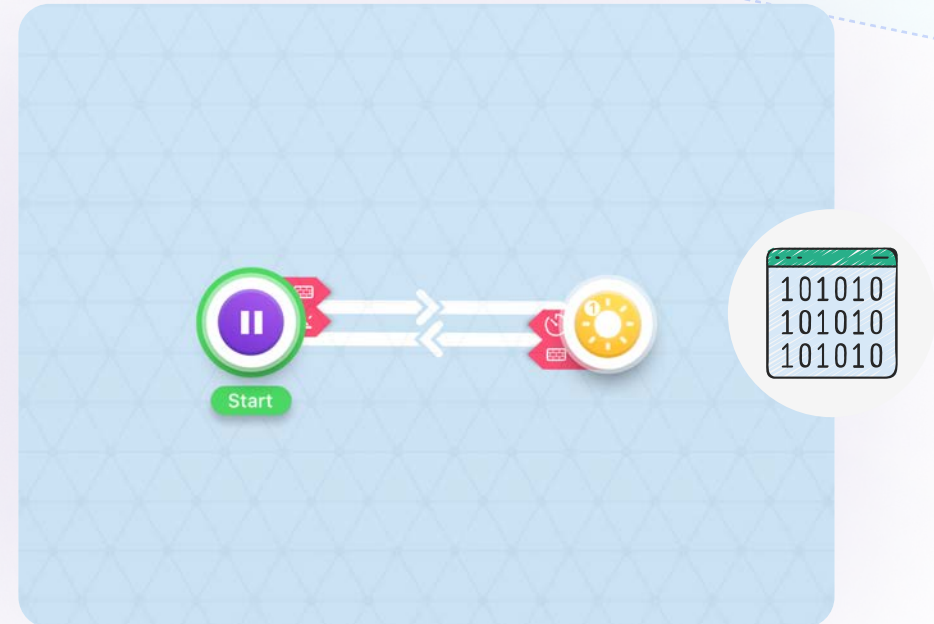
Robotic EV Charging Station

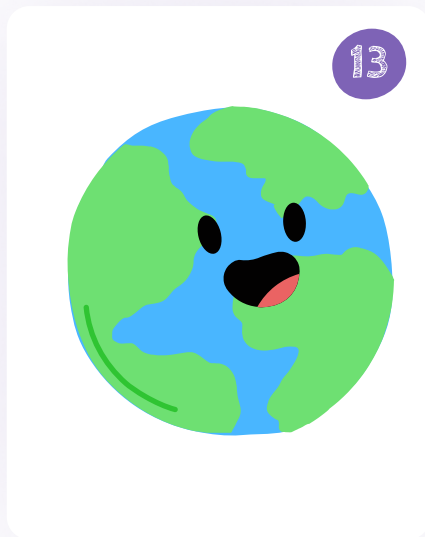
gets the energy from the sun and charges the arriving cars, helping to keep them sustainable.



Some other ideas for inspiration:

Robotic energy
consumption controller
Robotic wind turbine -
wind electricity
Hydropower wheel -
water energy





Intro into SDG 13



Learn about Climate Change



Project 3:

Climate Action

Energy Consumption

Challenge

We need to take an action to care for our planet

Project Idea

Robotic Smart City Lighting

Project Description

Let's continue to talk about energy consumption. Look around you on the street; how many lights can you see? Do we need sufficient lighting all the time? Does it depend on the time of day, time of the year, our environment? Can we use robots to indicate when to use the lights and when to turn them off?

Robotic Smart City Lighting

controls the lighting in the city so it's only on if necessary (during certain hours or when a person is walking on a street) in order to save energy.



Some other ideas for inspiration:
Smart lamp at home
Smart city traffic light
Smart alarm

