



World Robot Olympiad 2020

Open Category

CLIMATE SQUAD

Theme for age groups

WeDo, Elementary, Junior, Senior

Version: January 15th



WRO International Premium Partners



INTRODUCTION

You may have noticed that we are already experiencing the consequences of climate change. We are facing more forest fires, more extreme temperatures, longer heat waves, absent or overflowing precipitation and rising sea levels. Nature and the oceans normally act as climate regulators by absorbing carbon dioxide from the air. But the amount of greenhouse gases we emit from fossil fuels is so high that it exceeds nature's ability to absorb them.

We need your CLIMATE SQUAD to act!

Teams in the **Regular Category** will develop robots that will allow us to adapt and help us overcome the increasingly frequent climatic hazards.

Open Category teams will create robotic solutions to help avoid emitting greenhouse gases from fossil fuels or absorb greenhouse gases. We are looking for innovative solutions. Feel free to use different technologies and materials that you can find locally.

CLIMATE SQUAD MISSIONS

For the WRO Open Category in 2020, teams are asked to come up with innovative ideas for the following sub-topics. Teams may choose one of the two areas (1, 2) to work on, but they can also choose to work on a project focusses on both areas.

1. Manufacture locally to avoid transportation

The transport of goods and people is one of the main sources of greenhouse gas emissions. Nearly 10,000 aircraft are in flight at any given time, nearly 40,000 cargo ships are at sea and hundreds of millions of cars and trucks are on the roads, powered by fossil fuels.

Robotic solutions to manufacture locally what we need are being sought. This would avoid having the goods travel thousands of kilometers by boat, plane, car and truck using fossil fuels. These solutions shall use energy coming from renewable sources.

Similarly, solutions that allow physical work to be carried out remotely without having to travel long distances are also sought. This would reduce need for flying or commuting.

2. Restoring nature's ability to regulate the climate

Natural mechanisms capture greenhouse gases (mainly carbon dioxide) and sequester carbon while releasing oxygen. But humans have altered nature and these mechanisms so we need your team, the Climate Squad, to restore them.

Robotic solutions for reforestation and wetland restoration are being sought, as well as solutions to increase the absorption capacity of greenhouse gases in natural environments.

You may find inspiration around this topic in the Sustainable Development Goal No. 13 "Take urgent action to combat climate change and its impacts", see more at:

<https://sustainabledevelopment.un.org/sdg13>

SPECIAL REQUESTS BY AGE GROUP

WeDo

If you are in this category, you shall present a solution that will help you and your friends have a positive impact.

Elementary

If you are in this category, you will need to explain why your solution might be of interest to families or people around you.

Junior

If you are in this category, you will have to present the impact of your solution on current ways of doing things, lifestyle habits, etc. What will change? Who could benefit from it or be affected by it?

Senior

If you are in this category, you will have to demonstrate, with figures to support, the impact of your solution, if it were implemented, on the reduction of greenhouse gas emissions. Represent your data clearly and convincingly.