# CLIMATE DETECTIVES KIDS

## TEAM LEADER GUIDE

# → WHY PARTICIPATE

By participating in Climate Detectives Kids, students will develop an understanding of Earth's science and climate, as well as learn the importance of respecting our environment and how everyone has an impact on the world around them. Students can engage in different activities focusing on our planet and will have the opportunity to be inspired by other teams and their work in the activity gallery.

This guide is designed to help Team Leaders direct and support students to complete activities – related to the climate, Earth science, or the environment. This approach enhances transversal skills such as critical thinking, collaboration, real-world problem solving, and communication.

## The project objectives are:

- To spark interest in STEM and boost students' confidence in STEM knowledge and skills through the exploration of environmental phenomena, particularly climate-related topics.
- To promote environmental awareness and real-world problem-solving
- To improve the younger generation's knowledge of Earth's climate and the environment, both as a global issue and in local environments, and prepare them for the societal challenges of this century.

# → Overview

Climate Detectives is a European project for school students up to 19 years old run by the European Space Agency (ESA) and the national European Space Education Resource Offices (ESEROs). Starting in 2023–2024, Climate Detectives has a lower level of complexity for younger students – Climate Detectives Kids.

By participating in the Climate Detectives Kids, young students will learn about Earth's science and the environment, and understand the importance of respecting it, through selected learning resources and hands-on activities. In Climate Detectives Kids, students complete activities on Earth science, the environment, or climate while collecting evidence of their discoveries and earning badges. Each activity deepens their understanding of the subjects in a motivating and engaging way. Completing and submitting an activity will enable the team to receive a virtual silver badge. Submitting a second activity will award the team with a virtual gold badge and an online certificate for their participation.

Submitted activities will be published on the Climate Detectives website, in the Climate Detectives Kids Activities Gallery, where teams can view their own activities and the activities of all the other teams participating in the project. Additionally, teams can find other participating teams – both national and international – in the Climate Detectives Kids Community Map. This way, everyone can learn from each other.

# → Fast Facts


Complete activities to earn badges


Suggested up to 12 years old

Receive your certificate after submitting two activities

Up to the whole class


ESA Member States + Canada, Latvia, Lithuania, and Slovakia

Open from September to July


Language of your choice

International gallery with activities of teams from all participating teams

Non competitive

Climate, Earth Science, the environment

Beginners

# → Background information

The Climate Detectives Kids Team Leader's Guide provides a set of steps and approaches that Team Leaders might employ with students to ensure that participating in Climate Detectives Kids provides an opportunity for students to learn about the processes in Earth's ecosystems and climate and how everyone has an impact on the environment.

'Team Leader' refers to someone over the age of 18 who will guide the team of students in their project and learning journey. Examples of Team Leaders include teachers, mentors, extracurricular club leaders, parents, Scout leaders, or anyone else over the age of 18 who is guiding the team and submitting the activities through the platform. The Team Leader is responsible for using the platform, submitting the project and any relevant content or images.

In a school setting, Climate Detectives Kids activities can cover subjects like science, geography, environment and even languages. Outside of school, Climate Detectives Kids is fantastic for clubs, Scout groups, or parents who want to motivate their children to learn about our planet and all complex processes in a playful way.

Each year, Climate Detectives Kids opens in September and closes in July.

For more information on who can participate, visit the Climate Detectives Kids section on the Climate Detectives website and check out the eligibility criteria. For guidelines, timelines and project updates, visit the Climate Detectives Kids website: https://climatedetectives.esa.int/kids/. By visiting the Country Info pages, you will learn more about your National Organiser, which might plan and offer events taking placing in your country.

In addition to Climate Detective Kids, there is also the Climate Detectives which has a more advanced level of complexity for older students: where students run an investigation in an environmental or climate problem in their local area, using real satellite data and ground-based measurements to support their conclusions, and come up with solutions to make a difference. You can find out more information about the advanced level of complexity here. This guide will focus on the steps to run Climate Detectives Kids.

# → Getting started with Climate Detectives Kids

## Create an account

If you are new to Climate Detectives and haven't created an account yet or don't want to participate with your account used in previous editions of Climate Detectives, the first step is registering as a new user on the Climate Detectives website. If you haven't done so, you can create your profile and register here. The user registration can also be found by clicking on 'Login' at the top-right, and clicking 'Sign up for an account' underneath the green 'Login' button.

## Register your Climate Detectives Kids team

Log in on your Climate Detectives user account. When logged in, you can register your Climate Detectives Kids team. Here you will find the page for Climate Detective Kids where you can create new teams. Each Team Leader can have multiple teams.

You can also access the page to create your team by hovering over 'My Personal Area' and clicking the option 'Teams'. Click 'Create team' to register a new team. Decide for a fun creative name, fill in some information about your team and get started! As soon as you have registered a team, you will see the summary of your submission in ''My Personal Area".

# → Selecting a Climate Detectives Kids activity

After creating your team, you will have the choice of selecting and deciding for the activities you and your team would like to complete. Think about the learning journey that you are guiding your team through: which topic do you want them to understand, which learning styles suit your students best, what types of activities might resonate best with your students and engage them with the information?

Some activities work well together, would you like to use different activities to introduce and delve deeper into one topic, or would you rather have two different activities to explore two varied topics?

Activities are generally aimed at certain age ranges of students, but don't let this put you off if you think that the activity is suitable for your students. Some activities are more hands-on experiments,

and some are more writing-based, so think about these factors when choosing an activity.

Any activity related to the climate, Earth science, or the environment is suitable for Climate Detectives Kids. Activities can be taken from the Climate Detectives website, from a national ESERO page, from your school, or even an activity you create yourself!

## Types of activities

### • Resources on the Climate Detectives website

On the Climate Detectives website, you can access a variety of different ESA resources. You can access them by clicking the 'Resources' button at the top right when you enter the Climate Detectives website. Towards the top, you can filter all resources by clicking on the 'Kids' button to see resources aimed at primary school students. If your students are ready for more advanced material, you might want to use a resource of the higher level of complexity of Climate Detectives and submit this as an activity for Climate Detectives Kids. There is also the possibility to filter by subject or by language. Every resource on the Climate Detectives website is in English, but many have been translated into other languages.

There are a multitude of activities on the Climate Detectives website; these activities have an introduction page with a brief description and learning objectives, so you can quickly see if this resource is suitable for your students and fits their learning journey.

Resources on the Climate Detectives website range from: teacher guides to help students learning about the difference between weather and climate, experiment protocols to learn more about the greenhouse effect and ice melting, growing plants without soil, studying the properties of light, to Paxi animations explaining climate-related concepts in a very engaging way!

Some examples of didactic resources are mentioned below.

## Suggested primary classroom activities

### Nose up high in the sky:

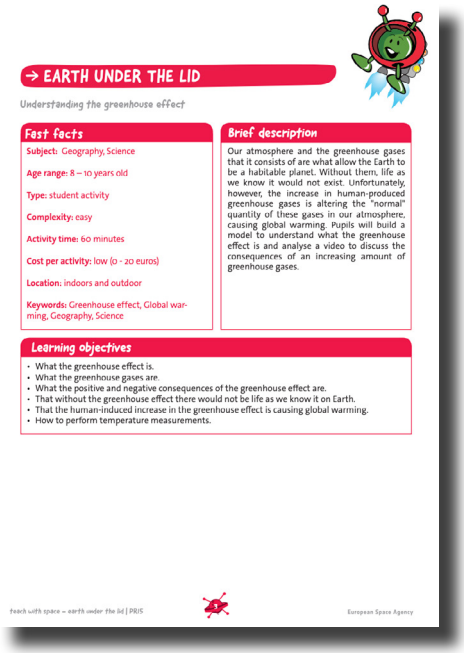
This activity is designed for primary school students to learn how their senses can be used to describe weather conditions. Students build a small meteorological station, take weather measurements and learn that scientists need to have access to reliable instruments to make precise weather forecasting. Access resource here.

### The ice is melting:

This set of four activities allows primary school students to explore the impact that global warming, through melting ice, have on sea levels. Students learn the difference between land ice and sea ice and consider why ice on Earth is melting. They investigate the respective effects of the melting of land ice and sea ice. Access resource here.

### Earth under the lid:

Primary school students investigate what the greenhouse effect is and analyse a video to discuss the consequences of an increasing amount of greenhouse gases on Earth's climate. Access resource here.

- **Resources from your national ESERO**

The European Space Education Resource Office (ESERO) and their partners help facilitate the Climate Detectives project in each of our participating countries by providing local support. For more activities suitable for Climate Detectives Kids, check out your National Organiser's webpage, which you can find here. Often, ESERO webpages contain many useful resources that could be used as activities in Climate Detectives Kids. Additionally, your national ESERO might offer national events or trainings in which you could take part.

- **Activities from elsewhere and your own ideas**

Use activities from schools, science clubs or create your own activity! Just ensure that it is related to the climate, Earth science, or the environment. The wider the range of activities, the better. Get inspired by activities other teams did in the past editions and inspire other teams with your own activity.

# → Activities

## Introducing key words, terms, and concepts

Depending on the activity, students will have the opportunity to increase and consolidate their understanding of key topics and concepts related to the environment, climate and Earth's science. At the outset, Team Leaders can ensure they have a basic knowledge of key words, terminology and concepts, thus giving them the necessary tools and language to embark on the activity.
Some activities are an introduction to the topics and require no background information. Some activities might benefit from talking about some of these key words:

- Climate
- Climate change
- Weather
- Weather events
- Fossil fuels
- Greenhouse gases
- Greenhouse effect
- Global warming
- Environmental pollution

As key words and phrases arise, it is a good idea to note them on a whiteboard or flipchart so that students are reminded of them for later. To explain keywords in a more playful way to engage your students, you could use some of these ideas:

- Print and cut out the keywords and their definitions, making it a game for the students to put the keyword with the correct definition. Colour-coding the keyword with the definition can support students who find specific definitions challenging.
- Creating a wordsearch or crossword, with the definition in the description part.
- A printed worksheet with the keywords in one column and the definitions in a random order in the other column, for the students to draw lines from the keywords to the correct definitions.
- Give the students a definition and have them write what they think the keyword is on a mini whiteboard. You can support students who find specific definitions challenging by having a short list of keyword options for them to choose from.
- Play a game by giving the students the keyword and their definition, and have the students re-explain the concept of the keyword without them using the keyword in the definition.

### Engage the students

Here are some other examples of how students can be engaged and their prior knowledge activated:

- **Questioning:** Ask the students what they know about our environment and climate. Do they know the difference between weather and climate? Have they heard of the causes and effects of climate change on the environment?
- **Videos:** The Paxi videos are especially engaging and can be found in the resources section of the Climate Detectives website. Explore with Paxi the water cycle and why there are seasons on Earth.
- **Mind Map:** Have students produce a mind map illustrating what they know about Earth's environment and climate, either as a class, group, or individual activity to introduce the topic of your selected activity. This could earn you a badge!
- **Mini-whiteboards:** If you are running Climate Detectives Kids with a larger group (such as a class), ask simple questions and have the students write their answer on a mini-whiteboard and hold it up so you can quickly scan answers across the room to determine the prior knowledge of your students.

## → Submit your Climate Detectives Activity

Each team can have multiple submitted activities. Here you will find the page for Climate Detective Kids where you can add activities to earn badges. Bear in mind that each team will need two activities submitted to be awarded the gold badge and the certificate. You can also submit an activity by hov-

ering over 'My Personal Area' and clicking the option 'Teams' and pressing 'Add activity' to be taken to the process to submit an activity. Once you submit an activity and share how you and your team completed it, you will see the silver badge appearing in the summary of your submission in ''My Personal Area". By submitting a second activity, you will receive the gold badge and unlock the access to your certificates, which can be easily downloaded on the same location of the website.

To submit an activity, you will describe what your team has done and will tell us more about what your team has learnt. You can also upload an image/(s) related with the activity completed and your detective work. Please do not upload any pictures that can identify children. Because of data protection regulations the pictures should present only the project and not the team members.

Additionally, you can also share a PDF or website link or add a YouTube link to your submission.

Remember to keep within the required word count. You can use the Activity template in the Appendix. The activity submission can be shared in the language of your choice. The summary should be based on notes taken and work completed during the entirety of the activity performance.

By submitting the activity, the team leader confirms to take full responsibility of the submitted data in the activity submission as described in the Terms and Conditions.

## Guidelines on the use of AI

We respectfully request that, as the team leader, you oversee your students' responsible use of Artificial Intelligence (AI) in the development of their Climate Detectives project and support them in acquiring valuable STEM skills and competencies. The use of Artificial Intelligence (AI) is only permitted under the following guidelines:

- All core investigation work must be created by the students using non-AI tools. AI-generated imagery may only be used in addition to their original image(s). These must be clearly based and traceable to their original work.
- AI may be used to improve grammar, structure or clarity of written descriptions, but the description shall not be generated fully in AI.
- Any use of AI must be clearly documented by using the AI checkboxes in the project submission.
- Submissions that rely solely on AI-generated content without evidence of student-led design will not be accepted. Final judgement will be at the sole discretion of ESA Education.

## Climate Detectives Kids community

Every year, Climate Detectives receives hundreds of submissions from dozens of countries, and your

students can be part of this incredible international journey! Your activities will be shared in the Climate Detectives Kids Activity gallery to inspire other teams across Europe. Check out what other teams are doing using the European community map.


**We are looking forward to receiving your Climate Detectives Kids activities. ESA wishes all the Climate Detectives good luck. Happy exploring!**

# → Appendix 1 – Activity template

**Team name:**

**In which language are you submitting?**

**Source of resources**

- o **ESA resources**
- o **ESERO resources**
- o **Other**

**Activity name:**

**Describe what your team has done, and tell us more about what your team has learnt** (max. 150 words):

**Upload an image(s) related with the activity completed and your detective work (required)** NOTE: Please do not upload any pictures that can identify children.

**Link to project website or PDF** (optional) Share a link if you created a website or if you have written any article/document describing the activity done.

**YouTube Video Link** (optional) Share a link if you created a video or a multimedia presentation describing the activity done.

**Our team has used AI tools as a support tool for this submission.**

- o Yes
- o No

**Summarise how your team used AI tools** (if used and max. 150 words)