



**AUSTRALIA**

Using AI to Tackle Sustainability  
JUNIOR STUDENT CHALLENGE

[DAYOFAIAUSTRALIA.COM](http://DAYOFAIAUSTRALIA.COM)

# Student Challenge: Using AI to Tackle Sustainability | 45 mins

## Objectives

- Students will participate in a challenge designed to help them apply the concepts learned throughout previous lessons by developing an idea for their own AI technology project that helps improve sustainability in their school.

## Curriculum Alignment

This lesson is linked to the following [Australian Curriculum \(Version 9\)](#) content descriptors:

- **Years 5 and 6**
  - [AC9TDI6K01](#): investigate the main internal components of common digital systems and their function.
  - [AC9TDI6K03](#): explain how digital systems represent all data using numbers.
  - [AC9TDI6P01](#): define problems with given or co-developed design criteria and by creating user stories.
  - [AC9TDI6P02](#): design algorithms involving multiple alternatives (branching) and iteration.
  - [AC9TDI6P03](#): design a user interface for a digital system.
  - [AC9TDI6P04](#): generate, modify, communicate and evaluate designs.
  - [AC9TDI6P06](#): evaluate existing and student solutions against the design criteria and user stories and their broader community impact.
  - [AC9TDI6P07](#): select and use appropriate digital tools effectively to create, locate and communicate content, applying common conventions.
  - [AC9TDI6P08](#): select and use appropriate digital tools effectively to share content online, plan tasks and collaborate on projects, demonstrating agreed behaviours.
  - [AC9TDI6P10](#): explain the creation and permanence of their digital footprint and consider privacy when collecting user data.
- **Years 7 and 8**
  - [AC9M7SP04](#): design and create algorithms involving a sequence of steps and decisions that will sort and classify sets of shapes according to their attributes, and describe how the algorithms work.
  - [AC9TDI8K03](#): explain how digital systems represent all data using numbers.
  - [AC9TDI8P02](#): analyse and visualise data using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends.
  - [AC9TDI8P14](#): investigate and manage the digital footprint existing systems and student solutions collect and assess if the data is essential to their purpose.
  - [AC9TDI8P04](#): define and decompose real-world problems with design criteria and by creating user stories.
  - [AC9TDI8P07](#): design the user experience of a digital system.
  - [AC9TDI8P08](#): generate, modify, communicate and evaluate alternative designs.

- [AC9TDI8P10](#): evaluate existing and student solutions against the design criteria, user stories and possible future impact.
- [AC9TDI8P12](#): select and use a range of digital tools efficiently and responsibly to share content online, and plan and manage individual and collaborative agile projects.

## Resources

- [Presentation Slides for Student Challenge](#) (available on website once logged in)
- A whiteboard or chart paper and a marker, for brainstorming
- A laptop webcam, smartphone or other camera, for recording the video submission

## Activity Steps

1. **2 mins.** Reveal the theme for this year's AI Student Challenge: **"Using AI to Tackle Sustainability & Climate Change"**.
2. **5 mins.** Divide your students into pairs. Each pair will be a team that comes up with their own AI-powered solution, and submits a unique entry to the competition. Students will come up with an AI-powered solution for the following problem: **"How can AI be used to make your school more environmentally sustainable?"**
  - a. Students may work individually if there is an odd number of students in the classroom or if they really want to work solo, however we strongly encourage them to work in pairs if possible.
3. **3 mins.** Talk through each stage of the competition with your students. The stages are:
  - a. Brainstorming your idea (15 mins).
  - b. Record a video (15 mins).
  - c. Upload your entry (5 mins).
4. **15 mins.** Brainstorming. Ask each team to respond to each of the following questions to help them brainstorm their idea. They could write their answers down on a whiteboard, a piece of butcher's paper, or type them on a laptop as a note. They don't need too much detail, a sentence or two will be enough.



What problem are you trying to solve?



How does the AI-powered solution work?



What kind of data will you need to train it?



How will it make your school more sustainable?



What are some limitations you might face when training your AI?



What are some ethical challenges you might need to think about?

5. **(OPTIONAL EXTENSION):** Ask teams to flesh out their solution with these questions:

- a. **Environmental impacts:**



How much data will be collected? What is the size of data centres required to store the data?



How energy-efficient is training and running your AI (especially in the hardware)?

**b. Social considerations:**



How widely applicable is your solution?



Can social factors like income, location, and disability affect the effectiveness of your AI-powered solution?



How easily can users understand how your solution works?

**c. Data privacy:**



How will users give consent to their data being collected?



Who can gain access to the data?



Is there potential for misuse of data?



How can data be protected to ensure safety?

6. **15 mins.** Recording. Give each team 15 minutes to record a short video pitching their idea.
- You can record the video on a mobile phone, tablet, laptop, or camera.
  - The video must be **no more than 3 minutes long**.
  - Try recording in landscape mode, somewhere quiet and with good lighting.



**NOTE**

The intended format is for students to record themselves talking into the camera and presenting their idea. If students are not comfortable with being on camera, or do not have parental permission, they can be creative with their pitch. They might:

- Narrate over a sketch or slide presentation
- Walk through a demonstration using an AI tool they used during the day (e.g. Teachable Machines)

7. **5 mins.** Uploading the video. On the Day of AI website, you will find a unique link for your classroom to submit their entries. Submissions can be uploaded in two ways:
- Share this link with your students (e.g. via email or LMS announcement). They can then upload their video directly to the website and submit their entry.
  - Ask your students to share their videos with you (e.g. USB transfer, or upload to your own LMS) and you can use the unique link to upload the videos on your students' behalf.

**END OF LESSON PLAN**

CONGRATULATIONS!

You have completed the  
Day of AI Australia for 2024.

