

# Metro Minds STEAM Challenge

Years 7 to 10, your Metro Minds journey starts here.



# Step 1



## Form a team

Get a team together to solve a real challenge or opportunity that Sydney Metro may face as it revolutionises how Sydneysiders travel.

Some team members may have more than one job (maximum of six students per team). These might be:

### The Organiser



**Project manager**

Manages the team, coordinates creation of a plan and ensures actions are completed on time.

### The Inventor



**Production manager**

Responsible for prototype development.

### The Informer



**Research and development manager**

Responsible for research and product/solution development.

### The Questioner



**Quality assurance manager**

Responsible for quality control and testing.

### The Art Director



**Creative and design manager**

Responsible for creative presentation and video pitch production.

### The Wordsmith



**Project administration manager**

Responsible for quality documentation, information flow, photographs and finalising the concept brief.

## Step 2



## Webinars

Submit a question and meet our experts via a virtual check-in webinar. More information at [sydneymetro.info/metro-minds-steam-challenge](https://sydneymetro.info/metro-minds-steam-challenge).

## Explore

Research a challenge or opportunity. It could be from any area including:

- Customer needs and engagement
- [Metro trains](#)
- Engineering and construction
- [Health and safety](#)
- Heritage
- [Integrated transport](#)
- Environment and sustainability
- [Stations](#)
- Passenger access
- [New technologies](#)
- Future transport
- [Connecting communities.](#)



Tunnel Boring Machine (TBM) Mum Shirl Barangaroo breakthrough.



Central Walk in the redeveloped Central Station.

## Step 3



# Innovate

Use the design thinking process to develop your innovation and prototype.

## 1 Empathise

Put yourself in someone else's shoes

- Find out more about Sydney Metro by visiting [sydneymetro.info](http://sydneymetro.info)
- Look, listen and learn – think about your customer.

## 2 Define

Take what you have learnt and put it into words

- Discuss your research and observations.
- Write an issues statement – this will be what your team will address/solve with your innovation.

## 3 Ideate

Ideate with your team – it's time to come up with ideas

- Brainstorm as many ideas as possible for an innovation that solves your identified problem.
- Be original: try to select an innovative idea that doesn't already exist and is realistic.

## 4 Prototype

Get hands-on

- Create a prototype, this can be a physical model, computer design or an artist's impression.
- Keep it simple: create an inexpensive, scaled-down model of your innovation.

## 5 Test

See if your idea works

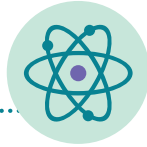
- Hand the prototype over to a new user to see how they interact with it – show, don't tell.
- You may have to create multiple prototype versions and scenarios before you get it right.

To get more tips on design thinking, go to [sydneymetro.info/metro-minds-steam-challenge](http://sydneymetro.info/metro-minds-steam-challenge)



Sydney Metro's site at Rosehill.

## Step 4



# The pitch

We want to see your team and your innovation. Create a video to pitch us your idea. It could look like this, it's up to you.

### Introduction

Introduce your team members – say hi!  
What did your team do?

### The challenge or opportunity

Explain the challenge or opportunity addressed: know your 'problem' statement.

### Innovation

Present your idea and prototype.  
Tell us how your idea has been developed, designed and tested.

### Fit

Tell us how your innovative idea fits the Metro Minds STEAM Challenge brief.  
Could it be realistically implemented?

### Community value

Are you an exemplary local citizen?  
Of course you are! Tell us the ways that your innovation will contribute to and serve the local community.

## Video tips



Your video pitch should be informative, interesting and engaging for the audience. Here are a few helpful hints for a successful pitch:

- ☑ Know your content
- ☑ Involve all team members
- ☑ Understand your audience
- ☑ Keep it simple
- ☑ Use visuals to support your pitch
- ☑ Be confident and speak clearly and expressively.



Sydney Metro's Northwest metro train.

## Step 5



# Submit

Your Metro Minds STEAM coordinating teacher will be responsible for uploading your entry. However, before he or she uploads, ensure your team has:

- Checked carefully your concept brief outlining your team's design thinking process. **Remember, no more than 500 words.** This can be submitted as a PDF or Word document.
- Edited and previewed your video pitch to ensure your team has completed all of the challenge's components.
- Submitted video entries via Vimeo, YouTube or link via Microsoft OneDrive.

**Don't forget, submissions close online at 5:00pm (AEST) on 22 June 2023.**

## Checklist

- Form your team of four to six students and allocate real jobs. Go on, give your team a name.
- Is it OK? Has your parent or legal guardian given you permission to enter the Metro Minds STEAM Challenge?
- Check your coordinating teacher has registered your team.
- Read through the challenge judging criteria on our website.
- Research the Sydney Metro project and decide on your challenge theme.
- Establish your solution by following the first three stages of design thinking: empathise, define and ideate.
- Develop your prototype and test – hit repeat if you need to.
- Tap into our Metro Minds ambassador network through a school visit or virtual check-in session.
- Plan and create a visual presentation to tell us your pitch.
- Film your video pitch (of up to five minutes) featuring all team members.
- Complete a concept brief (of up to 500 words) outlining your design thinking process.
- Check your brief and video pitch meet the judging criteria.
- If the pitch is one of the top eight from your school, ask your coordinating teacher to submit your concept brief and pitch presentation on the Metro Minds web page by **22 June 2023**.



## The prize

Teams and their support crew will be chosen to attend the finalist event for their chance to pitch to our judges.

### Finalists

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\$600 prize for the team

\$300 prize for the coordinating teacher

\$300 prize for the school

### Winners

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\$1500 prize for the team

\$500 prize for the coordinating teacher

\$500 prize for the school

### Timeline

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Pre-challenge check-in

**16 March 2023**

Virtual check-in #1

**4 May 2023**

Registrations close

**6 May 2023**

Virtual check-in #2

**19 May 2023**

Submissions due

**22 June 2023**

Finalists announced

**20 July 2023**

Finalists event

**25 August 2023\***

## Teacher info

The Metro Minds STEAM Challenge is a NSW Education Authority (NESA) curriculum-linked, project-based learning experience which engages students in a real project of national significance.

It is relevant across multiple curriculum areas (including Science, Technology, Engineering, Arts and Mathematics) and supports 21<sup>st</sup> century learning.

The competition is part of Sydney Metro's FastTracking the Future education program.

Teams entering the competition must have a teacher who acts as the coordinating teacher. The coordinating teacher is responsible for coordinating teams, organising parental permission and registrations and uploading team submissions to the Metro Minds web page by **23 June 2023**. The coordinating teacher can also win some great prizes!

### Curriculum links

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- English
- Mathematics
- Science
- Geography
- Design and Technology
- Industrial Technology
- Visual Arts
- Commerce



\* Date to be advised and may be subject to change.  
Students must participate in Finalists event to be eligible as finalists.

Find more information, including curriculum links, content descriptors and terms and conditions at: [sydneymetro.info/metro-minds-steam-challenge](https://sydneymetro.info/metro-minds-steam-challenge)

