

AUSTRALIAN STEM



VIDEO GAME CHALLENGE



Australian STEM Video Game Challenge registrations open on Sunday 3 April 2016.

Focusing on science, technology, engineering and maths (STEM), the Australian STEM Video Game Challenge invites Australian students to learn important skills for the future through the process of designing and building an original video game.

Open to Australian students in Years 5-12, and facilitated by the ACER Foundation (the philanthropic arm of the Australian Council for Educational Research), the Australian STEM Video Game Challenge is completely free to enter, and encourages game development as an inquiry-based learning exercise that helps to develop capabilities in systems-based thinking, problem solving, iterative design, communication, collaboration and project management – skills that are increasingly required for living and working in a rapidly changing technological landscape.

Working in teams, or individually, participants have the opportunity to earn recognition from leaders in the

Australian games industry, compete for fantastic prizes and have their games on display at one of the largest electronic entertainment exhibitions in the southern hemisphere.

In addition to supporting STEM learning for all Australian students, the Australian STEM Video Game Challenge seeks to address the disparity between the number of male and female students in STEM-related fields, and to encourage the participation of key groups that are traditionally under-represented in STEM areas, including Indigenous Australians and students from low socio-economic areas. This supports the ACER Foundation's philanthropic goal to address the needs of educationally disadvantaged groups.

We're calling on students, teachers, principals, parents and school communities to get involved with the Australian STEM Video Game Challenge this year, and to tackle STEM learning in a new and challenging way. It's completely free to enter, and links to resources and tools are provided. All that's needed is imagination and a great idea for a game!



Australian Council for Educational Research



WHY STEM?

Science, technology, engineering and mathematics (STEM) are among the most critical disciplines required for businesses and individuals to succeed in the 21st century.

Research¹ shows that 75% of the fastest growing occupations worldwide require STEM-related skills and capabilities, with the demand for these skills continuing to grow as Australia competes in the emerging global economy.

Unfortunately, fewer Australian students are pursuing STEM learning, and as a nation we are rapidly falling behind the rest of the world². As a country, we need to teach students to approach problems critically, and to solve them with creativity; to tackle challenges from new perspectives; and to research and resource themselves along the way.

The Australian STEM Video Game Challenge seeks to make learning STEM skills not only desirable, but achievable and fun – helping to bridge the gap between the current level of STEM-related learning by Australian students and the level of STEM-related skills they will inevitably need to succeed in the future.

ENTRY CATEGORIES

The Australian STEM Video Game Challenge is divided into six separate entrance categories:

STUDENTS IN YEARS 5-8

- Playable game developed in *Scratch*
- Playable game developed in *Gamemaker Studio* or *Gamestar Mechanic*
- Open Category: Playable game developed on any other platform.

STUDENTS IN YEARS 9-12

- Playable game developed with *Gamemaker Studio* or *Gamestar Mechanic*
- Playable game developed in *Unity*
- Open Category: Playable game developed on any other platform.

In addition to these categories, one Game Design Document (GDD) Prize will be awarded, recognising the entry accompanied by the most outstanding documentation.

Entrants can be individual students, or teams comprised of up to four students. Students must be Australian residents, and have consent from a parent or guardian to participate.

SOFTWARE, TOOLS & RESOURCES

All software used and recognised in the Australian STEM Video Game Challenge must be free, or free for educational purposes, and available online. By using free and open-source platforms, the Challenge aims to maximise accessibility, allowing students from all backgrounds and situations to participate.

JUDGING CRITERIA

Games in each category are judged against the following criteria:

- Functionality: Does the game work?
- Visual Design: What does the game look like?
- Gameplay: How successful are the game's mechanics?
- Engagement: Is it fun to play?
- Theme: Are the game's themes and core principles appropriate?

Each entry must also be accompanied by a Game Design Document (GDD) which provides an overview of the game and serves as an insight to the development process. The GDD is particularly important as a record and reflection of the learning that occurred over the course of creating the finished product. The GDD will be judged on three basic criteria:

- Clarity: Does the GDD outline the project clearly?
- Detail: Can you follow the story of the game's production?
- Documentation: Does the GDD cover the different elements sourced?

THEMES AND CLASSIFICATIONS

Much of the STEM-related learning involved in video game development is derived from the process itself. Trial-and-error, self-generated enquiry, and the acquisition of new skills to produce a given outcome or fulfil a desired objective – all are involved in the process of building a video game from an idea into a working end product.

To reflect this process-based approach to learning, games entered in the 2016 Australian STEM Video Game Challenge are *not required* to contain an explicit science, technology, engineering or mathematical theme.

All games entered must be 'G' rated and comply with the classification guidelines, which are available for download from the Australian STEM Video Game Challenge website.

HOW DO I GET INVOLVED?

Registration for the Australian STEM Video Game Challenge officially opens on **Sunday 3 April 2016**. Each entrant, or team of entrants, simply needs to visit www.stemgames.org.au and complete an online registration form. After that, teams can begin designing and building their games. Registrations close on Friday 3 June and completed games are due by Friday 19 August. Get involved, get creative and have some fun!

¹ Office of the Chief Scientist 2014, *Science, Technology, Engineering and Mathematics: Australia's Future*. Australian Government, Canberra

² Trends in International Mathematics and Science Study (TIMSS)

FOR MORE INFORMATION

WWW.STEMGAMES.ORG.AU



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