CNA Catholic Network Australia

Brisbane Catholic Education
teaching · challenging · transforming

STEM MAD

National Student **SHOWCASE**

Tuesday 19 November 2024 · Brisbane Convention and Exhibition Centre

STEM MAD National: Project Criteria – Secondary

The following criteria have been developed to guide teachers and students in the development of their projects.

Design process

- Uses a Design Process in understanding and creating solutions to the problem, which may include the following stages:
  1. Empathise with key stakeholders
  2. Define the problem
  3. Ideate possible solutions
  4. Develop prototypes
  5. Test prototypes and make modifications following testing
  6. Iterate the prototype-test-modify cycle
  7. Share & explain outcomes
- Documents research, reflections, and evaluations of each stages of the design process

Innovation and creativity

- Identifies the unique/novel aspects of a problem that exists in the real-world
- Applies creative and/or innovative approaches when developing solutions to the problem
- Develops interesting, engaging and imaginative solutions to the problem

STEM skills and capabilities

- Uses a range of STEM skills - logical reasoning, questioning, problem solving, that address the general capabilities (Critical and Creative Thinking, Ethical, Intercultural, Personal and Social) in designing a solution to the problem
- Makes connections across the STEM disciplines
- Applies engineering principles in the process of designing a solution to the problem

STEM disciplines – Knowledge and understanding

- Applies scientific and/or mathematical concepts in developing solutions to the problem
- Demonstrates understanding of the scientific and/or mathematical concepts relating to their project, including their relevance and application in context

Making A Difference (MAD)

- Identifies the way the solution and/or product intends to *Make A Difference* by addressing one of more of the following themes;
  1. *Service*
  2. *Environment*
  3. *Product*

  through the lens of Catholic stewardship, solidarity, common good, citizenship, humanity, and wellbeing.

Communication

- Creates a pitch video that is a maximum of 2.5 minutes in length
- Demonstrates capacities to articulate their learning through the journey from conception to showcase including the design process
- Uses visual communication principles to optimise engagement, including creative use of the screen space in the pitch video
- Selects and uses appropriate digital tools to create the pitch video
- Pitch video includes appropriate visuals and has high sound quality
- Presentation of key elements of the project, including demonstration of the prototype (product/solution)

Teamwork

- Each team has up to 4 members
- All team members contribute to the project and pitch video