



Robogals Science Challenge 2015

Information

OVERVIEW

Outline

The Robogals Science Challenge is a nationwide science competition for girls, which enables participants to learn a bit more about science and engineering by conducting science projects or experiments with a friend, parent, or another mentor. Entries to the competition are submitted online in the form of videos, photos and writing in three age categories. The competition will span across four months, with the best 12 groups or individuals being awarded for their efforts at the end of the year.

The Challenge

Your challenge submission consists of two parts: the Minor Challenges and the Major Challenge. The Minor Challenges are the initial part of the challenge, whereby participants can begin to learn about different science and engineering disciplines and have the option to participate in mini experiments. Participants are encouraged to participate in as many minor challenges as possible to help build up their skills for the final challenge. The Major Challenge is when participants can create their own experiment and produce a video to show their findings.

Girls between ages 5 to 15 can enter the competition, individually or as a team of 2, accompanied by a parent or mentor who is above the age of 18. Only entrants from Australia will be eligible for prizes.

Key Dates

1 July	The competition is launched and the first set of Minor Challenges are released
16 July	The second set of Minor Challenge projects are released
31 July	The third set of Minor Challenge projects are released
15 August	The fourth set of Minor Challenge projects are released
1 September	Video submissions for Major Challenge open
9 October	Final entry deadline, registration closes
12 October	Voting for the "Crowd Favourite" commences
25 October	Voting closes and competition closes
Nov-Dec	Finalists are announced and awarded for their efforts



Prizes

The top 3 groups in each category, plus the "Crowd Favourite", as voted online, will be awarded for their efforts. All participants will receive a certificate of participation.

Project Guidelines

The Robogals Science Challenge has no specific theme for the Major Challenge; we've left it open-ended for you to choose any science experiment that's fun and exciting. You may like to build on one of your minor challenges or choose the engineering discipline/science area you liked best in the minor challenges and construct a new experiment.

Video Guidelines

For the Major Challenge you will submit a video as your entry. Each video is to be submitted online and will feature a mentor and up to 2 mentees, talking about and demonstrating their project. The video should be at most 4 minutes long, and the young girl(s) should do at least 3/4 of the talking. The mentor's role is primarily to encourage their mentee to participate, and to assist with dangerous tasks (use of the stove, for example).

Further information regarding Major Challenge online submissions will be provided later in the competition.

The girl(s) should answer the following questions in their video:

1. What have you learnt from this project?
2. Why have you have participated in the **Robogals Science Challenge**?
3. Why should other girls also participate in this competition?

*Question 2 is to ensure that the video has been made specifically for this competition, and not used from elsewhere.

The written questionnaire will ask the following questions:

1. Why did you choose this project?
2. What did you enjoy most about the project?
3. What have you learned from the project?
4. How did your parent or mentor help you?
5. Engineering is the application of science to creations or designs that benefits mankind. What do you think are the engineering applications of the knowledge found in your science project? In other words, if you were an engineer, what would or could you create out of your science project?



- For the **intermediate** age group (9-12): briefly explain the underlying scientific theories behind the project; why you chose this method and equipment; and whether the experiment is repeatable and why?
- For the **senior** age group (13-15): briefly explain the underlying scientific theories behind the project; why you chose this method and equipment; whether the experiment is repeatable and why; and any formulas or calculations used in the project.

If it is not practical to film the actual project, your video could show photos together with an explanation of the project.

Voting (for Crowd Favourite)

As well as having the chance to win in your division for first, second and third place, there is also an award for the Crowd Favourite in each age division. The voting begins on 12th of October and closes on the 25th of October, when the competition concludes. The voting is open to the general public as well as those participating so there is the chance for you to be able to vote for your favourites as well as have your friends and family vote for your project.

Judging

To determine the winners for each age group, the videos submitted for the Major Challenge will be judged by our esteemed panel of judges. The entries for the Major Challenge will be ranked using a scoring method based on the following:

- Answering of questions
- Creativity of project
- Emphasis on the young girl's work
 - For the **intermediate** age group (9-12): a demonstrated understanding of the theory behind the project
 - For the **senior** age group (13-15): a demonstrated understanding of the theory behind the project and the formulas or calculations used in the project

Registration

The Robogals Science Challenge is open to all girls from the ages of 5 to 15 in Australia and is free of charge to enter. Registration opens mid-July and closes 9th October – approximately two weeks before the competition concludes. To register now click [here](#).

STRUCTURE

Age Categories

For the Major Challenge, the competition is divided into three age groups and entries are judged according to that level:

Junior	Intermediate	Senior
5 - 8yrs	9 - 12yrs	13 - 15yrs

Minor Challenges

Every fortnight, beginning 1st of July, we will release nine projects for you to choose from; each from two different disciplines of Engineering and one area of science. Over the time frame of the Minor Challenge you are able to experiment with the project and submit what you have learnt to us. The projects are divided into three levels of difficulty ranging from junior to senior and can be attempted by any participant no matter which age category you fit into. The minor challenges are seen as an optional part to the competition though we do encourage you to have a go in order to learn something new.

After completing your experiment, you will submit photos, drawing or images of what you have learnt, as well as write a small description of what you did to accompany it. This description should address some of the three dot points below and/or parts of the method that you found interesting.

- Think of the key concepts of science and engineering that relate to this challenge and the approach to science and engineering
- Address problems that may be associated with the challenge and mention the improvements you can make
- Think of a real world application you can apply the challenge to

All Minor Challenge entries (i.e. photos/images/drawings and written description) should be emailed to scichal@robogals.org, including name of participant(s), age category, and name of project.

Participants' entries will then be collected and displayed on the official Robogals Science Challenge Facebook Page: www.facebook.com/RobogalsScienceChallenge.

Major Challenge

The Major Challenge makes up the part of the competition that is submitted for judging. In this section participants use their creativity and knowledge of science to create and conduct an experiment or project of their choice. The project may be build on from an experiment you may have enjoyed from the Minor Challenges or can be something completely different. In creating the experiment, participants must create a video to show what they have done in



their project and the results they conclude. This video will be submitted online to be voted on by my peers as well as our panel of judges.

PROJECT IDEAS

The Major Challenge has no specific theme; we've left it open-ended for you to choose any science experiment that's fun and exciting. Not sure where to start? Here are a few different types of science project. It's easier to choose a project idea once you've determined what sort of project interests you.

Further information regarding Major Challenge online submissions will be provided later in the competition.

Types of projects

Experiment or Investigation

This is the most common type of project, where you use the scientific method to propose and test a hypothesis. After you accept or reject the hypothesis, you draw conclusions about what you observed.

Example: Determining whether or not a cereal contains the amount of iron per serving listed on the box.

Demonstration

A demonstration usually involves re-testing an experiment that already has been done by someone else. You can get ideas for this type of project from books and on the internet.

Example: Presenting and explaining an oscillating clock chemical reaction. Note that this type of project can be improved if you do the demonstration and then go further, such as by predicting how temperature would affect the rate of the clock reaction.

Research

A research project can be an excellent project if you use the data to answer a question. An example would be polling people to ask about their belief in global warming, then drawing conclusions about what the results mean for policy and research.

Model

This type of project involves building a model to illustrate a concept or principle.

Example: An example of a model is the vinegar & baking soda volcano, but you can have an incredible high school or college project by building a model of a new design or a prototype for an invention. In its best form, a project with a model illustrates a new concept.

Collection

This project often displays a collection to illustrate your understanding of a concept or topic.

Example: As with the demonstration, model, and research project, a collection has the potential to be a lame project or an exceptional project. You could show off your butterfly collection. That wouldn't win you any prizes. You could show off your butterfly collection and observe how wing lengths of the insects differed from year to year and look into possible explanations for the phenomenon. Discovering a correlation with pesticide use or temperature or precipitation could have important implications.

JUDGES

This year's panel of judges will be announced later in the competition.

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CONTACT

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