



Challenge Based Learning Activities

The descriptions of the problem based learning challenge activities are listed below. Please read and then complete the attached form to choose which activity your **teacher and students** wish to participate in.

We will endeavour to provide all participants with their first preference but if many participants choose the same activity, we may need to allocate some participants with their second preference.

Save The World - B4 It's Too Late!

Australia's unique biodiversity is under threat - you can be part of the solution!

Join us in our crusade to save the world - we'll visit a native animal rescue centre, and design and build homes for endangered species, including:

- bats
- birds
- bees
- butterflies

Join our ISF - B4 it's too late!

Saving the World, One Person at a Time

What is the immediate response, planning, technology and human resourcing used in a search and rescue situation?

Develop an understanding of the processes that are included in an emergency response to a plane crash and a search and rescue situation.

- Understanding the situation
- Planning a response
- Technology that can assist in search and rescue
- Communications required to coordinate

Join our ISF – Be the SAR (Search And Rescue) Hero!

Green It Up!

Have you ever wondered if the way we live is sustainable? A unique 'housing' challenge will be presented to a small group of students. Eg reduce the kW hours used by a house whilst still keeping a family of six comfortable through an Adelaide (or Kyoto or Seoul or Winnipeg or) winter.

Students will conduct research into sustainable technologies that currently exist and integrate these into the house/ space design.



INTERNATIONAL SCIENCE FAIR 2018

Join the Green Revolution at Flinders Uni

Working with local expert, Josh Jarvis, we will rehabilitate the area behind the Australian Science and Mathematics School (ASMS).

This practical hands-on activity will develop a productive sustainable environment on degraded land, re-introduce local frog species and provide a living learning environment for the ASMS interdisciplinary curriculum. The restored land will become a showcase of the potential for re-establishing the indigenous environment of this ecosystem.

You will learn why indigenous plants are essential in our unique environment and how the wellbeing of native species can be used as a barometer of environmental health.

Salvage Sculpt Sustain!

If you love to reuse, repurpose, refresh, recycle, refurbish and reinvent things to reduce landfill waste, then this Challenge-Based Learning Project is for you! Visit a salvage yard and use what you find to create an extraordinary item. Turn waste into an artistic piece, or even functional furniture. Save the world one piece of rubbish (or maybe several pieces) at a time. Cut, drill, saw, hammer, paint, bleed, sweat, cry and laugh with us! No experience with tools necessary!

Recovering Local Ecology after Mining Incursion – designing sustainable mining operations

You work for a mining company that has just taken over the lease of an old gold mine in the Adelaide Hills. Technology to do with mineral exploration, mining and refining has improved remarkably since this area was last mined for gold. Legislation around how mines operate have also changed resulting in the need for Environmental Impact Statements.

You will be part of a multi-disciplinary team that is searching for new gold deposits so will have an option to be part of the exploration team, the mining engineering team, the environmental impact or the environmental restoration team. You will be required to work collaboratively to achieve your goals – find the deposit, mine the deposit, and make sure environmental requirements are adhered to, and the land restored. You will be making your own metal detectors and participating in an excursion to two old gold mines in the Adelaide Hills.

Geophysics, electronics, environmental sustainability.

World Saving MasterChef

Should we be eating insects as our main protein source? Or should we be vegan? Should plastic packaging be banned? Is food taste and appeal relevant when considering the damage we are doing to our planet by craving cheeseburgers?



Government of South Australia
Department for Education



INTERNATIONAL SCIENCE FAIR 2018

In this ISF challenge, you will save the world - one ingredient at a time! Highlight your understanding of the negative impact of current food practices! Plan a meal that addresses the unsustainability of current food practices. Shop for the most sustainable ingredients at our world class Central Markets. Use alternative, sustainable food options that consider the production, transport, packaging, purpose, nutrition, and appeal of food. Shop for your chosen ingredients at our world class Central Markets. Just like MasterChef, your final meal will be plated and rated by our expert panel of judges based on appearance, taste, and most importantly, how it contributes to more sustainable food practices.

Design, modify or engineer a solution to one future challenge faced by Mallee farmers

Agriculture is fundamental to human survival. Since the first crops were domesticated 10,000 years ago, advances have been linked with the growth of human civilization. Technology and innovation have underpinned those advances. Agriculture today is sophisticated and has been one of Australia's most innovative and efficient industries. Our farmers need to continually develop solutions in the face of low environmental concerns, volatile energy prices, low growth, and rising expectations from consumers. This needs to be achieved in a more environmentally, economically and socially viable way.

This challenge invites students to visit the South Australian Mallee to observe technological innovation in action, within a food and agriculture context. Students will meet with local farmers and visit local enterprise to engage with some of the complex challenges the industry is facing today. The project will be to design, modify or engineer a solution to one future challenge faced by Mallee farmers.

Saving the World through Sustainable Housing

In first world countries, houses are getting bigger but families are getting smaller, and this isn't sustainable on many levels. You will be challenged to create your own environmentally friendly and sustainable dwelling given specific criteria in terms of land size and number of residents you need to house. You will visit "Christie Walk" located in Adelaide. Here you will take a tour of the small community consisting of 27 homes and gardens on 2,000 sq m focussing on ecological sustainability and many community-enhancing features. You will present your creation along with a model of your design making sure to achieve the correct energy rating and meet other requirements.



Government of South Australia
Department for Education

