



Challenge Based Learning Activities

The descriptions of the Challenge Based Learning 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.

Changing Waste into Want!

If you love to reuse, repurpose, refresh, recycle, refurbish and reinvent things or to change their purpose and overall reduce landfill waste, this Challenge-Based Learning Project is for you!

Come with us to visit a salvage yard and use what you find to create change to an item into something might be used functionally. Turn waste into an artistic piece, or even functional furniture.

Be the change by using one piece of rubbish (or maybe several pieces) at a time to give them a new life. You can cut, drill, saw, hammer, paint, bleed, sweat, cry and laugh with us! No experience with tools necessary!

How can we create sustainable living environments for all?

How can we design and construct buildings that allow for sustainability? Should buildings last forever, or should they be designed so that they have a 'shelf life' for demolition? How can we design buildings that are ecologically friendly and still provide high quality life and use experiences? Are tiny homes an answer? And where do mud-bricks fit in all of this?

In this Challenge, you will investigate architectural approaches to a range of different building types and create your own solution to an inquiry that the class negotiates. You will have the chance to make, break and research different ways and materials of building. You will gain inspiration through visiting iconic buildings in Adelaide.

How can we work with and in our local environments to.....

The landscape has changed since European arrival but there are small pockets of greenery which are close to the country that indigenous people would have seen, walked in and used. During ISF 2019, we will continue to discover what that would look like at the back of the ASMS and in the Ken Eford memorial garden.

We will investigate, research, discuss, negotiate, travel, buy, weed, plant, mulch, celebrate and share the fruits of our labour when we get down and dirty. Want something hands on? Feel the need to get dirty? Want to spend time making something look like you haven't touched it and it was always there? Want to learn some new skills? Want some agency in what you do? Join us and participate in a long term venture that will bring joy for years to come.

How can we increase activity levels for children in our local community?

Have you ever really wanted to work with younger children to help them learn how to be more active, while learning all about yourself at the same time? In this Challenge, you will learn a new movement activity and then work with primary aged students to teach them the game and pass it on. You will be engaged in several levels of movement activities throughout the experience and will have a very special movement Challenge all of your own!



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Plastic Oceans

Reduce, reuse, recycle, redesign and rethink!

Students will identify the negative impacts of plastics worldwide and then specifically in Adelaide. Students will visit locations around Adelaide, conducting quadrats/ transects to collect data on plastics problem at a local level.

Investigate all the different ways businesses are minimising their plastic waste! /plastic free restaurants? / Central markets? / Drones US data.

Local, national and international schools will work together to find local solutions. How can these solutions be utilised worldwide?

How will artificial intelligence and robots change our future?

The future is yours and the future is now! Technological capacity is increasing at an alarming rate – in fact, it seems there is something new being launched every day. In this Challenge you will have the opportunity to use new technologies and consider the ethical implications of the use of these. Should we be able to use drones to observe others? Should robots be taking over our jobs? Do we need to go overseas for holidays if we can experience it virtually?

Enjoy a real debate about the pros and cons of the use of technology in our lives.

Three strands – students will choose to work on one of these:

Drones and surveillance: using drones to take images of targets, search, identify rubbish...

Programming AI: processing the images taken by drones for identifying rubbish, training a computer to play a game, programming any aspect of AI

Robotics, sensors and the Internet of Things: creating and programming a connected device!

In each strand there will be engagement with ethical questions – if we can, should we?

Seeing further – how will developments and discoveries in cosmology change the way we think about the universe?

How much do we really know about the universe? How does our ever-growing understanding affect the way we see ourselves? This challenge will see you engage with the big questions through your choice of activity - do you want to build your own telescope? Analyse astronomical data? Investigate advances in cosmology? Think about how law applies to space or how different cultures see the sky? The choice is yours. Work on any of these, or come up with your own idea - if you'd like to make a difference, we'll help you do so.

Students will choose from one of the following strands:

- Build your own scope - understanding optics and what it can show you change your perspective
- Cultural interpretations of the night sky - changes through space and time
- Build a radio telescope - change the idea of seeing
- Investigate cosmological ideas - change your scale
- How far can we see? - change notion of distance
- Use Pulse@Parkes - online archival data searching for pulsars - changing stars
- Exoplanet finding - changes that indicate presences of planets
- Astrobiology research - changing our understanding of our place in the universe
- Seeing what's coming: space weather
- Working in space - changing role of SA in space
- programming , simulating, planning
- Space Law - changing the scope of the legal system



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How can YOU make a difference in the world?

There are many different issues that can be influenced by the 'think global, act local' approach.

In this Challenge, you will identify the change you want to see in your world and make it happen.

Really care about the environment? Want to help out in an aged care facility? Keen to work with children who want to learn a new skill? This Challenge is for YOU! It doesn't matter where in the world you live – this is a chance to solve a problem connected with your own context.

Roots and shoots

Roots & Shoots is a program that is different for each and every member around the world. For instance, a project that works for inner city kids in Australia is going to differ enormously from a project in remote towns in Uganda.

In this challenge students will engage in the Roots and Shoots programme which is a global network of young people taking action to improve our world. It is a youth-led action program that is currently making a difference in nearly 100 countries. It builds on Dr. Jane's legacy and vision of placing the power and responsibility for creating solutions to big challenges in the hands of the young people. All around the world today, youth are exploring problems in their communities around animals, people and the environment, brainstorming solutions and creating projects that help to solve the problems.

Bush tucker challenge

Aboriginal Australians managed to thrive for 60,000+ years, including in some of the harshest environments on Earth. Their culture is rich and diverse. This ISF Challenge is designed to help participants begin to understand and value the rich connection that Aboriginal Australians have with the land.

In this Challenge you will 'be the change' that takes steps towards ensuring that the culture of Aboriginal Australians is truly valued. You will take a trip into the bush, learn from experts about Aboriginal Australians ways of knowing and source some delicious bush tucker that you will cook.

Climate change challenges for Mallee farmers

"Farming is a risky business. In the semi-arid plains of the South Australian Mallee, farmers manage to grow crops in the face of extremely variable weather and minimal rainfall.

Today, most farmers in the Mallee grow cycles of wheat and fallow, or lucerne and fallow, essentially resting their soil for upto an entire year after each harvest to give it time to collect enough rainwater to produce another crop. But fallow requires leaving the soil without a growing crop. If it is tilled, the bare soil is subject to both wind and water erosion, and loses much of its water storage to evaporation and weeds.

Facing a changing climate, farmers have no choice but to change to improve the resilience of dryland cropping systems. Students will investigate the extent to which; crop rotations enhance diversity; plant cover crops keep the soil covered and increase soil organic matter; the benefits of integrated livestock into cropping systems, and the impact of no-till farming practices. Students will explore the process of identification, evaluation, and communication of innovations that improve production practices. This includes soil management."

Our changing waterways – how can we plan our world to sustainably manage aquatic ecosystems?

We live in an increasingly urbanised world, and the land we use for living was once the home of many different (non-human) creatures. How can we plan our landscapes in ways that encourage biodiversity in our aquatic ecosystems? What's been done in the past, what's currently being done and how should we manage this issue in the future?



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Communicating the change

WANTED.

Passionate, creative, driven individuals who know how to get a message across! Be part of a dynamic media consulting team that will capture the hearts and minds of the ISF. You'll be working closely with CBL groups and communicating the theme of change through an exciting mix of multimedia and content creation. Infiltrate the Twitter-verse, develop your skills in cinematography, photography and more! Get ready to upskill your journalistic talents and make media magic!



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