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.

**Sustainability on Two Wheels**
Eco-cycling is a burgeoning industry in Australia and other countries. But how do we ensure that this is done sustainably? What are the underlying ecological and vegetation considerations? How do we ensure that erosion is minimised? How does the local community benefit? These and other issues will be considered.

Subject Focus: Ecology, Engineering (hydrology, mathematics, physics), Tourism, Economics
Activity Excursion: Full day excursion to Sturt Gorge Recreation Park

**Digitising Kaurna yarta-ana**
Students will use existing and original resources to create an online presence of the Kaurna yarta-ana cultural trail. It is envisioned that a variety of digital techniques and platforms will be utilised to provide improved access in a sustainable manner to the culturally significant heritage of the Kaurna people of the Holdfast Bay.

Students will utilise platforms such as Google Earth, Google Maps, Aurasma, Wix and potentially others. Photographic resources will be obtained on a field trip to Holdfast Bay.

Subject Focus: Digital cultural tourism in the Holdfast Bay
Activity Excursion: Day trip to Holdfast Bay

**Race around Adelaide**
Students will create a ‘360’ virtual tour of Adelaide by recording various sights and sites around the CBD and other places of interest close to the CBD. VR Tourists will be able to pick their category of interest and then walk the streets of Adelaide to discover these places. Students will use a variety of recording devices and create a tour that will be displayed on VR goggles so they can be used by virtual tourists.

Subject Focus: Developing a virtual tour of Adelaide
Activity Excursion: Full Day Excursion to City of Adelaide

**Little Penguins, HUGE problem – is there a sustainable solution?**
1548 adult Little Penguins were counted in the 2001 Granite Island population census. In 2015, this number had decreased to 22. This iconic penguin colony in the tourism hot spot of Victor Harbor is at risk of being lost to South Australia’s Natural Heritage for ever. You will be part of a research team investigating a sustainable conservation strategy for ensuring stability and growth in the Little Penguin population so Granite Island can be the natural tourism attraction it was in days past.

This challenge will involve:
- a presentation from Dr Diane Colombelli-Negral, Little Penguin researcher from the School of Biological Sciences, Flinders University,
- a tour of the School of Biological Sciences at Flinders University
- a day/night trip to Victor Harbor

Students will need to be able to walk across the causeway to Granite Island and around the island.
Walking/ hiking shoes, wet weather gear and sun protection will be essential.

Subject Focus: Ecology, marine and climate science
Activity Excursion: Day/evening trip to Victor Harbor

**Sustainable Architectural Tourism: do buildings need to have straight walls?**
Students will walk along North Adelaide, and examine architectural features of buildings and learn about their history. They will use Sketchup software and virtual reality to design buildings which are not cuboids and have virtual walk-through experiences relating to those structures.

Subject Focus: Interdisciplinary sustainability, mathematics, architecture, history, virtual reality
Activity Excursion: Day trip to North Adelaide

**RADelaide**
Students will develop an advertising campaign to attract returning visitors to Adelaide. Students will participate in an excursion to tourism destinations in the Adelaide CBD. Students will have the option to design an Air BnB one day campaign, design a game or design a multimedia advertising campaign.

Subject Focus: Design & Technology, Politics, Environmental Science
Activity Excursion: Day trip to City of Adelaide

**Design like a tourist, think local!**
Students will gain first-hand insights from locals in Vietnam, India and Nepal about what it would be like to travel there and what problems may be encountered by tourists and locals. This understanding will lead to the design challenge where students will work together to design, modify or engineer a solution.

Support will be provided by a group of university students who have completed these challenges in developing countries. A tour of the Living Kaurna Cultural Centre will also provide an opportunity to consider the challenges of sustainable tourism at home in Australia.

Subject Focus: Sustainability, intercultural awareness, marketing, critical and creative thinking
Activity Excursion: Tour Living Kaurna Cultural Centre

**Salvage → Sculpt → Sustain**
Visit a salvage yard (aka Proboportunity Palace) and use what you find to create an item that might be used to generate tourism. Examples may include an artistic piece, or housing for native wildlife (such as birds, bees, and bats), or something that will facilitate food production. Cut, drill, saw, hammer, paint, bleed, sweat, cry and laugh with us! No experience with tools necessary!

The Challenge-Based Learning Project is for you if you love to reuse, repurpose, refresh, recycle, refurbish and reinvent things!

Subject Focus: ‘Upcycling’ – recovering and reusing pre-loved materials, to create objects of inspired form and function that support sustainable urban landscapes and attract local wildlife and human tourists.
Activity Excursion: Excursion to Salvage Yards
Choose Your Own Adventure
Students choose anything that they would like to work on / investigate / have a go at making / designing / investigating / thinking. First day, students set their own challenge, identifying realistic outcomes and what they will present, and how it relates to the theme. Then work over the next couple of days to make a presentation explaining to the group what they have found / made / done.

Previous successful projects included a model computer virus & scanner, 3D printed ocarinas, technologically mixed music, a great presentation on tesseracts, a model Stirling engine, progress on an Arduino satellite… the possibilities are endless!

Subject Focus: Engineering/Maths/Science/Depends on students!

Sustainable Masterchef
Have you watched MasterChef on television and thought to yourself that you could do better? Do you despair at the use of produce and ingredients without any consideration of whether they were produced sustainably? Or ethically? In this new ISF activity you will plan a dish using only materials and methods that you can demonstrate have an ethical and sustainable pedigree. Cage eggs and intensively farmed livestock will incur penalties. Bonus points for use of local South Australian produce.

This activity will be run in 4 stages:
- Research and planning with the support of a qualified Chef.
- A visit to the Royal Agricultural Show and in particular the “Taste SA” Food Pavilion and the Adelaide Central Markets for lunch and purchase of any further ingredients.
- Cooking/preparing your dish in Pasadena High School’s “state of the art” industrial kitchen.
- Plating up your dish for judging on appearance, taste and sustainability considerations.

Key ingredient to be given “Iron Chef” style.

Subject Focus: Sustainable food production and preparation
Activity Excursion: Royal Adelaide Show and Adelaide Central Markets

Virtual Tourism
Computers can be an engaging way to explore a virtual representation of a real context. In this activity, students will be invited to create an immersive experience within the Flinders University bush valley using real terrain data. By creating a 3D environment within the valley, students will invite their audience to explore the actual and potential reality of the space.

This approach is common in historical “simulation” games, such as WWII games. Students in this activity will work on a single project to be determined collaboratively. This may be a game of any genre or a non-game simulation. Students will then break into small teams to work on aspects of the game, such as artwork, 3D modelling, music, sound, level design, programming and integration.

Subject Focus: Physics, English, Game theory (maths), Music, Visual design
Activity Excursion: A number of walking excursions will be made to the valley area.