Problem Based Learning Challenge 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.

**Future Fuels – powering into the future** Location Studio 8/9
Description: Peak Oil is past. Cheap, easily accessed fuel reserves are declining. As a member of a research team you face the challenge to discover the best of several alternative fuels that can operate in existing automobile engines. You will need to develop and experiment with a range of fuel options. Your final challenge will be to power a motor under test conditions in the most fuel efficient manner.

**World’s fastest car – a rocket blast** Location Studio1/Learning Common 1
Description: Your design and build team has the challenge of creating the world’s fastest rocket powered car. The aim is for real speeds approaching 100 kph. There will be one practice run during the week leading up to a competition on Thursday to find the fastest car at the ASMS.
This challenge is based on a similar activity run in the UK. See www.projectbloodhoundssc for more information.

**Venture dorm – into the dragon’s den** Location Learning Common 6
Description: The Dragon’s den is an incubator for designing, developing and testing a product from idea to implementation. You will need to develop a product concept, business plan and marketing strategy. You will make your final pitch to a team of investment evaluators from the New Venture Institute of Flinders University.

**Pandemic – can you save the world from disease?** Location Studio 2
Description: Can you save humanity from being wiped out by a new form of disease? In this challenge you will need to know and understand epidemiological issues relating to the spread of deadly disease in a global scale. A simulation will be played out using the Yugioh game model. You final challenge will be to outwit experts from Environmental Health at Flinders University in a round of Yugioh.

**3d design – ingenuity and invention** Location Studio 5/6
You will use 3-D computer sculpting software to create models to be printed on our 3D printers (not CAD so there are no numbers.)
Teams will compete based on their model’s ability to land a specific way up when rolled like a die.
Lead Teachers:

**Green building – building for a greener world** Location Learning Common 3
Description: Green buildings are helping improve air quality and reinvigorate the natural environment of inner city areas. Your challenge is to design and construct a model for green building development using grass, herbs, flowers and vegetables. This is a practical exercise so be prepared to get down and get dirty.
Flying high – no crash landing Location Studio 10/11

We need to move an aircraft from Adelaide International to another airport in South Australia. Weather conditions on the day may include high-speed winds, low cloud, or may be bad enough to prevent flight until night time!

To meet this challenge we’ll be using the ASMS flight simulation facilities along with aviation charts, forecasts and navigation equipment. No flight experience is necessary! If you are interested in flight and often find yourself wondering what all of those aircraft are doing, then this challenge might be right for you.

Robotics – win the treasure Location Studio 7/Learning Common 7

You must design, build and program your robot to seek and identify the valuable treasure. The robot will carry an on-board camera (GoPro). You must send remote images back to mission control for proof of identification of the treasure.

The winning team will be rewarded by Dick Smith.

Space Settlement Design Challenge - building for the future Location Learning Common 5

You are part of a design team that has been commissioned to design a largely self-sustaining space settlement ‘Luna’ on the surface of the Moon.

Student engineers will demonstrate creativity, technical competence, management skills, space environment knowledge, teamwork, and presentation techniques to conquer the problems inherent in siting and designing a Space Settlement.