

LONG TERM CHALLENGE EXAMPLE

a INTRODUCTION

It is the year 2040. You and your friends are involved in a climb on a high mountain. Just above the snowline you come across a tube containing a data source that was used in the early part of this, the 21st Century, by a previous expedition. The tube has been exposed due to warmer than normal temperatures, possibly as a result of global warming. The contents of the data source may give a clue to what happened to the expedition. The data is recorded in animation.

b CHALLENGE

You are to determine the purpose of the original expedition, what it discovered, what happened to it and the contents of the tube. You are also to determine what has happened to the world since the original expedition and the discovery of the tube.

c PRESENTATION

During your presentation your team must:

- Using a minimum of three different items of present day technology, reveal what is recorded on the data storage device in animation form.
- Present to the judges a working model of the tube that was able to withstand the climate, demonstrating your scientific and engineering principles.
- Present to the judges an accurate schematic drawing of the tube.

Using a variety of technologies you are to create no more than five minutes of your solution as animation. The rest of the solution time (up to five minutes) will be interactive using your team of seven students. Any part of your solution may be incorporated into either section – animation or interactive.



THINKING SKILLS

The ability to question initial perceptions, to pose problems and to generate several outcomes become features in this challenge. Reflection and evaluation is ongoing.

SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS

The combination of the STEM principles provides an integrated approach for students to deepen their conceptual understanding, and using their creative and critical thinking skills to solve the challenge within an authentic context, mirroring the real world. Depending on the challenge, there may be varying emphasis on the various components. Rest assured all the skills and understanding of the principles are required for the development of the students' creative presentation!

MATHEMATICS

The challenges reinforce the importance of working mathematically within the challenge context. They promote development in the sophisticated understanding of mathematical concepts and in fluency of processes to pose and solve problems through reasoning. Through STEM, connections between mathematics and other disciplines will promote appreciation of mathematics in an enjoyable and accessible way.

SCIENCE

Students apply critical scientific thought in order to recognise, predict and evaluate the application of technology across a global community. The challenges will help expand curiosity and build sound scientific literacy.

DESIGN & TECHNOLOGY

The challenges build knowledge and understanding with process and production skills which require testing, are honed and utilised to find a creative and comprehensive solution to the challenge. The use of digital technology is actively encouraged.



COMMUNICATION

Presentation of the message on the data source to an audience requires accurate use of specific language and an ability to justify selections.