



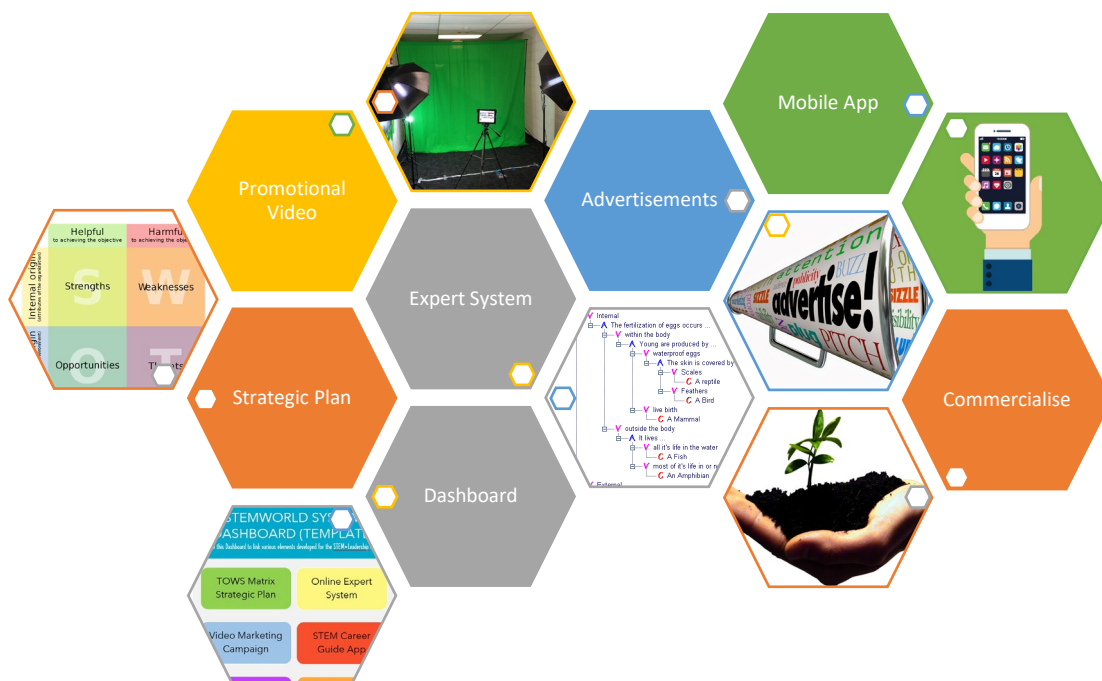
STEM+Leadership

This STEM + Leadership course is designed to help you learn about the difference between being a worker and being a leader. Skills in STEM, marketing, business, innovation, teamwork and leadership will be built via many fun activities.

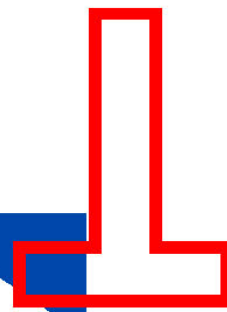
Over the next 3 days, your team will have the opportunity to actively develop a comprehensive system to help solve the STEM Pipeline Problem metaphor. Your team will be challenged to develop advanced solutions which engage and lead other young Australians.

Activities include:

- Understanding the current and future STEM climate
- Developing a Strategic Plan
- Creating an online expert system to guide STEM career pathways
- Developing a marketing campaign for selected target audiences using:
 - Green screen video editing technology (1-2 minute promotional video)
 - Advertisements for social media, web (banner and Google Adwords) & print
- Mobile App development (Android or Apple) to present a STEM pathways program aimed at parents and teenagers
- Collection of data from children, parents, professionals and educators to guide information and receive feedback
- Commercialising an idea (Entrepreneurship)
- Combine elements with a System Dashboard



STEM



CHOOSE

STEM

STEM

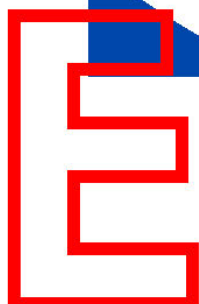
STEM

in demand, high paying careers!

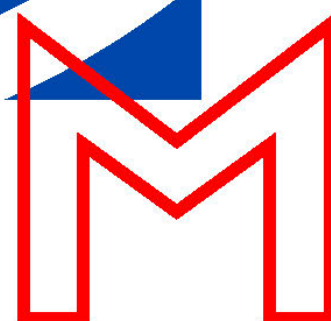


FUTURE  SUCCESS

Our program helps guide you to success



STEM



Leadership Challenge

Future careers in STEM are in high demand! Your team is required to lead a **marketing campaign, program and support system** aimed towards young Australians to guide an efficient pathway into a STEM-orientated career.

Parents want their children to succeed in a career they are passionate about. Today and in the foreseeable future, that means young people will need to be prepared to jump into STEM (science, technology, engineering, mathematics) careers with all the enthusiasm, energy and excitement they can muster. Oh, and that means having the know-how to succeed in these fields as well.

Objectives:

The various elements throughout this task must lead young Australians towards a STEM-orientated career. The combination of elements will create a program to STEM success which will include information including:

- A program to STEM success
 - Early years (recommended activities/skills)
 - Primary school (recommended extra-curricular activities)
 - High school (Recommend subjects in Years 11 & 12)
 - Higher-Education (Recommend best types of educational pathways)
 - Professional life (jobs & information)
- Subjects to study
- Activities to support enthusiasm, high expectations & culture of success
- Support networks
- Aligned to research in current careers in demand/high-paying careers

Requirements

1. Strategic Plan (TOWS Matrix Action Plan)
2. Expert system to suggest appropriate STEM career paths
3. Video marketing campaign (1-2 minute promotional video)
4. Advertisements for social media, web (banner and Google Adwords) & print
5. Mobile App development (Android or Apple) to present a STEM pathways program aimed at parents and teenagers
6. Commercialising an idea (Entrepreneurship)
7. System Dashboard



Group Roles

Use the table below to identify and select each team members group roles.

Role	Responsibilities
Project Manager	Your role is to focus on the organisation and production of the project content. You make a list of the project content, and distribute it to team members. You are focused on ensuring that all team members have an equitable share of the project. You lead by example , contributing information to all aspects of the project, and make sure that all areas are covered and everyone understands what they are doing. You are positive, and encourage participation. Your work extends across all components of the project.
Organiser	Your role is to organise group meetings, communication requirements, timelines, etc. During meetings, you ensure that participants are working on the task at hand. You are positive, verbal, and very task oriented. You are in charge of ensuring that the project meets the deadline, where to meet, how often to communicate, and when to practice for presentations if this is part of the project. You will need to work closely with other team members to create and organise various components of the Leadership Challenge. You wrap things up at the end of the project.
IT Expert	Your role is to ensure that the product or solution of the project is perfect and very professionally done. You are responsible for data formatting and production, and create an App, Expert System, etc. You lead the technical steps and research processes by reading, experimenting and applying your skills. You ensure that each team member is given credit for their work on the created project.
Editor	Your role is to edit everyone’s work, and ensure all components are supported by factual information. You are an expert in communication and have a good eye for detail; you understand and utilise the publishing style required for the project. Your publishing is succinct and professional. You understand the language style of the profession you are studying. You integrate each team members work into a seamless document.
Marketing Manager	Your role is to develop engaging marketing materials throughout the project. You recognise the special roles of other team members, and give them your support. You willingly participate in the group process and production of content. You should be positive, and add to the group function as a whole. You have excellent creative and technical skills willing to use video and image editing software. You will be required to develop fun and engaging content to help convey your team’s STEM leadership program.



Strategic Plan (SWOT & TOWS)

Task:

It is important your team works towards the same goal throughout this project.

All team members will use a TOWS Matrix to create a Strategic Plan.

The SWOT Analysis and TOWS Matrix are vital tools for your group to understand the current STEM climate and the strengths within your group. By understanding the real world and the capabilities of each member in your team, your group will identify opportunities, needs and challenges to guide your project.

Requirements:

- A completed TOWS Matrix – Map Strategic Options
 - Demonstrating analysis of STEM jobs, environment and your team members
- Four (4) highlighted strategies from each TOWS quadrant

Resources:

- Strategic Planning Guide.pptx
- TOWS Matrix Template.xlsx
- SWOT and TOWS Matrix examples
- TOWS Matrix - Apple Analysis

Steps:

1. Work through the Strategic Planning guide
 - a. See: SWOT and TOWS Matrix examples & TOWS Matrix - Apple Analysis
2. Perform a SWOT Analysis (*Use TOWS Matrix Template.xlsx*)
3. Complete the TOWS Matrix (*Use TOWS Matrix Template.xlsx*)
4. Highlight four strategies for your group to focus on throughout this project
5. Use the complete TOWS Matrix your Action Plan throughout your project



Expert System Development – ES Builder Web

Task:

Your team is required to develop an Expert System to help people select a STEM-orientated career suited to the individual strengths and interests of each person. An Expert System is required to guide users through this process by asking them a series of questions and outputting a specific result.

The Expert System should be developed using McGoo ES Builder Web. At least 2 team members should collaborate to complete this task.

Questions to guide users to a suitable STEM career could include:

- Do you prefer English or Mathematics?
- Are you interested in theoretical knowledge or practical knowledge?
- Are you male or female?

You are required to develop a set of questions to guide the user to an appropriate STEM career.

Requirements:

- Create an account (free) using McGoo ES Builder Web
- Expert System contains at least 12 STEM careers
- Includes images and valuable information
- Questions are easy to understand and close-ended

Resources:

- McGoo ES Builder: <https://www.mcgoo.com.au/esbuilder/>
- Read instructional document: *“Using McGoo Expert System.docx”*
- Extract information from the: **STEM Careers Handbook (2020-21)**:
<https://gradaustralia.com.au/library/2020/sector-guide-stem>

Steps:

1. Create a new account - <https://www.mcgoo.com.au/esbuilder/>
2. View sample expert systems
3. Create an expert system
 - a. Read resources (above)
 - b. Build decision tree and test functionality
 - c. Add images and detail
 - d. Include at least 12 career/education paths
4. Testing, feedback and refinement required
 - a. Request feedback from: STEM World staff, students & visitors
5. Copy publishable link for use in other publications



Video Marketing Campaign

Task:

Your group is required to develop a Marketing Video to help guide students towards choosing a STEM-based career and promote your App/Expert System. Your video must promote factual information about STEM careers and engage your target audience.

Your group is responsible for creating video content, editing video and audio, and publishing a polished marketing video. All team members are required to be involved in the creation of this product.

Humour, special effects and other creative ideas are strongly encouraged!

Requirements:

- 1-2 minute promotional video aligned to task
- Published in common compressed video format
- High-quality editing, transitions and green screen (ChromaKey) implementation
- Use of Adobe Premier Pro video editing software

Watch Basic Instructional Videos:

8 Steps to Edit a Video in Premiere Pro (Start to Finish) -

<https://www.youtube.com/watch?v=ZQDGJn89uNk>

HOW TO Green Screen (ChromaKey) Premiere Pro CC -

<https://www.youtube.com/watch?v=uwnlASSHaEY>

Steps:

1. Plan the sequence of your marketing video with your team members. Use butchers paper to plot the sequence of scenes before shooting
2. Set up the video camera and any equipment required for filming. Remain in close proximity, within supervision area
3. Film all scenes (take more recording than required)
4. Transfer recordings to high-powered computer with video editing software
5. Edit videos using Adobe Premier Pro
 - a. Watch videos for extra instruction and guidance
6. Include green screen (ChromaKey) effects in the video
7. Finalise publication and present



Digital and Print Advertising Campaign

Task:

Lets be clear – If you want to be successful, you need to advertise!

Your team is required to develop a series of digital and print advertisements, suited for some of the most popular advertisement platforms. You will be required to learn tips for a successful advertising campaign, as well as the constraints to be followed to develop your material.

Your advertisements are designed to promote your team’s unique STEM guidance system, targeted towards your selected target audience. Components to advertise include your; Mobile App, Expert System, Video Campaign, STEM Program and more!

Your team will have to research recommended appearances suited for each type of advertisement.

Requirements:

- Develop advertisements suited for publishing:
 - 1 x Instagram Advertisement: 1200 x 628 pixels
 - 1 x Facebook Advertisement: 1200 x 628 pixels
 - 1 x Google Ads Banner: 468 x 60 pixels
 - 1 x Google Medium Rectangle Banner: 300 x 250 pixels
 - 1 x Printed Flyer: A5 page size

Resources:

- Read Advertising Tips document: **“Advertising Tips.docx”**
- Google Ad Sizes: <https://adespresso.com/blog/google-ads-size/>
- Canva: https://www.canva.com/en_au/

Notes:

- Team members will have to decide on the best software to develop their advertisements
- Designs should follow suggested designs. Teams will have to research best practise
- Catchy/interesting/factual advertising material must be evident
- Image size constraints must be followed
- Completed advertisements must be stored in a single folder as directed by STEM World teacher



Developing a STEM Career Guide App



Task:

Your group is required to create a Mobile App using Appsheet. Your app must provide information to either students or adults to help guide their selection of a STEM career in the present and near future. It is recommended at least 2 team members focus on developing this product.

Requirements:

- Present information about STEM careers and educational pathways
- Intuitive and easy to use
- Incorporate graphics
- Additional functionality and features are suggested
- Publication to public

Watch Basic Instructional Video:

- STEM World Basic Instructional Video:
 - <https://drive.google.com/file/d/129DktxJKZu5LxliSylTtEZEAFkTcyRaM/view?usp=sharing>
- Extra tutorial - Create Business Applications With Appsheet – Udemy:
<https://www.udemy.com/course/create-business-applications-with-appsheet/learn/lecture/14418486#overview>

Steps:

1. Extract information from the STEM Careers Handbook (2020-21)
 - a. <https://gradaustralia.com.au/library/2020/sector-guide-stem>
2. Develop a STEM Careers Data Spreadsheet with summarised data for your App
 - a. See Video
3. Build app from data table using AppSheet
 - a. <https://www.appsheet.com/>
 - b. See Video
4. Stylise app
5. Add a Home page
 - a. See Video
 - b. Extra information: <https://community.appsheet.com/t/create-custom-home-view-or-landing-page/16664>
6. Add more features to your app (advanced) such as:
 - a. Link to your Expert System (ES Builder) → As a clickable link to webpage
 - b. Filtered (starred) list by user
 - c. Other behaviours...



Commercialising Your System (Entrepreneurship)

Task:

Your task is to complete the **'Business Plan Template'** which is designed to assist your team towards specifying business requirements to turn your idea into a business.

Throughout the STEM World Leadership Program, your team has developed a **unique** program and support system aimed towards young Australians to guide an efficient pathway into a STEM-orientated career.

Your team's idea deserves to be rewarded, and what better reward than generating profits!

Your Video Marketing Campaign, Advertisements and Mobile App will compliment your Business Plan Template, finalising in a comprehensive solution to lead others towards a future career in STEM!

Requirements:

- Complete the *"Business Plan Template – Entrepreneurship"*
 - Maximum length of 3 A4 pages
- Further research → Follow links on Business Plan Template

Resources:

- Business Plan Template – Entrepreneurship.docx

Steps:

1. Identify your Team's Vision and Mission. This will be similar to their main strategy highlighted in your team TOWS Matrix
2. Think about a pricing strategy model. Read this for more information:
<https://www.priceintelligently.com/blog/subscription-pricing>
3. Use your advertising products to complete the Advertising and Promotion section
4. Brainstorm and select 4 objectives for your business to succeed
5. Briefly describe the action items needed to achieve your objectives, including milestone dates
6. Add further detail to your Business Plan as required. Ask a STEM World teacher for additional help and guidance



System Dashboard

Task:

Your team has been very busy developing a system to lead others towards a successful future in STEM! Your system contains many components and it is important to allow easy access to the public from the one place.

Your team is required to create a System Dashboard using Microsoft Word. The System Dashboard will provide links to all your project components and allow the public to access all components easily!

Your team is responsible to ensuring all elements are available in a shared Google Drive which is publicly accessible (sharing settings). Sharing links should be used to link buttons on the dashboard to files/folders online.

Requirements:

- Create a System Dashboard
 - Use '*System Dashboard Template.docx*' for assistance
 - Ensure your dashboard is fully customised and visually appealing
 - Links to project elements must work correctly
 - Note: A webpage may be developed as an alternative to using MS Word

Resources:

- System Dashboard Template.docx

Steps:

1. Check all project files are available in a single shared Google Drive Folder
2. Ensure the sharing settings on the Google Drive folder are set to public
 - a. This should be arranged by a STEM World Project leader
3. Open and customise the '*System Dashboard Template.docx*'
4. Link each button to the respective online file
5. Check all links work correctly and save dashboard to Google Dive Folder

