

# Fire-Ed Up

IGNITE A PASSION FOR BUSHFIRE EDUCATION



## Design Brief

Over a course of 10 weeks, students engaged in the Fire-Ed Up iSTEM unit will have the opportunity to fully explore, develop, and refine their bushfire-related solutions using the established iSTEM Engineering design process. Working in teams students develop innovative STEM-based solutions to a range of bushfire-related scenarios.

## Methodology

Students will use the iSTEM Engineering Design Process as a framework to explore, develop, and refine their bushfire solutions, based on one of the 10 scenarios.

## Learning Intentions

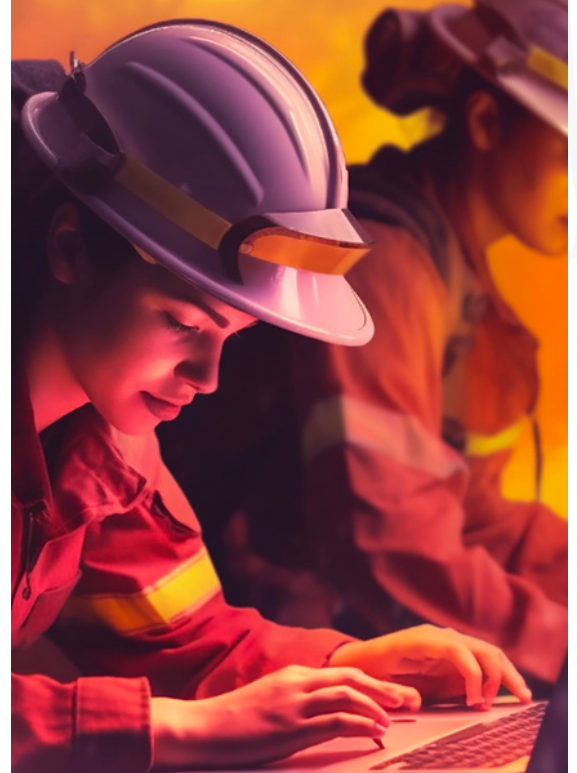
- Gain a comprehensive understanding of current bushfire challenges in Australia.
- Develop proficiency in applying engineering design processes.
- Cultivate teamwork, problem-solving, and effective communication skills.
- Create design solutions that demonstrate conceptual and practical knowledge.



## Team Deliverables

### 1. Engineering Design Portfolio - Individual task

The portfolio should chronicle the student's journey through the iSTEM Engineering Design Process. Each student is to document their own work and that of their work of the team, either in the separate design portfolio or using the template provided.



## Team Deliverables

### 2. Pitch Video

A 5-minute video providing a comprehensive pitch, including:

- Identify the problem
- Market analysis
- Our solution
- The ask / why pick mine?
- Highlight the team
- Innovation and technology
- Impact of your idea
- Budget and resources
- Conclusions and call to action

### 3. Prototype

Students in group are to construct a prototype solution for your chosen bushfire scenario. It should demonstrate your innovative solution and its real-world application. Focus on using your STEM skills to create a practical prototype. This prototype is a key part of the Fire-Ed Up project, showing how your idea works and ties in with your portfolio and pitch video. Your goal is to bring your concept to life, even if it's not perfect – it is about learning and demonstrating your solution.

## Design Scenarios

Teams may focus on any of the following bushfire-related challenges:

1. **Fire Detection Technology:** Develop cost-effective and deployable technologies for early bushfire detection.
2. **Australian Fire Danger Rating System:** Utilising STEM technologies and local environmental insights to enhance your community's bush fire danger rating system.
3. **Fire Prediction Models:** Create models that predict bushfires based on multiple factors.
4. **Bushfire Resistant Buildings:** Design structures that are more resistant to bushfires.
5. **Cultural Burning Practices:** Integrate traditional and modern fire management strategies.
6. **Fauna and Flora Protection:** Propose methods to protect natural habitats from bushfires.
7. **Post-Fire Rehabilitation:** Develop strategies for land rehabilitation post-fire.
8. **Firefighting Equipment Innovation:** Innovate or enhance existing firefighting equipment.
9. **Bushfire Emergency Communication:** Establish a reliable communication system for bushfire emergencies.
10. **Student-Identified Problem:** Alternatively, students may tackle a problem they have personally identified.