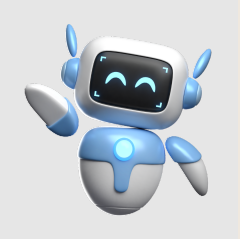
STEM Focus Robotics Activity:

Bushfire Safety Engineers

Story Starter

Bushfires have become more frequent and dangerous, threatening homes, wildlife, and people in the Katherine region, especially during the dry season. The community needs new solutions to help monitor and manage bushfire risks. Important sites such as Nitmiluk National Park, Katherine Gorge, and surrounding areas are particularly vulnerable and need protection. I wonder if you could think of some popular or local cultural places and list them.



STEM

Bushfire Safety Engineers in Action

Design your Local Area

as a Story Map

- Can you think about all the places in our community that are at high risk of bushfires?
- Can you draw a map showing these areas in our community?
- What makes these areas high-risk?
- Can you add symbols or labels to your map to indicate why these areas are high-risk?
- Can you also ask some of your local community members or a family member: 'Why are these places important to protect'?
- Can you also construct some of these places using everyday recycled materials?

Role Play

You are a Bushfire Safety Engineer. Code your Robot to travel to these high-risk places in our community so it can help you monitor and report on bushfire risks.

Extension Activity

Today, is your first day as Bushfire Safety Engineer. Can you design your own robot?

What features will your robot need to keep these areas safe from bushfires?

- *Will it need heat sensors to detect rising temperatures?*
- *Should it have smoke detectors to identify early signs of fire?*
- *Could it have water sprayers or fire retardants to help control small fires?*

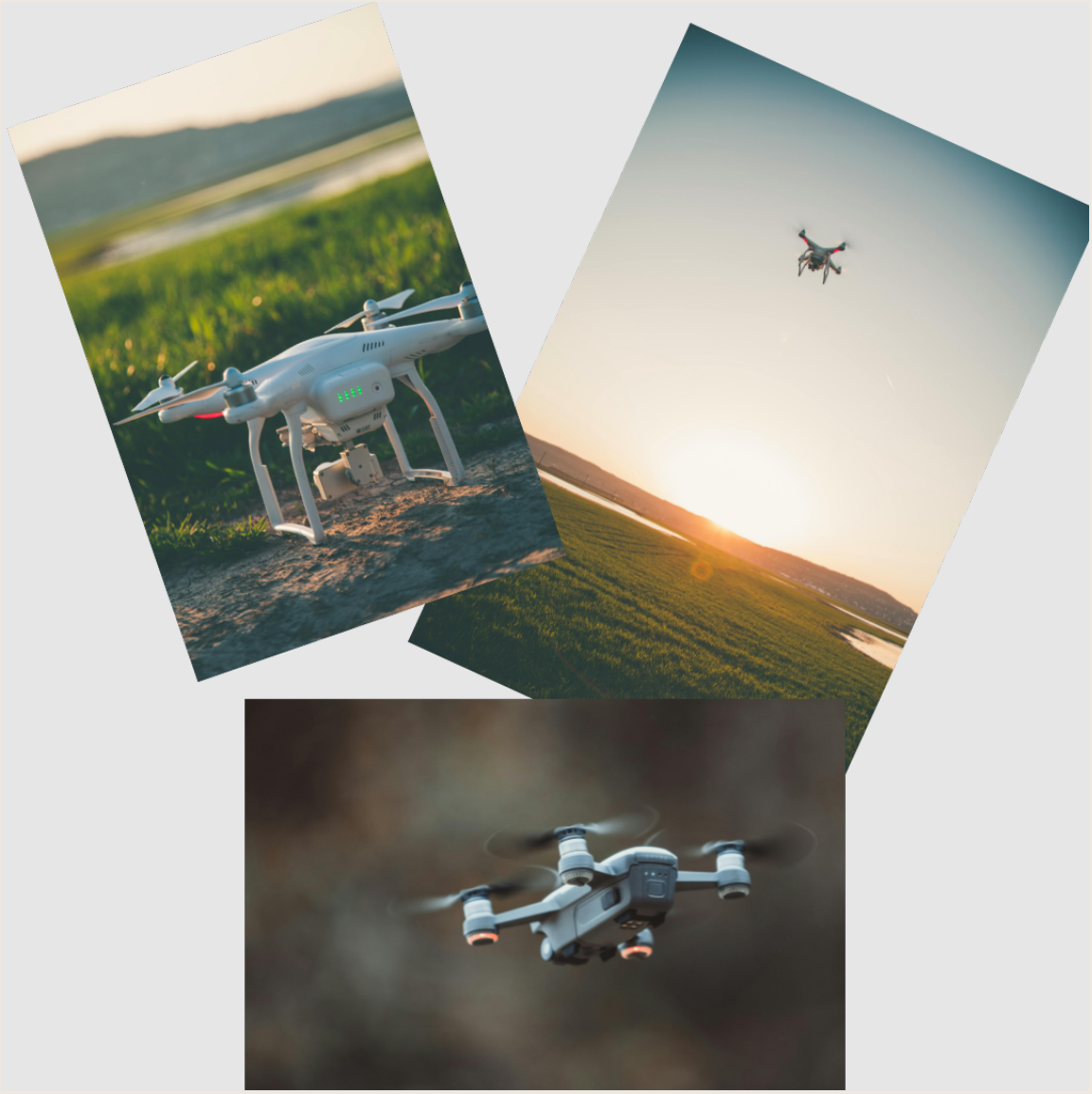
How can your robot help the community feel safer?

- *Will it have an alarm system to alert people in case of a fire?*
- *Can it provide real-time updates and warnings to local authorities and residents?*
- *How can it use technology to effectively communicate and coordinate with emergency services?*

What tools will your robot need to monitor and manage bushfire risks?

- *Does it need cameras to survey the area and provide visual feedback?*
- *Can you also ask local community members or a family member about how can the robot navigate through the region safely and accurately?*
- *Can it use drones or other devices to cover larger areas quickly?*

Here are some pictures of drones. What do you notice about them? How could your robot use these to cover large areas quickly?



You can also learn more about the Northern Territory's Community Bushfire Resilience and Development Strategy here: https://nt.gov.au/__data/assets/pdf_file/0009/1287198/bfnt-community-bushfire-resilience-and-development-strategy.pdf

STEM

Curriculum Links

Year 5/6:

- The growth and survival of living things are affected by physical conditions of their environment (ACSSU094)
- Sudden geological changes and extreme weather events can affect Earth's surface (ACSSU096).
- Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions (ACSHE098).
- Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE100).
- Acquire, store and validate different types of data, and use a range of software to interpret and visualise data to create information (ACTDIP016).
- Design, modify and follow simple algorithms involving sequences of steps, branching, and iteration (repetition) (ACTDIP019).
- Explain how student solutions and existing information systems are sustainable and meet current and future local community needs (ACTDIP021).
- Plan, create and communicate ideas and information, including collaboratively online, applying agreed ethical, social and technical protocols (ACTDIP022).