

## It's not about the drones

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**This article is a description of a workshop session presented at the GTA NSW & ACT Annual Conference 2019 by Dr Karen Joyce, She Maps/ JCU**

Dr Joyce has a PhD in Geographical Sciences from the University of Queensland (2005) where she focused on mapping live coral cover using remote sensing. She is a Senior Lecturer in Remote Sensing and GIS at James Cook University in Cairns, as well as the founder and Education Director of She Maps.

Drones are unmanned aerial vehicles, navigated from the ground via control that can carry a camera (or other small objects). They provide students with a bird's eye view of geographical features, to aid in the exploration of geographical issues and spatial data analysis. Developing skills in using drones and analysis of associated spatial data helps student develop workplace skills and capabilities for future employment, and well as address the spatial technologies components of the Geography syllabus.

### Microdrones mission

The session was built around a challenge to examine the impacts of extensive rainfall on a geographical region, and to help local authorities to determine the location and extent of damage. In this session Parrot Mambo Minidrones were used to capture aerial photography over a set range.



### Drone safety

An important consideration of using drones with a class is safety. A teacher should lead students through a safety briefing that examines safety to self, others and the drone itself. This must be done before the students start to fly their drones. There is legislation now dictating the use of drones, but flying of drones less than 2kg doesn't require a license.

Key safety messages are:

- Keep your distance – stay 30 metres away
- Wear glasses and keep your face away
- Tie your hair back
- Never fly over the top of people in case it crashes

### Group roles:

Place students into groups of three to complete the task.

- Pilot in charge – fly the drone, assess danger, focus on safe operation
- Co-pilot – big picture safety, monitoring the battery
- Chief Reporter – takes notes, photos, completes sketches



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Automated flight mode uses coding to allow the drones to follow a set flight pattern (to complete an aerial survey). Tynker is an app that allows students to use simple coding to automatically fly their drone. The workshop participants were able to master the simple coding required in a relatively short period of time. To practice, a large map printed onto material was used to provide a field study area for the workshop. Participants were required to code their drone to undertake a survey of the area. They needed to move back and forward in a “lawnmower pathway” and take photographs at various locations to complete their survey. The photos would then be “stitched together”. Participants trialled their coded, automated flight paths and then revised and re-trialled. Photos were downloaded for analysis.



Hints and tips:

- Always use the smallest drone possible – this reduces cost and risk of injury
- Don't be concerned about the level of skill required. Students may overtake the teacher's skill level but they will develop their skills quickly and will be able to achieve the outcomes of the lesson without too much teacher technical assistance.

## Shemaps

For further information view the She Maps website:  
<https://shemaps.com/>

