

Drone zone

By Shane Byrne, October 2018

There are a lot of really great things happening in schools that use drone technology as a tool to enhance teaching and learning and support innovative pedagogy. Take Stuart Harvey, Head Teacher at Narara Valley High School, – he recently introduced a drone program from the [She Maps website](#). She flies is a site dedicated to educating girls in STEM and describing how drones can be used to motivate girls in this field.

Stuart initially saw the program demonstrated whilst on a Surf Life Saving trip to Port Douglas. The program was developed by Dr Karen Joyce from James Cook University and Dr Catherine Ball. Stuart was interested in increasing gender equity in his senior Engineering course and thought that introducing the She Flies drone program in the Tech Mandatory course (7–8) might encourage more girls to elect engineering in their senior years.

So far, Stuart has witnessed much more engagement from the girls as they are having fun while learning something interesting. There are seven Tech Mandatory classes, six of which are single gender classrooms. (Of course, the boys don't miss out, as they also take part in the program and are equally enthused.)

At the time of publication, the students were just learning to fly the drones safely and capture video to be used in multimedia type projects. The next step is for the students to begin coding the drones. She Flies offers a team of educationalists who can come and provide professional development and assistance to schools to integrate digital literacy programs across the curriculum.

"We will probably develop our own teaching programs that incorporate the drones and the coding aspects of the new Digital Technologies syllabus," Stuart says. "What I like about the use of drones, apart from the inherent motivation, is that the devices can be coded using block code, as well as general purpose coding. Kids coming to our school don't necessarily have any real coding experience at this stage, so being able to introduce them to coding using block code, and then moving on to general-purpose coding when they have grasped the fundamentals is a bonus."

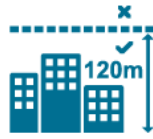
Ready to fly?

When considering using drones in a school setting, you need to be aware of a number of regulations and guidelines.

- **Education jurisdiction guidelines:** Schools must ensure a duty of care is exercised in relation to the health and safety of all students, and that school practices meet the requirements of the Work Health and Safety Act 2011, in addition to relevant state or territory health and safety guidelines. For further information about relevant guidelines, contact your state or territory curriculum authority. If you have checked and it is OK to use drones at your school, then you still need to follow the Civil Aviation Safety Authority (CASA) regulations.
- **CASA regulations:** Drones are officially known as 'remotely piloted aircrafts' (RPAs), and as such, they fall within CASA's responsibility. Below is a list of rules that CASA emphasises when flying for fun and recreation – which most education uses would fall under.



You must only fly during the day and keep your drone within visual line-of-sight. This means being able to see the aircraft with your own eyes (rather than through a device) at all times.



You must not fly your drone higher than 120 metres (400ft) above the ground.



You must keep your drone at least 30 metres away from other people.



You must not fly your RPA over or near an area affecting public safety or where emergency operations are underway (without prior approval). This could include situations such as a car crash, police operations, a fire and associated firefighting efforts, and search and rescue.



You must only fly one RPA at a time.



You must not fly over or above people. This could include beaches, parks, events, or sport ovals where there is a game in progress.



If your drone weighs more than 100g, you must keep at least 5.5km away from controlled aerodromes. Flying within 5.5km of a non-controlled aerodrome or helicopter landing site (HLS) is possible, but only if no manned aircraft are operating to or from the aerodrome. If you become aware of manned aircraft operating to or from the aerodrome/HLS, you must manoeuvre away from the aircraft and land as soon as safely possible.



Remember, you must not operate your drone in a way that creates a hazard to another aircraft, person or property.



Respect personal privacy don't record or photograph people without their consent—this may breach state laws.

You are allowed to fly an RPA indoors, as long as you follow the CASA recreation rules and as long as the drone cannot escape via an open window or door. If your school has a big gymnasium, this may be achievable, but keeping students outside of a 30 m radius in a typical classroom would not be possible due to the size of the room. *If your drone weighs less than 100 grams, you can fly it with care within 30 metres of other people (students).*

It gets complicated if your school uses a drone for commercial use. This includes promoting the school in any way, so you need to be careful if videos made with a drone are promoting the school. You can [read more on the CASA website](#).

Simply put, keep your drone under 2 kg and promote student work rather than the school and you should be able to 'fly under the radar'. If you keep the drones below 100 g, then you can fly them in a typical classroom... but I'd turn off the fans.

- **Other rules:** Check with local councils and national parks, as they may have their own rules. Leichhardt Council in Sydney, for example, brought in its own rules about the use of drones in parks and public spaces. You can read about it [here](#). There are also rules about how close you can come to some animals, such as whales and birds of prey, so if there is any likelihood of your students encountering such creatures with their drones, then you need to know the rules, as do your students. Also, if you want to make money with your drone, you will need to get a remote pilots licence. Find more information about Commercial Drone usage.

Remember the rules for keeping safe and keeping within the law and your student motivation, interest and learning opportunities will soon be flying high!

Handy links

- [My review of a CoDrone – I spent several enjoyable hours learning how to control a CoDrone using code.](#)
- [A one-page infographic of the CASA rules](#)
- [A video that succinctly explains the CASA rules](#)
- [Two inspirational stories about the use of drones in Australian classrooms](#), as well as the obstacles the teachers had to overcome
- [Shemaps](#) for more information on the She Maps drone program used at Narara Valley High School.