

## University of Dundee

### Citizen Science Projects (MOOC) 2.13

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Makerspaces (also called Fab Labs or Hackerspaces) are public workspaces where people can access tools and equipment, meet other people and collaborate with the ultimate goal of making things and learning. While they usually have a focus on building with technology, they also include other types of making and crafts.

Makerspaces are part of maker culture and have a strong DIY ethic. They're often run as nonprofit organisations. These spaces enable you to do something yourself rather than buying something off the shelf or having somebody do it for you. The social aspect of a makerspace, where people come together to share what they've made and help each other learn, is often as important as the facilities they provide.

Many makerspaces started as small communities, but organisations like the Fab Lab network link makerspaces worldwide. Fab Labs sign up to the [Fab Lab Charter](<https://www.fabfoundation.org/index.php/the-fab-charter/index.html>), which includes a commitment to open access for anybody. It's also becoming increasingly common to see libraries provide makerspace facilities, which share the ethos of making resources freely available, especially in the United States.

### ##Facilities and Equipment

Many makerspaces focus on digital fabrication, especially using 3D printers and laser cutters. These are computer-controlled tools that can fabricate objects based on digital designs, such as 3D models. These tools can be expensive to buy yourself and take up a lot of space. Makerspaces seek funding or donations to make them available to the public at low cost.

Electronics equipment is another common facility provided at makerspaces. Computer enthusiasts originally started many of these spaces, and members make use of open-source hardware like [Raspberry Pi](<https://www.raspberrypi.org/>) and [Arduino](<https://www.arduino.cc/>), which are designed to be easy for new makers.

Alongside technology-focused facilities, makerspaces often have traditional woodworking tools, and some spaces have begun to branch out into other types of fabrication, including professional sewing machines.

### ##Makerspaces and Citizens' Observatories

Makerspaces are a great example of people coming together to form a community around a shared interest, bringing a diverse set of skills. They often host workshops around particular technologies or topics, as well as hackathons where lots of people come together to build things quickly over a weekend. There are lots of opportunities for Citizens' Observatories to harness this energy.

One of the best-known examples of this is [Fab Lab Barcelona](<https://fablabbcn.org/>) which was the birthplace of Smart Citizen. They have worked with many different citizen science projects to help citizens to build their own sensors. We'll learn more about Smart Citizen in the next step.

### ##Finding a Makerspace

Many cities now have at least one makerspace, and the best place to find them is online. A good starting point is [Make's online directory](<https://makerspaces.make.co>), which includes over 800 spaces worldwide.

Makerspaces usually require a membership to gain full access, but many have a designated time each week when they're open to everyone.

### ##Share your experience!

- + Have you visited a Fab Lab or Makerspace?
- + If you are involved with maker culture, what are you 'making' now?

Please tell us about it in the discussion area below.