

HOW PHONES ARE MADE

Did you know: There are more mobile phones in the world than there are people? So everyone has a responsibility to make sure they recycle their old mobiles phones and don't let them go to waste.

LESSON OBJECTIVE

In this module students will appreciate and understand the variety and quantity of resources that come together to manufacture a mobile phone. Students will be introduced to the idea that products have life cycles and will be encouraged to consider the impact of the product life cycle on the environment.

AUSTRALIAN CURRICULUM CONTENT DESCRIPTION

Year 5 Science

- Scientific knowledge is used to inform personal and community decisions ([ACSHE217](#))
- Important contributions to the advancement of science have been made by people from a range of cultures ([ACSHE082](#))
- Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives ([ACSHE083](#))

Year 6 Science

- Electrical circuits provide a means of transferring and transforming electricity ([ACSSU097](#))
- Important contributions to the advancement of science have been made by people from a range of cultures ([ACSHE099](#))
- Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives ([ACSHE100](#))
- Scientific knowledge is used to inform personal and community decisions ([ACSHE220](#))

LESSON OUTLINE

1. Watch the MobileMuster Promise video and read the information sheet and discuss the different stages of the mobile phone life cycle.
2. Divide the students into five groups and assign each group with one stage of the product life cycle.
3. Ask each group to produce a presentation of their stage of the product life cycle.
4. As part of the presentation they need to investigate the social, environmental and economic benefits and costs at each stage of the product life cycle.
5. The work can be presented as an oral activity, flow diagram, poster, Prezi or Powerpoint presentation.
6. When all groups have produced their presentation, they can present it to the class as 'experts' on that stage of the mobile phone life cycle.

Information Sheet: Mobile phone life cycle

Understanding how mobile phones are manufactured can help you make environmental choices about the products you use, and how you dispose of them. Like any product, making a mobile phone uses natural resources and energy.

1. Extracting materials.

To make mobile phones, manufacturers first need to extract raw materials from the earth. They are then used to make each component of the mobile phone. Some of these materials are becoming harder to find and difficult to mine so we need to make sure we conserve them and improve recycling for future generations.

2. Processing Materials

Once the raw materials have been extracted from the earth they need to be processed in order to make the materials and components that go into a mobile phone. There are approximately 200 components that go into making a mobile phone. These are supplied from companies all around the world.

3. Manufacturing

Now that all the materials are processed and made into components, the manufacturer can start making the phone. The casing for the phone is made from plastic or metal. The printed circuit board is made and loaded with the necessary software and operating system. The circuit board is then placed in the casing. Next, the other components of the phone are added such as the screen, microphone and speaker. After the phone is constructed, it is moved on to testing. During the testing phase, the battery for the phone is added.

4. Transport

Finally, the necessary documentation for the phone is produced and sent to be packaged with the phone. Once all of these components are verified, the phone is packaged and shipped to retail shops around the world.

5. Use

Australians love their smartphones and interact with them over 480 million times a day. Most people update their phone every 2-3 years. More people are reusing their mobile phone and we estimate that 1 in 10 Australian sell or trade-in their mobile phones and 1 in 6 give their mobile to family or friends. You can repair for phone when it breaks with many service centres and repair services available in Australia.

6. End of Life

When your mobile reaches the end of its life it should be recycled responsibly. In Australia, the companies that make your phone and provide the mobile network work together to recycle it responsibly through the MobileMuster program. When your mobile reaches the end of its life you can take it back to one of the MobileMuster collection points around the country. You may have spotted one at your local shops or council facility. Your phone will start the recycling journey when it arrives at the recycler. Here, they are manually dismantled and sorted into components so that all of the parts can be further processed using the latest technology. The recycling process make sure that all the materials that go into making your phone don't go to waste. 99% of the materials are recovered so they can be used again to make new things out of the recycled plastic, glass and metal.

Support Material

- [MobileMuster Promise Video](#)
- [TED Talks: Sustainability by design](#)
- [Smartphones: Smart chemistry](#)
- [Australia's first lithium-ion batteries](#)
- [MobileMuster: The Recycling Process](#)