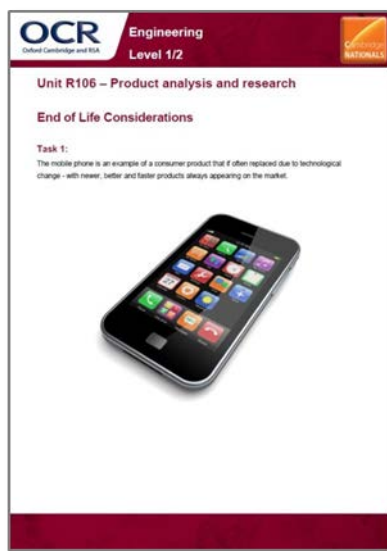


## Unit R106 – Product analysis and research

### End of Life Considerations

#### ***Instructions and answers for teachers***

*These instructions should accompany the OCR resource 'End of Life Considerations' activity which supports OCR Cambridge Nationals in Engineering.*



#### **The Activity:**

This resource comprises of 1 task.



*This activity offers an opportunity for English skills development.*



*This activity offers an opportunity for maths skills development.*

#### **Associated materials:**

'End of Life Considerations' activity sheet

#### **Suggested timings:**

**Task 1:** 1 hour

**Learning Outcome 1: Know how commercial production methods, quality and legislation impact on the design of products and components**

**Task 1:**

In this activity learners have the opportunity to research what happens at the end of life of a mobile phone. The internet will almost certainly be a good source of information to complete the task.

Mobile phone manufacturers often have an end of life policy available on their website and this may be a useful starting point. In the UK, manufacturers and suppliers of mobile phones also have to take consideration of the Waste Electrical and Electronic Equipment Directive (WEEE). This can be found at: <http://www.hse.gov.uk/waste/waste-electrical.htm>

Answers to questions:

- At the end of life, a mobile phone should be taken to a WEEE recycling point. It might even be returned to the manufacturer. Alternatively it might be taken or even sold on to one of the many companies who recycle mobile phones. These often work with charities to recycle phones in order to raise charitable funds.

<b>Mobile Phone</b>	
<b>Which of the phone components can be reused?</b>	Certain parts of the phone might be reused, or the phone remanufactured for use again. Parts that might be reused include: aerials, battery connectors, PCBs (printed circuit boards), connectors including gold-coated edge contacts on PCBs, ICs (integrated circuits), keyboards, LCD screens, lenses, microphones, phone casings, screws, SIM card assemblies and speakers.

<p><b>What materials used in the phone can be recycled?</b></p>	<p>The phone might be dismantled and materials recovered for reuse in other applications.</p> <p>Metals (including precious and semiprecious metals) can be recovered. The mobile parts are ground up and useful metal content extracted.</p> <p>Metal can be extracted from batteries too. Metals include: copper, gold, silver, lead and zinc.</p> <p>Plastic recovery - outer body plastic may be granulated and reformulated for use in mouldings for other items, such as park benches.</p>
<p><b>What materials used in the phone are toxic/hazardous and why should the phone not be disposed of in landfill?</b></p>	<p>Mobile phones also contain hazardous materials such as: lead, mercury, nickel, copper, zinc, cadmium, arsenic and brominated flame retardants.</p> <p>Many of those materials can be recycled and reused. None of them should go into landfill sites where they can contaminate air, soil and groundwater.</p>

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**OCR Resources: *the small print***

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