# The lifecycle of a mobile phone

Did you know more people have mobile phones than toilets around the world? Yet have you ever stopped to consider how your mobile phone was made – or what happens to your old phone when you upgrade to a new model?

# How is a mobile phone made?

Most mobile phones look like simple devices made of glass, metal and plastic, but behind that shiny exterior lies a huge range of materials and compounds that make the mobile phone a very complicated work of engineering and innovation.

## THE BATTERY

Most phones rely on rechargeable lithium ion batteries – as

## THE SCREEN

Glass is the main material making up the screen, but it's not the same sort of glass you can see in your classroom windows. Most smartphones have toughened glass screens that include a mixture of aluminium oxide and silicon dioxide, as well as indium tin oxide to turn it into a touchscreen. The colours you see on your screen are a result of using a mixture of rare compounds that mainly end in 'um', like Lanthanum and Europium.

do most laptops and tablets. That's because they can store a lot of electricity and are lighter than other types of battery. The battery case is usually made from aluminium.

#### THE CASE

Most phone cases are made from aluminium alloys or plastic, to protect the electronics inside and make the phone less likely to break if damaged. There are usually some flame retardant compounds in the casing too, to prevent fire, and sometimes nickel to ensure the phone works in the vicinity of another electronic device.

## THE CLEVER STUFF BEHIND THE SCREEN

The electronics of a phone reveal how complex today's smartphones really are. Silicon is commonly used to make the chip in your phone, and it's this bit of kit that gives your phone its processing power. Precious metals like gold, silver and copper are also inside your mobile phone – copper for the wiring, and gold and silver for the micro-electronics as they are good conductors of electricity – in fact, there's 1 gram of gold in 41 mobile phones! Be aware that a number of toxic chemicals are present in mobiles too, such as arsenic in some types of chips, mercury in the circuit board, and lead to solder everything together.

On average, people upgrade their mobile every 18 months... ...What happens to all the old phones?

## THROW IT IN THE BIN X

Mobile phones should NEVER be

# REUSE IT 🖌

If your phone is still working, you could donate it to somebody else – a family member, friend or charity.

Your school might

# STICK IT IN

There are an estimated 90 million

## RECYCLE IT 🖌

We recycle less than 5% of all mobile phones in the UK.

If you're not going to reuse your mobile phone, then recycling it is the next best option for the planet. This is because recycling removes the need to mine for new metals, preserves natural resources that would otherwise be used to create new mobile phones, and prevents CO<sub>2</sub> from being emitted in the process.

#### put in the bin.

This is because they don't break down naturally in landfill – glass is thought to take more than one million years to decompose – and they contain toxic materials that could escape into the surrounding soil and water.

### even collect old mobiles for recycling.

Or look out for innovative reuse schemes. For example, Rainforest Connection turns unwanted old mobile phones into solar-powered listening devices. These monitor illegal logging and poaching in endangered rainforests around the world.

# phones in the UK.

This works out at about two unwanted mobile phones for every household in the country! Your local recycling centre might take your old phone otherwise you can send it to a recycling company. They will either refurbish it and sell it on – usually to countries in the developing world – or break it down to its component parts and sell these to manufacturers to produce new mobile phones.

On average, recyclers will pay £65 for an old mobile phone.

# Learn more about WEEE at jointhepod.org



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