

Mobile phone life cycle



Mine

Many elements required for mobile phones are currently mined in NSW (Cu, Sn, Ti, Au, Mo, Zn, Pb, Ag), with potential for many more from known occurrences (Sc, Ni, Co and REEs).



Manufacture

Most metals are currently refined overseas but opportunities exist for NSW to expand local manufacturing and processing capabilities as part of the broader critical mineral supply chain.



Use

Smartphone use in Australia is expected to exceed 23 million by 2026 with increased integration of AI and other technologies into everyday life.¹



Recycle

Recovery and reuse of these valuable metals is an important part of a circular economy approach for critical minerals to reduce waste.

Periodic table

H																	He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	*	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	**	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Nh	Fl	Mc	Lv	Ts	Og
		*	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
		**	Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

 Used in mobile phones

* Lanthanide series

 Not used in mobile phones

** Actinide series



Scan the QR code to view the full periodic table.

Image courtesy of Destination NSW

Cover image: iStock.com/CandyRetriever

¹ Hughes C (2023) Number of smartphone users in Australia in 2017 with an estimate until 2026 (<https://www.statista.com/statistics/467753/forecast-of-smartphone-users-in-australia>), Statista website, accessed 25 September 2024.

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Periodic table of mobile phones

29 Cu Copper	30 Zn Zinc
48 Cd Cadmium	



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A sum of its parts

Individual mobile phones may contain 50 or more elements with the total number of elements used in mobile phone technology exceeding 80% of all the stable elements in the periodic table.

Battery

Li Lithium	Tb Terbium
C Carbon	Dy Dysprosium
Mn Manganese	Er Erbium
Co Cobalt	Tm Thulium
Ni Nickel	Yb Ytterbium
Cd Cadmium	Lu Lutetium

Electronic components

Capacitors, resistors, chips and microprocessors

B Boron	Zn Zinc
C Carbon	Ga Gallium
Mg Magnesium	As Arsenic
Si Silicon	Br Bromine
P Phosphorus	Ag Silver
Ti Titanium	Nd Neodymium
Fe Iron	W Tungsten
Ni Nickel	Pb Lead
Cu Copper	

Touchscreen and display

Na Sodium	Sn Tin
Al Aluminium	La Lanthanum
Si Silicon	Ce Cerium
Cl Chlorine	Pr Praseodymium
K Potassium	Eu Europium
Y Yttrium	Gd Gadolinium
In Indium	Tb Terbium

Speaker and microphone

Fe Iron	Nd Neodymium
La Lanthanum	W Tungsten

Circuit board

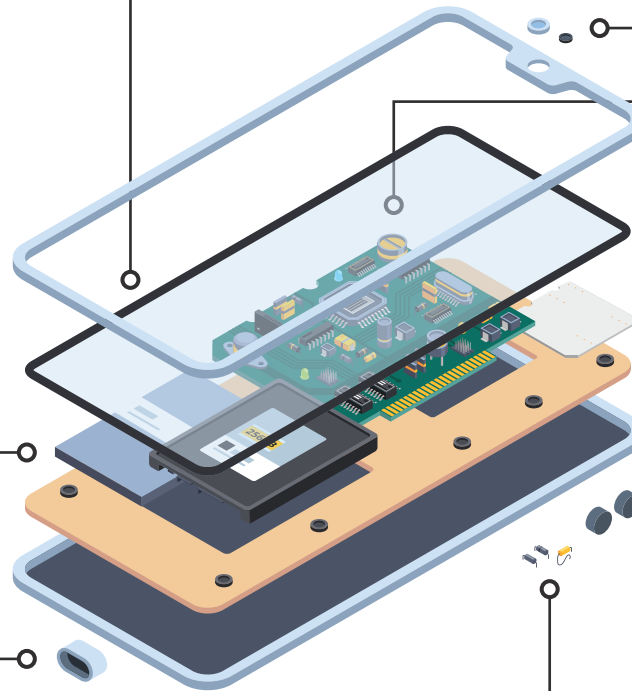
Al Aluminium	Ag Silver
S Sulfur	Sn Tin
Cu Copper	Sb Antimony
Zn Zinc	Ba Barium
Ga Gallium	Ta Tantalum
Sr Strontium	Pt Platinum
Zr Zirconium	Au Gold
Nb Niobium	Hg Mercury
Pd Palladium	Pb Lead

LEDs

Y Yttrium	Eu Europium
La Lanthanum	Gd Gadolinium
Pr Praseodymium	

Case

H Hydrogen	Cl Chlorine
C Carbon	Ti Titanium
F Fluorine	Cr Chromium
Na Sodium	Ni Nickel
Mg Magnesium	Br Bromine
Al Aluminium	



Wires and connectors

Be Beryllium	Ta Tantalum
Cu Copper	Au Gold
Mo Molybdenum	Bi Bismuth