

# MUSTERKIDS<sup>®</sup>

## Mobile Phone Resources

Have you ever considered where the different materials that make up a mobile phone come from?

Each resource that goes into a mobile phone has its own life cycle in addition to the life cycle of the mobile phone. The resources that go into making a mobile phone come from many different countries.

Once materials are extracted, they must be converted into a form that can be used to make products. They also need to be transported far distances before they are manufactured into components that make up a mobile phone.

### Muster Games

Play the mobile phone resources map game on the MobileMuster website to test your knowledge!  
[www.mobilemuster.com.au/schools](http://www.mobilemuster.com.au/schools)

### Aluminium

Aluminium is a silvery ductile metallic element which is used in the mobile phone case and components. It is the most abundant metal in the Earth's crust. The ore is mined in Australia, Brazil, China, India, Guinea, Indonesia, Jamaica, Russia and Suriname. The top producer of aluminium is China.

### Antimony

Antimony is a chemical element used in the production of mobile phone batteries. It helps to make the batteries charge. For some time, China has been the largest producer of antimony with approximately 84% world share.

### Cadmium

Cadmium is an important material in the production of mobile phone batteries. It is a rare and it is most often found when mining for zinc. The top exporter of Cadmium is China producing almost one-sixth of the world share, closely followed by South Korea and Japan.

### Cobalt

Cobalt is a hard silver-white metal used to make rechargeable batteries in mobile phones. The metal is produced by smelting. The top exporter of cobalt is the Republic of Congo with almost 40% world share.

For more information on MobileMuster or to send us your work please go to [www.mobilemuster.com.au/schools](http://www.mobilemuster.com.au/schools)

# MUSTERKIDS<sup>®</sup>

## Copper

Copper is a ductile malleable reddish-brown metal; used as an electrical conductor in the mobile phone circuit board. Most copper is mined or extracted as copper sulfides from large open pit mines. Chile is the top mine producer of copper with at least one-third world share followed by the United States, Indonesia and Peru

## Epoxy Resin

Epoxy Resin is a strong adhesive and insulator used in mobile phone circuit boards. The main raw material for epoxy resin is petroleum which comes from oil. The top exporter of epoxy resin is China, with more than 30% of the total worldwide market.

## Gold

Gold is a precious metal; because it is chemically stable and conducts electricity; small amounts are used to make the mobile phone circuit board. The top exporter of gold is China, followed by South Africa.

## Lead

Lead is a soft heavy toxic malleable metallic element used in the solder that joins the parts of the mobile phone. Lead produced from mined lead ore is less than half of all lead produced throughout the world. Lead produced from recycling, particularly batteries continues to grow. The top producer of lead is China, followed by Australia and the United States.

## Lithium

Lithium is a soft silver-white chemical element used in the production of mobile phone batteries. Lithium is mined from salt lakes and hard-rock ore. The top exporter of lithium is Australia.

## Nickel

Nickel is a hard malleable silvery metal used in electrical connections and capacitors, as well as the battery of the mobile phone. Nickel is extracted from its ores by heating and reducing the ore. Russia is the largest producer of nickel with about one-fifth world share closely followed by Canada, Australia, and Indonesia and Philippines.

## Palladium

Palladium is silver-white metallic element used to make the multilayer ceramic capacitors found in mobile phones. Ore deposits of palladium are rare. The top exporter of palladium is Russia with over 40 percent world share.

For more information on MobileMuster or to send us your work please go to [www.mobilemuster.com.au/schools](http://www.mobilemuster.com.au/schools)

# MUSTERKIDS<sup>®</sup>

## Plastics

Plastics are manufactured from crude oils in the earth. Heavy petrol is distilled from the crude oil and then treated with heat to create hard plastic. The top oil producing country is Saudi Arabia.

## Silver

Silver is a soft white precious metal used in the mobile phone circuit board. The metal is primarily produced as a by-product when producing copper, gold, nickel, and zinc. The top exporter of silver is Mexico.

## Tantalum

Tantalum is a hard gray lustrous metallic element that is highly corrosion-resistant; it is used in the manufacturing of capacitors used in mobile phones. About 50% of the tantalum comes from mining, 30% from recycling and 20% as a by-product in the production of tin. Tantalum is found throughout the world and the top exporter of tantalum is Rwanda.

## Zinc

Zinc is a bluish-white metal; brittle at ordinary temperatures but malleable when heated; used in the mobile phone circuit board. About 70% of the world's zinc originates from mining, while 30% comes from recycling. The top exporter of zinc is China, followed by Peru and Australia.

## Glossary

**By-product:** a product made during the manufacture of something else.

**Ore:** is a type of rock that contains minerals with important elements including metals. The ores are extracted through mining; these are then refined to extract the valuable resources.

**Smelting:** is the process of removing pure metal from its ore by heating and using a reducing agent (chemical) to decompose the ore.

**Sulfides:** is a compound made up of sulfur and a metal.