

# NATURAL SCIENCE AND TECHNOLOGY

## GRADE 5

### Uses of metals: other properties of metals

Name: \_\_\_\_\_

#### Let's Recap

You have learnt all about what characteristics or properties metal have that make them different from non-metals.

Write down five properties of metals here:

---

---

---

We're going to learn about some other properties of metals.

#### Metals are USEFUL

Think of five items you use, or see used, everyday that are made of metal. Write them down here: \_\_\_\_\_

---

---

Because metals are strong and hard they can be used for many different things. Because metals can be melted and shaped into different tools and items, there are an endless number of ways we can use them.

#### Metals CONDUCT HEAT

Why do you think pot handles are usually made of plastic or wood?

---

---

We're going to learn about some other properties of metals.

#### Metals are USEFUL

Think of five items you use, or see used, everyday that are made of metal. Write them down here: \_\_\_\_\_

---

---

Because metals are strong and hard they can be used for many different things. Because metals can be melted and shaped into different tools and items, there are an endless number of ways we can use them.

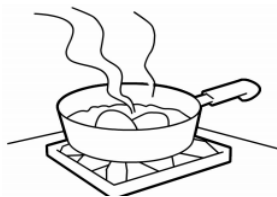
#### Metals CONDUCT HEAT

Why do you think pot handles are usually made of plastic or wood?

---

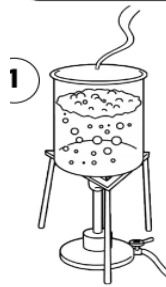
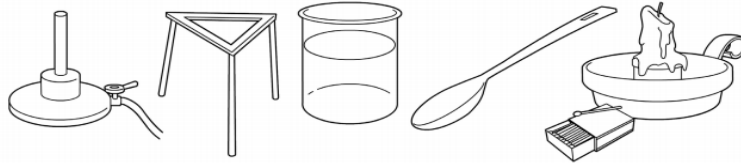
---

Metal **conducts** or "carries" heat. If you heat up a part of a metal rod or container, the heat **travels** from one part of the object to the other parts, until the whole object is hot.



### Activity 1: Observe heat conduction in metals

You will need: gas burner, tripod stand, beaker, large metal spoon, matches, candle, water.



- 1) Fill the beaker with water. Put it on the tripod stand and light the gas burner underneath it. Boil the water.
- 2) While the water is heating up, light the candle and drip the warm wax onto the handle of the metal spoon. Allow it to cool and solidify.
- 3) When the wax is solid, turn off the gas burner and place the spoon into the beaker with the handle sticking out of the water.



#### Results:

What happened to the wax on the metal spoon?

---

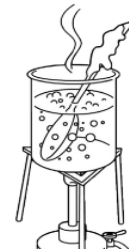
---

What can you conclude about metals?

---

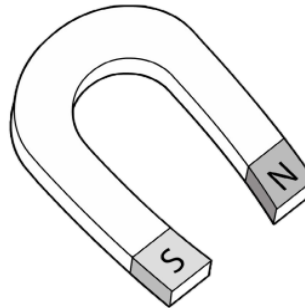
---

---



#### Metals are MAGNETIC

Some metals are magnetic and others are not. If a metal is **magnetic**, it means that they are attracted to metals that are magnetic and stick to them. There are only four metals that are magnetic: **Iron, Steel, Nickel** and **Cobalt**. All of the other metals are non-magnetic.



#### Activity 2:

Find items made from different types of metals. Use a magnet to see which of these items are magnetic and which are not. Remember that, depending on what metal the object is made of, some will be magnetic and others will not be.

#### Metals RUST or TARNISH

##### Have you ever seen a rusty nail or a gate that has rust on it?

Nearly all metals are affected by the air and by water.

You know that metals are shiny, but after a while in the air, they **tarnish**. This means that their colour may change or they become dull. Silver, for example, gets a blackish layer over its surface. You can clean this layer off with special polish. Gold does not tarnish or rust. This is one of the reasons that it is so valuable. Iron is the only metal that rusts. This means that any metal alloy that contains iron (like steel) will also rust. The metal turns reddish-brown and breaks down into bits. This happens because of moisture directly on the metal object or in the air.

##### How can we prevent metals from rusting?

- Coat them with plastic
- Paint them
- Coat them with a metal that does not rust, like zinc
- Coat them with oil or grease