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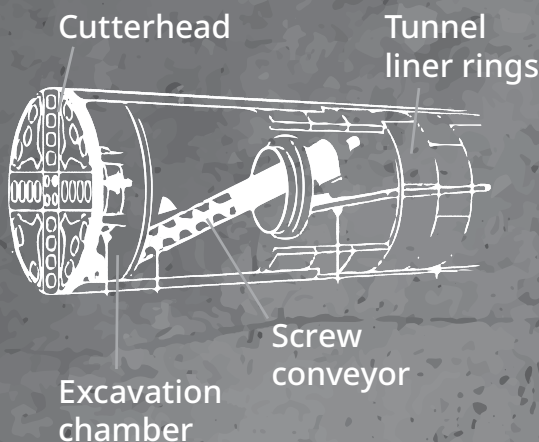
TBM Tunnelling

The cutterhead is at the front of the TBM and starts boring the tunnel.

Soil is moved on the TBM conveyor belt to a muck pit, where it's taken away in dump trucks.

Dump trucks leave the Great Northern Way site with a full load and return empty, ready for the next load of soil.

Meet the TBM!



Let's get ready!

We can use rice or dry beans to explore the science behind this tunnel!

For this experiment, you will need:

- rice (or dry beans)
- a long handled spoon
- a permanent marker
- a paper towel roll
- a clear 500ml plastic bottle
- a tray

Let's get started

Ask an adult to help you. Place the paper towel roll over the mouth of the plastic bottle and trace a circle. Carefully have an adult cut around the circle so that a paper towel tube can fit in snugly. Stand the bottle up and fill it with rice. Place the paper towel roll in the top and push it in. Now turn the bottle on its side to push the paper towel roll through the rice! Set it on the tray to catch any grains that fall.

What do you think will happen?

- ➔ How fast or how slow will you need to move the tube?
- ➔ Will you need to push or turn the tube?



Did you know?

The TBMs will bore tunnels for about a **whole year!**

The tunnels are about **15-20 meters below the ground!**
That's deep!

What is happening?

While you are busy working, think about what is happening.

- ➔ What happens if the bottle is more full or less full of rice?
- ➔ Where does the rice go, and can you get it out with your spoon?

