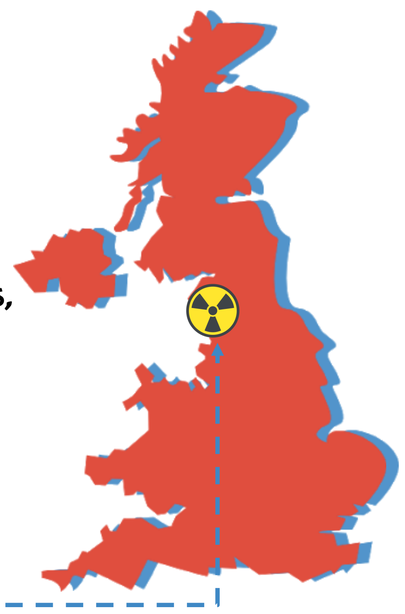
NUCLEAR WASTE:
Your questions answered

> The UK has lots of nuclear waste to deal with ①②. This waste will be potentially dangerous ③ for a very long time ④ and so must be kept away from people for this duration. To do this, we plan to wrap the waste up ⑤, before burying it deep below the Earth ⑥. But, before we do any of this we need to prove it's safe ⑦.

① What and where is it?

Nuclear waste is the unwanted (and radioactive) leftovers from nuclear **power plants**, hospitals, scientific **labs** & the **military**.

At the moment, a lot of this is stored in a secure building at **Sellafield** (Cumbria).



② How much does the UK have?

4,500,000 m^3 or 5.1 million tonnes, that's...

Enough to fill ~1,750 Olympic swimming pools

or....

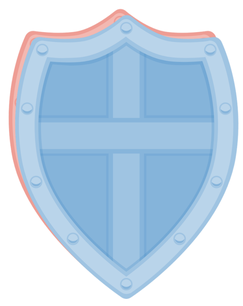
200 times heavier than The Statue of Liberty

or....

Enough bananas (by weight) to last the UK for **six years**

③ Why do we need to keep it so safe?

Even very brief exposure to radioactive waste can cause **sickness** and severe **burns**



Longer-term, even exposure to tiny amounts of radiation from this waste can increase your chances of getting some **cancers**

④ How long is a 'long time'?

We aim to keep this waste safe **FOREVER**!

But scientists know that nothing can really last forever, so instead we aim to make sure the waste is definitely safe for...

ONE MILLION YEARS

But how long is that?...

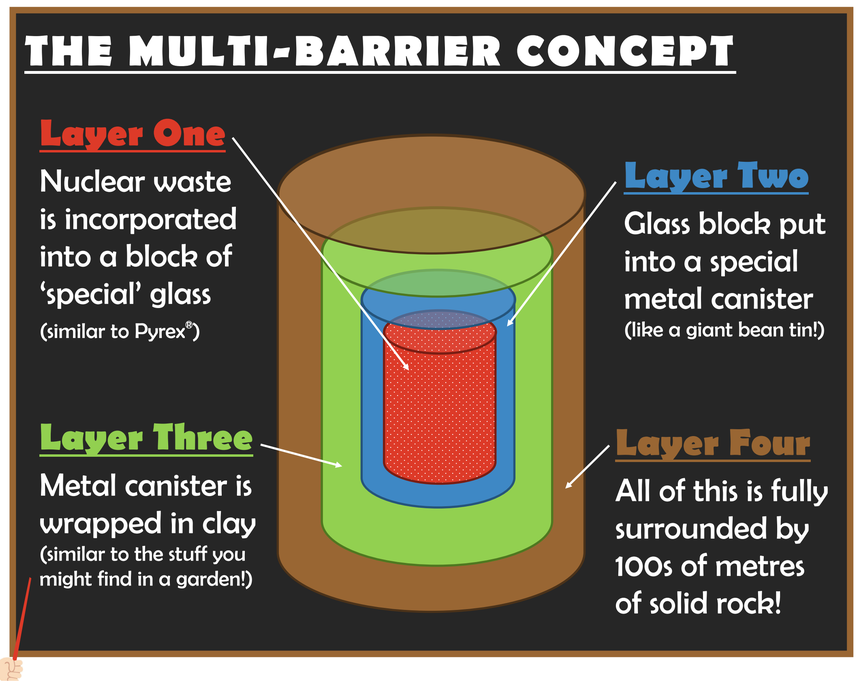
⑤ What's the plan?

So, **HOW ON EARTH** can we keep this radiation locked up for such a long time?!?!

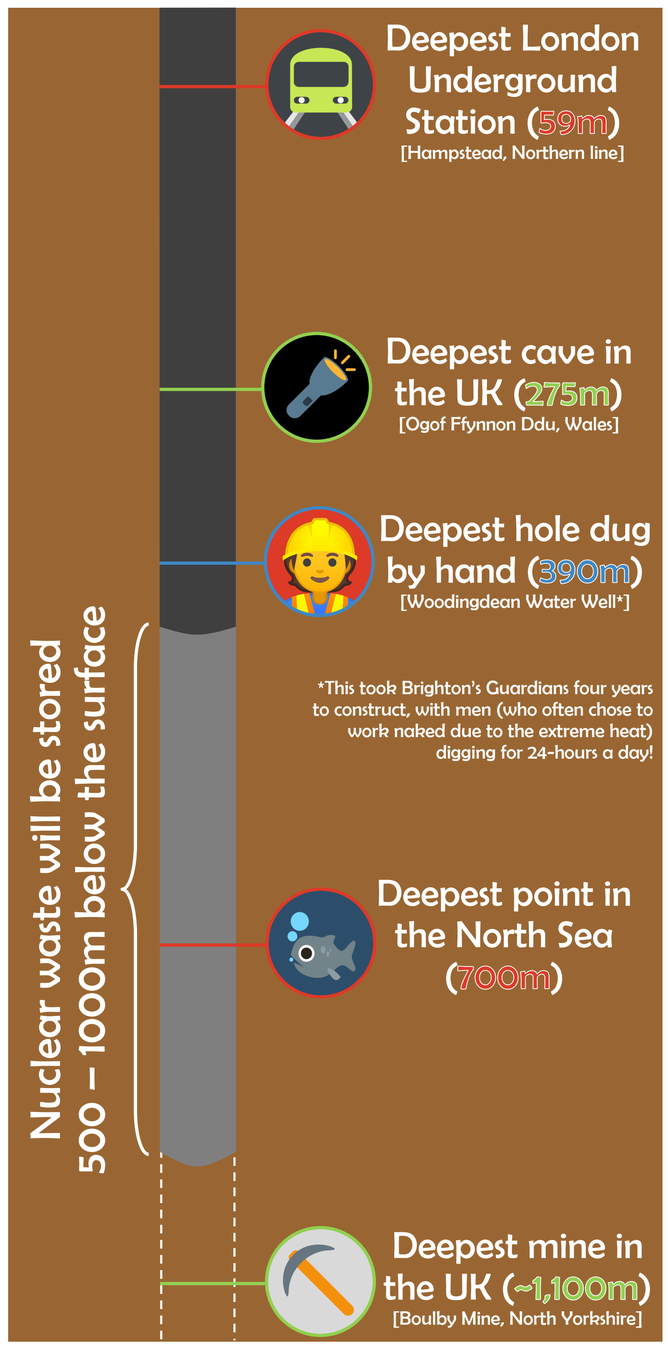
ADULTS HAVE THE ANSWER!!

In the winter, adults everywhere tell their children to "**layer up**" using as many layers as possible to keep all the heat (radiation) in!

Well, we plan to use the same idea to dispose of our radioactive waste



⑥ How deep is deep?



⑦ How can we make sure our plan is safe?

Experts are working to make sure this method is safe. We call this 'Building the Safety Case'

Material Scientists: We're making sure all of the materials we'll use are perfectly tailored and will last for as long as possible

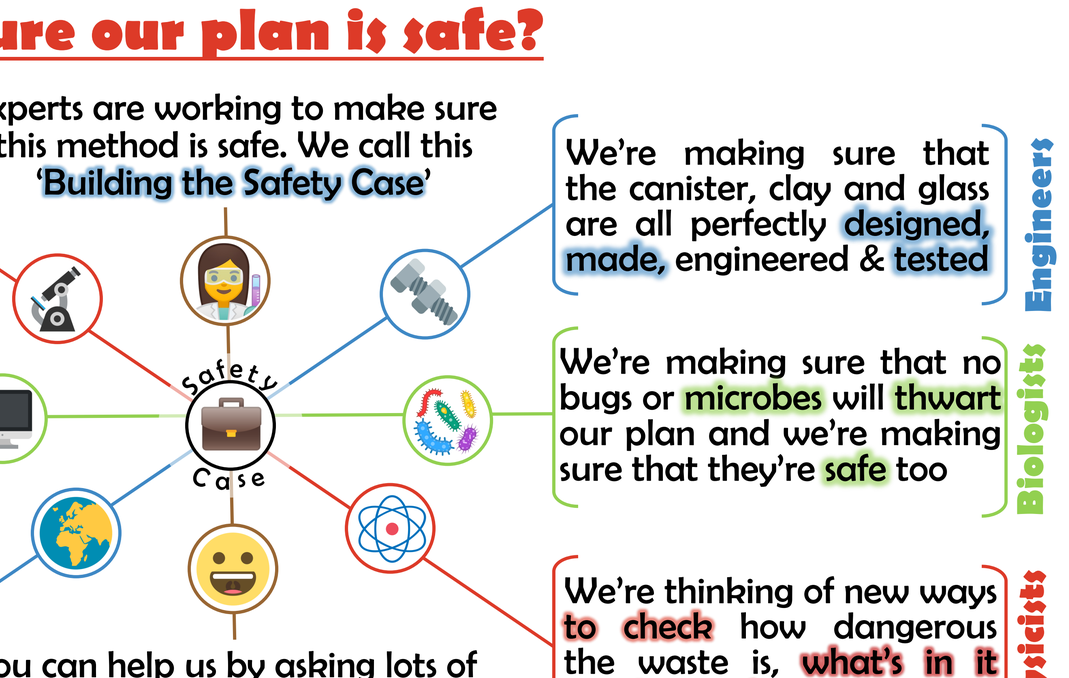
Computer Scientists: We're making computer models to predict what may happen in the future

Earth Scientists: We're looking at where the 'hole' could be dug & we're using very old rocks to look into Earth's future

Engineers: We're making sure that the canister, clay and glass are all perfectly designed, made, engineered & tested

Biologists: We're making sure that no bugs or microbes will thwart our plan and we're making sure that they're safe too

Physicists: We're thinking of new ways to check how dangerous the waste is, what's in it and how safe our solution is



You can help us by asking lots of questions and maybe even by...

BECOMING A SCIENTISTS OR ENGINEER

This Infographic was lovingly created by James Mansfield (@jamesTmansfield), with support from the Immobilisation Science Laboratory (@ISL_Sheffield), Mike Harrison (The National Nuclear Laboratory), Rachel Law (Dalton Nuclear Institute) and The University of Sheffield.