FIND THE FOOTPRINT!

WHAT DO YOU KNOW ABOUT OUR CONTINENTS?



Discuss in small groups:

How many continents are there?

What do you know about these continents?

What makes each continent special?



What do you know about our continents?



Find the continents on the world map!

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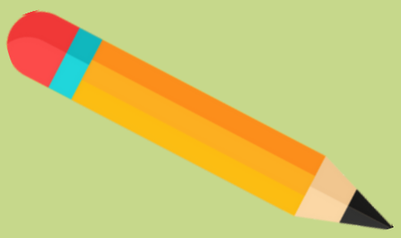
FIND THE FOOTPRINT!

WHAT DO YOU KNOW ABOUT OUR CONTINENTS?

Discover our continents!

Find out some interesting facts and do two tasks.

TASK 1: Which continents are there? Put the words in the correct order!



1. Aicraf _____
2. Acatnacirt _____
3. Aais _____
4. Euorpe _____
5. Nhtor Aamrice _____
6. Aaliasutr _____
7. Sutho Aecrima _____



TASK 2: Read some interesting facts and fill in the names of the continents!

Did you know that our big, round Earth is divided into seven giant pieces called _____?

Each one is like a unique puzzle piece that fits together to make our planet wonderful and special.

1. Imagine going on a safari in _____! It is a land of amazing animals such as the elephant, the lion and the giraffe. It is the second largest continent.

2. Way down at the bottom of the Earth is _____, covered in ice and surrounded by a chilly ocean. Animals like penguins and seals live there.

3. _____ is the largest continent and home to countries like China, India, and Japan.

4. _____ is a place full of history, different languages, and delicious foods.

5. _____ is the continent that includes the United States, Canada, and Mexico. It's a land of diverse landscapes, from snowy mountains to sunny beaches.

6. _____ is home to kangaroos, koalas, and the Great Barrier Reef, the largest coral reef in the world.

7. _____ is known for its lively music and dances like samba. It's also where you can find the Amazon Rainforest, a jungle full of unique plants and animals.

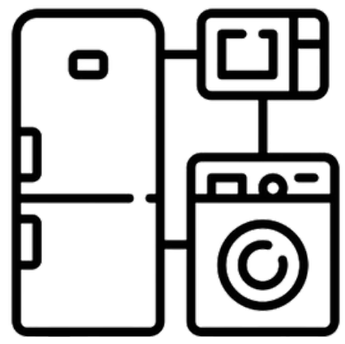
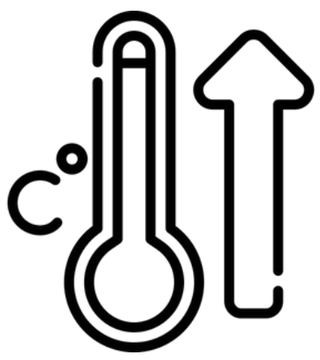
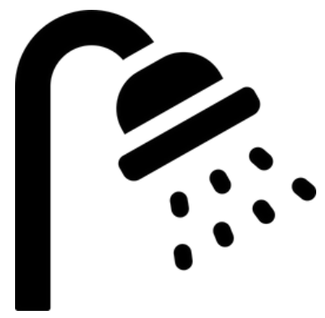
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FIND THE FOOTPRINT!

WHAT IS THE CARBON FOOTPRINT?

Cut out the boxes and play pairs with the things that use energy (electricity) in everyday life! Light bulbs, ovens, microwaves, air conditioners, chargers, etc. are just some of them.
Remember, it's important to save energy whenever possible. Turning off lights and electronics when you're not using them, taking shorter showers, and going by bike are all great ways to help save energy!

	**going by car**		**going by plane**
	**shopping**		**live streaming**
	**turning on the lights**		**using electronics**
	**heating your home**		**using hot water**

Icons: www.flaticon.com (by Freepik) / Author: Petra Szucsich

FIND THE FOOTPRINT!

WHAT IS THE CARBON FOOTPRINT?

When you use energy or electricity, it emits greenhouse gases such as carbon dioxide (CO2). In this way, we leave a "**carbon footprint**" on our environment. The carbon footprint **is a number** that tells you how much carbon dioxide is produced by your activities, such as live streaming, charging your phone, flying or using electricity. You can also use the free energy use calculator to find out how much power your devices use.



SCAN

energy use calculator

Have a discussion about what you use energy for in your home!

Which things need more energy, which less?

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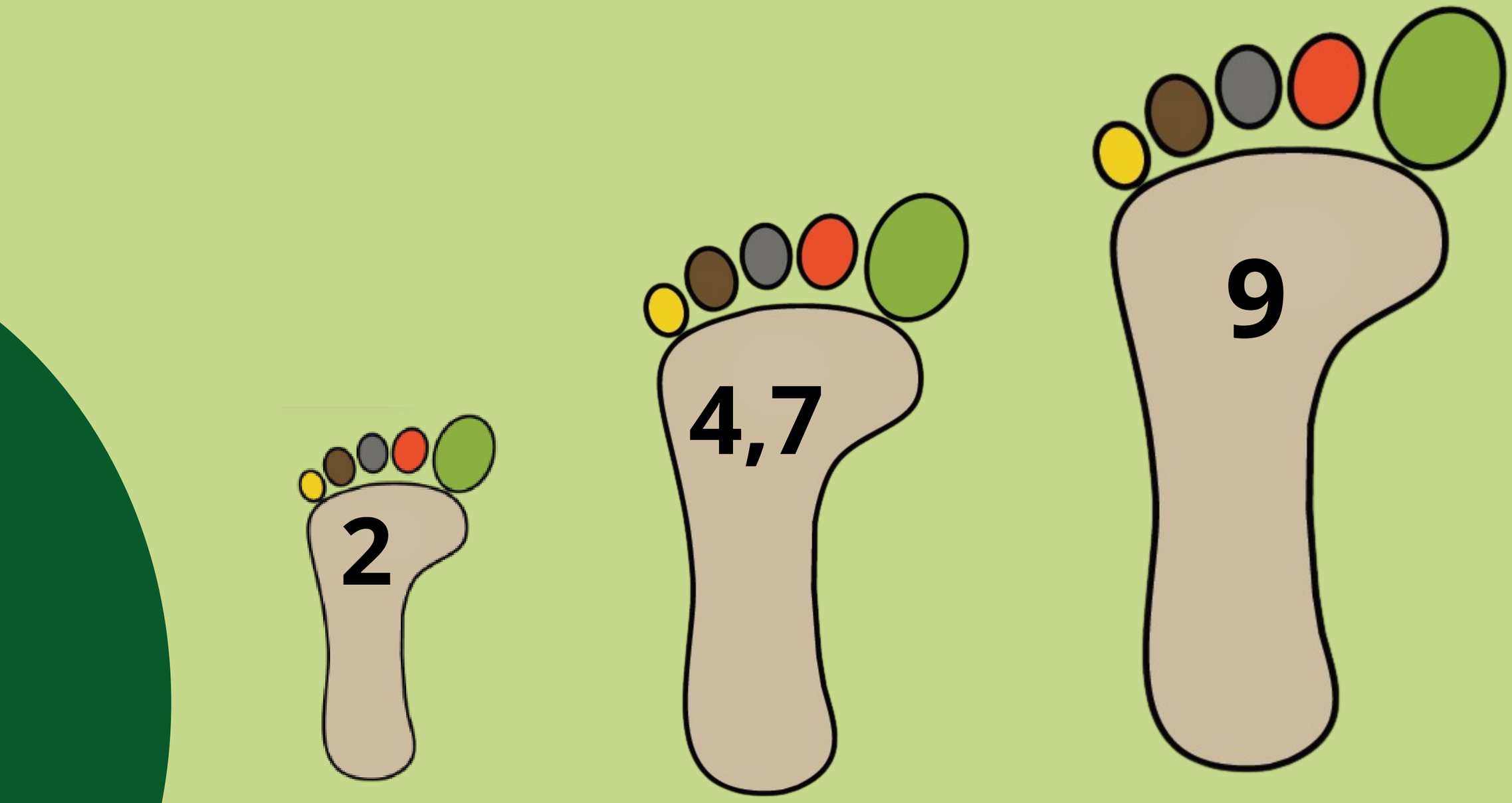
FIND THE FOOTPRINT!

WHAT IS THE CARBON FOOTPRINT?

Greenhouse gases such as carbon dioxide warm the Earth, which is a good thing because without this natural **greenhouse effect**, the Earth would be a ball of ice and life would not be possible. The problem is that we produce **too many of these gases**. As a result, the Earth is getting warmer and warmer.

This is called **climate change.**

The ideal **carbon footprint**, which is the amount that a person is allowed to produce, is **2 tons** of carbon dioxide per year. This would not increase the greenhouse effect. Unfortunately, the actual carbon footprint per person, for example, in Austria or Germany, is more than four times higher!
Each of us produces about **9 tons** of carbon dioxide.



ideal footprint
2 tons of carbon dioxide a year

average footprint worldwide

average footprint of a person in Austria or Germany

(Source: https://footprintmap.org/map, 2020)

Source: https://oeha.phwien.ac.at/ Author: Petra Szucsich

FIND THE FOOTPRINT!

WHAT IS THE CARBON FOOTPRINT?

Carbon dioxide (CO_2), a greenhouse gas, has become a major concern with regard to climate change. The top five CO_2-producing nations in 2020 were **China**, the **United States**, **India**, **Russia**, and **Japan**. Now follow the link and match the countries below with their carbon footprint!

footprint map

SCAN



(Source: https://footprintmap.org/map, 2020)

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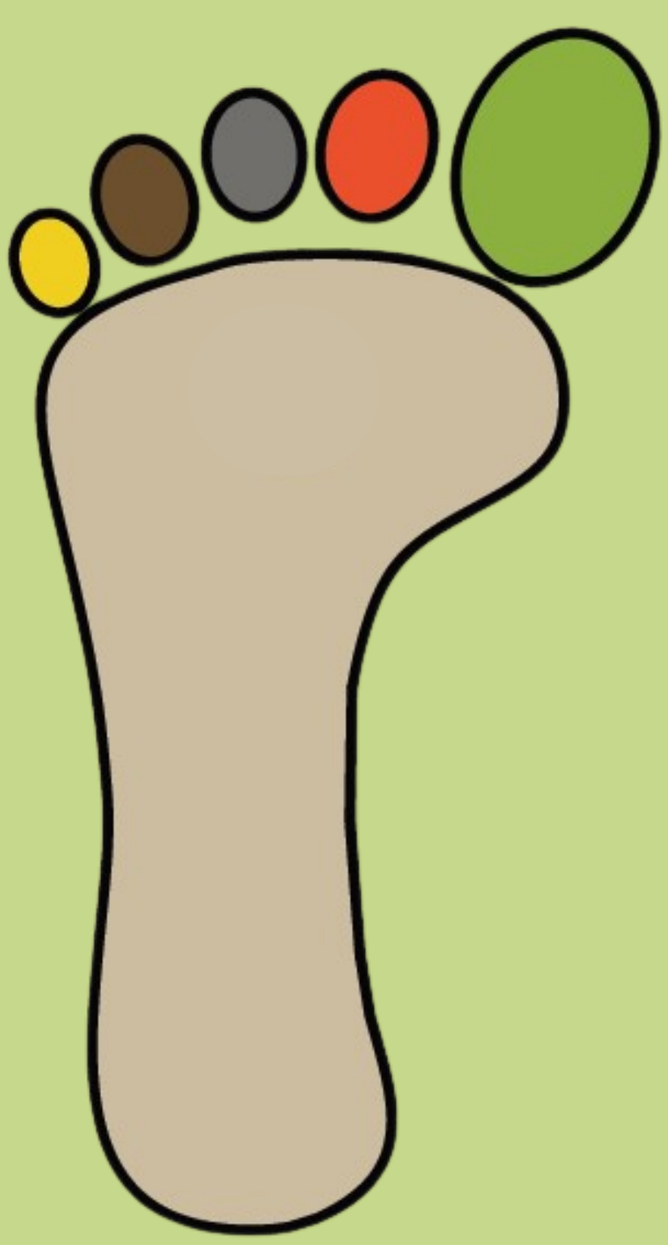
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Teacher Academy Project TEACHING SUSTAINABILITY
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FIND THE FOOTPRINT!

WHAT IS THE CARBON FOOTPRINT?

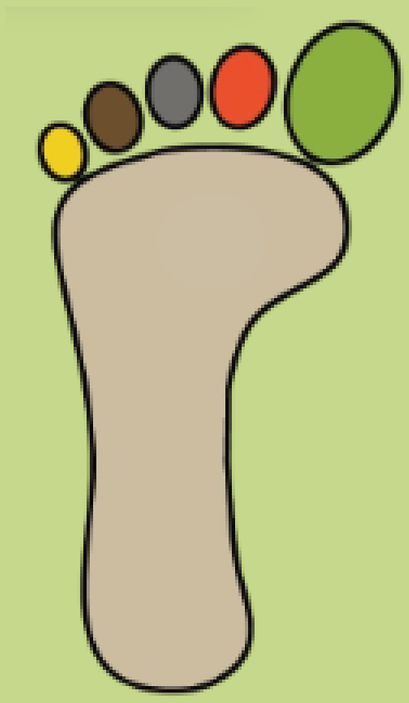
Use the link again and find out what the footprint of different countries is. Find countries that have a very large footprint, a medium one and a small one. Write the countries and numbers on the footprints below. Then cut them out and find the countries on the map. Put the footprints on the map.
What differences do you see?

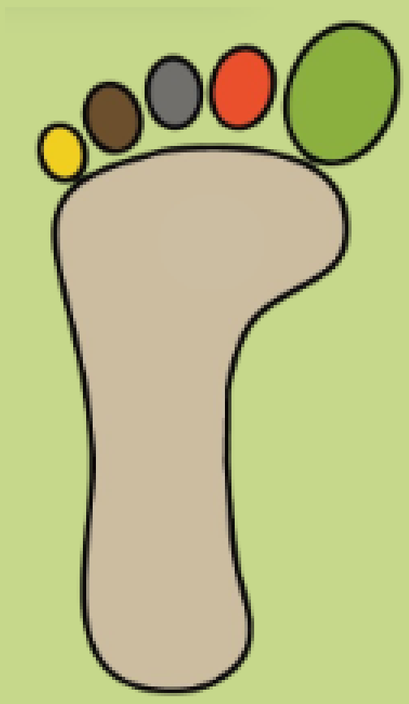
footprint
map

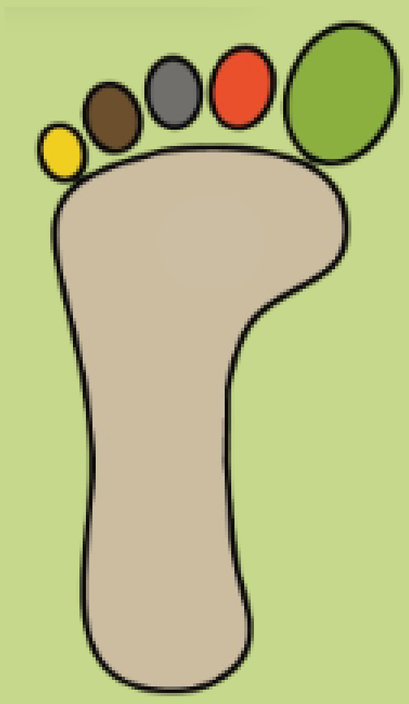


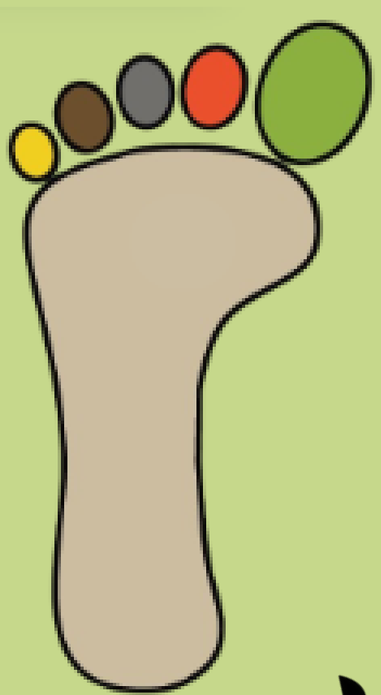


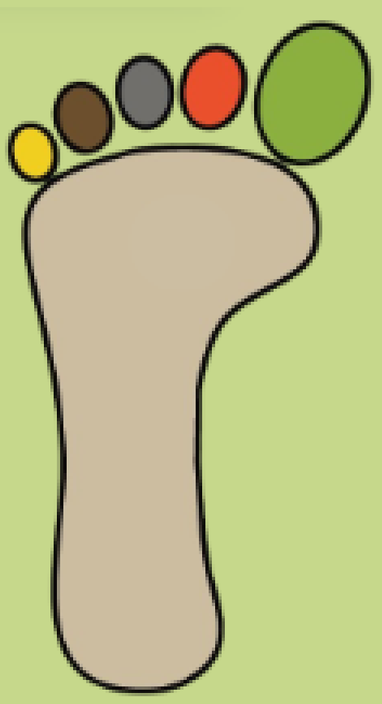
























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FIND THE FOOTPRINT!

WHAT IS THE CARBON FOOTPRINT?

QUESTIONS FOR DISCUSSION

- Why do some countries have such a big carbon footprint?
- What do they use so much energy for?
- Which countries and continents do not need a lot of energy?
- Can you find these countries on the map?
- How can you minimize your individual carbon footprint?



Source: https://oeha.phwien.ac.at/ Author: Petra Szucsich

FIND THE FOOTPRINT!

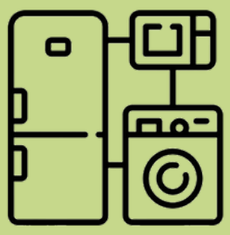
WHAT IS THE CARBON FOOTPRINT?

Draw your own footprint!

Think about how you use energy in your daily life. Look at the symbols and draw them on the footprint below or draw your own footprint. You can also draw or add your own symbols.

















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FIND THE FOOTPRINT!

HOW CAN I REDUCE MY CARBON FOOTPRINT?

Some ideas to reduce your carbon footprint

Every search query, every video streamed and every photo stored in the cloud uses electricity. Here are 11 tips on how to “travel with a smaller foot".

Which of these things do you already do? Mark them with an ❌

Which 3 tips do you find the most important? Mark them with an ❗

Turn off the tap when you are not using it. For example, when brushing teeth or washing hands.

Switch off the television and any consoles when you are not using them.

Put on a jumper and thick socks instead of turning the heating on.

Set lower video resolution for video streaming.

Download your favourite movies instead of streaming them every time.

Think carefully before buying a new device and ask yourself if you really need it.

Charge your devices only when needed!

Reduce screen brightness from 100% to 70%.

Take your bike for short distances or walk instead of going by car.

Turn off or unplug electrical items when finished with them. Some devices use energy even when they aren’t on.

Pass on old technical devices, sell or donate them.

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FIND THE FOOTPRINT!

WHAT IS THE ECOLOGICAL HANDPRINT?

Draw your own handprint!

The ecological handprint builds on the concept of the carbon footprint. But unlike the footprint, the handprint focuses on understanding how individuals and communities can take action to make a positive difference to our planet. Think about what you can do and draw or write your positive contributions into your handprint!

Have a discussion about what you could do to make a change!



climate handprint

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FIND THE FOOTPRINT! (KEY)

WHAT DO YOU KNOW ABOUT OUR CONTINENTS? (KEY FOR PAGE 2 / 13)

For Teachers

KEY - Discover our continents!

TASK 1: Which continents are there? Put the words in the correct order**!**



1. Aicraf _____**Africa**_____
2. Acatnacirt _____**Antarctica**_____
3. Aais _____**Asia**_____
4. Euorpe ___**Europe**_____
5. Nhtor Aamrice _____**North America**_____
6. Aaliasutr _____**Australia**_____
7. Sutho Aecrima _____**South America**_____



TASK 2: Read some interesting facts and fill in the names of the continents!

Did you know that our big, round Earth is divided into seven giant pieces called ____**continents**____?

Each one is like a unique puzzle piece that fits together to make our planet wonderful and special.

1. Imagine going on a safari in ____**Africa**____! It's the land of amazing animals like elephants, lions, and giraffes. It is the second largest continent.

2. Way down at the bottom of the Earth is ____**Antarctica**____, covered in ice and surrounded by a chilly ocean. Animals like penguins and seals live there.

3. ____**Asia**____ is the largest continent and home to countries like China, India, and Japan.



4. ____**Europe**____is a place full of history, different languages, and delicious foods.

5. ____**North America**____ is the continent that includes the United States, Canada, and Mexico. It's a land of diverse landscapes, from snowy mountains to sunny beaches.

6. ____**Australia**____ is home to kangaroos, koalas, and the Great Barrier Reef, the largest coral reef in the world.

7. ____**South America**____ is known for its lively music and dances like samba. It's also where you can find the Amazon Rainforest, a jungle full of unique plants and animals.

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FIND THE FOOTPRINT! (KEY)

WHAT IS THE CARBON FOOTPRINT? (KEY FOR PAGE 6 / 13)

For Teachers

Follow the link (QR(and match the countries below with their carbon footprint!

footprint map

KEY







Portugal





Sweden

(Source: https://footprintmap.org/map, 2020)

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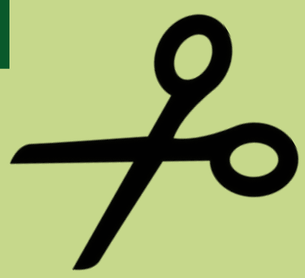
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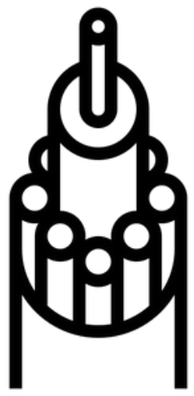
MAPPING DIGITAL TECHNOLOGY

HOW DOES THE INTERNET WORK?



Cut out the boxes and **play pairs** with the internet terms!
Then put them on the world map and explain them.
What do these terms have to do with the global Internet?

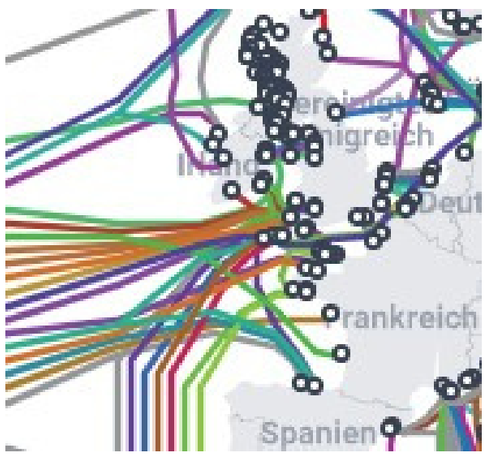




fibre optic cable



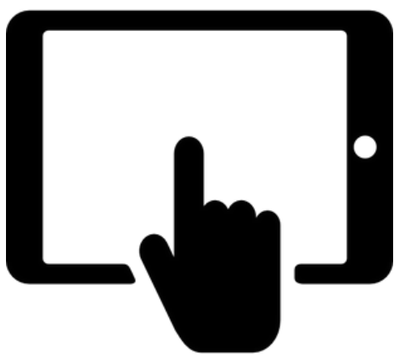
wireless router



submarine cable map



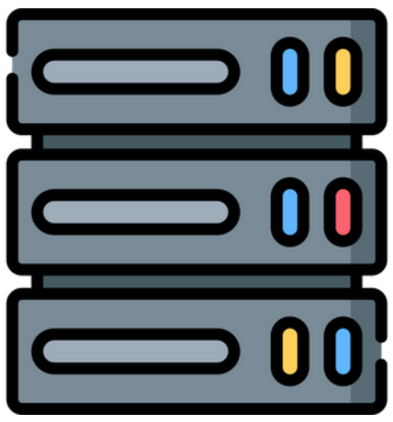
mobile tower



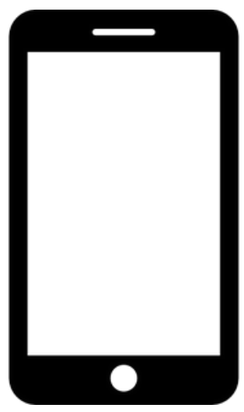
tablet



live streaming



server



phone

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MAPPING DIGITAL TECHNOLOGY

HOW DOES THE INTERNET WORK?

What happens when you stream a video?

Okay, imagine you have a very special TV, but instead of getting all your shows and movies from a DVD or a TV station, you get them instantly, like from a “magic source”! That's what we call "streaming".

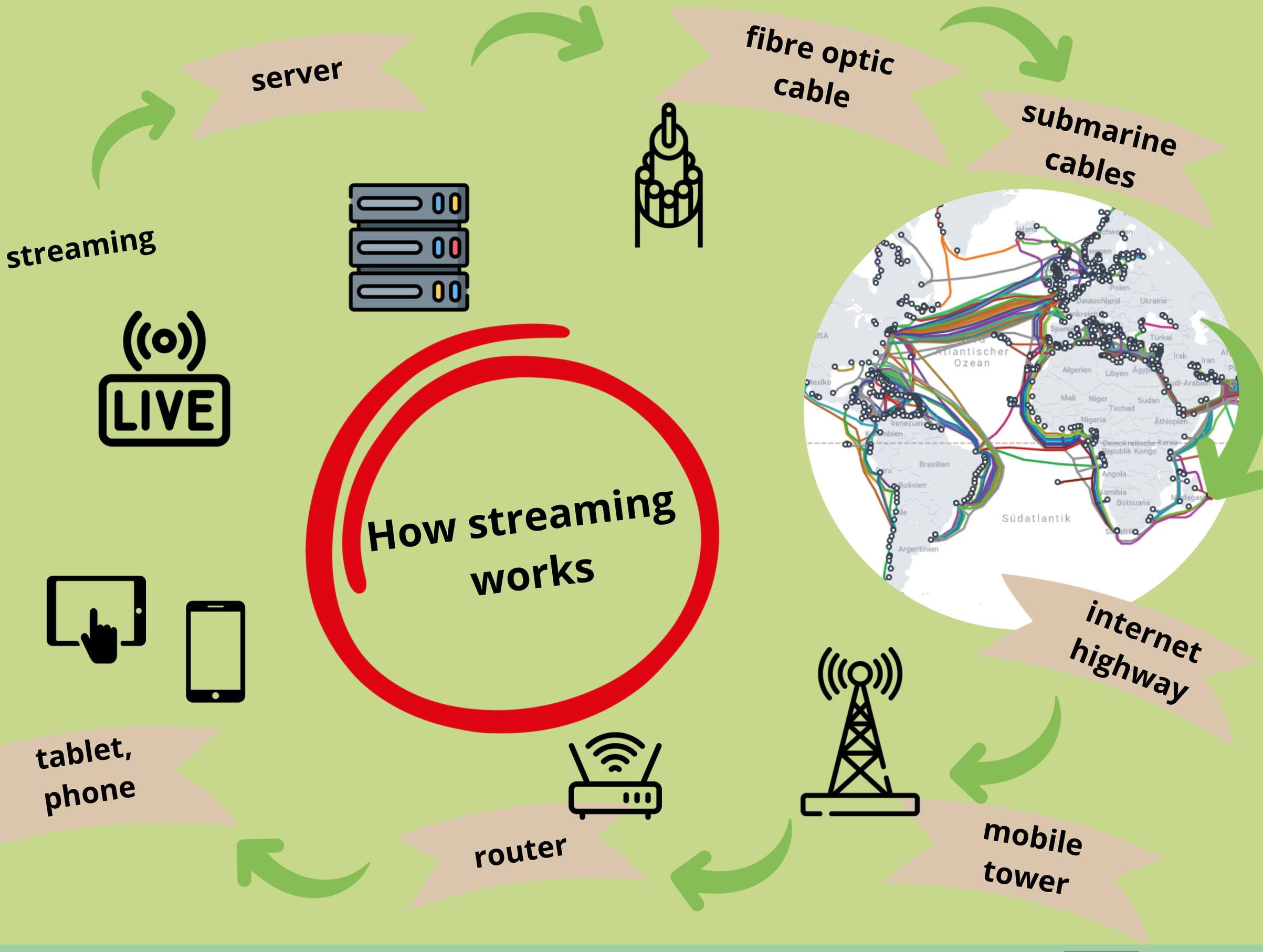
1. Your **tablet or phone**: Picture your device as your TV on which you want to watch a fun video.

2. The **video** you want to watch: Think of your favorite show or movie. Instead of waiting for it to come to you on a DVD, it's like asking a friend to show you a video immediately.

3. The **Internet Highway:** To watch that video, you need to travel on the "Internet Highway." It's like a superfast road that connects you to where the story is kept. This road is made up of **cables, routers, and servers**.

4. The magical video source, the **server**: Imagine there's a place, like a magical library, where all the videos (shows and movies) are kept. This is called a "server". It's like the place where your friend keeps all the exciting videos.

5. **Streaming**: When you say, "I want to watch this," your friend (the server) quickly sends the story to your device through the internet highway. You don't have to wait for the whole video to arrive; it comes bit by bit, just enough for you to watch and enjoy. Cool, right? 😊✨



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Icons: www.flaticon.com (by Freepik / Banner by Dooder) / Fibre optic cable by Chattapat, Arrows by Creative Stall Premium

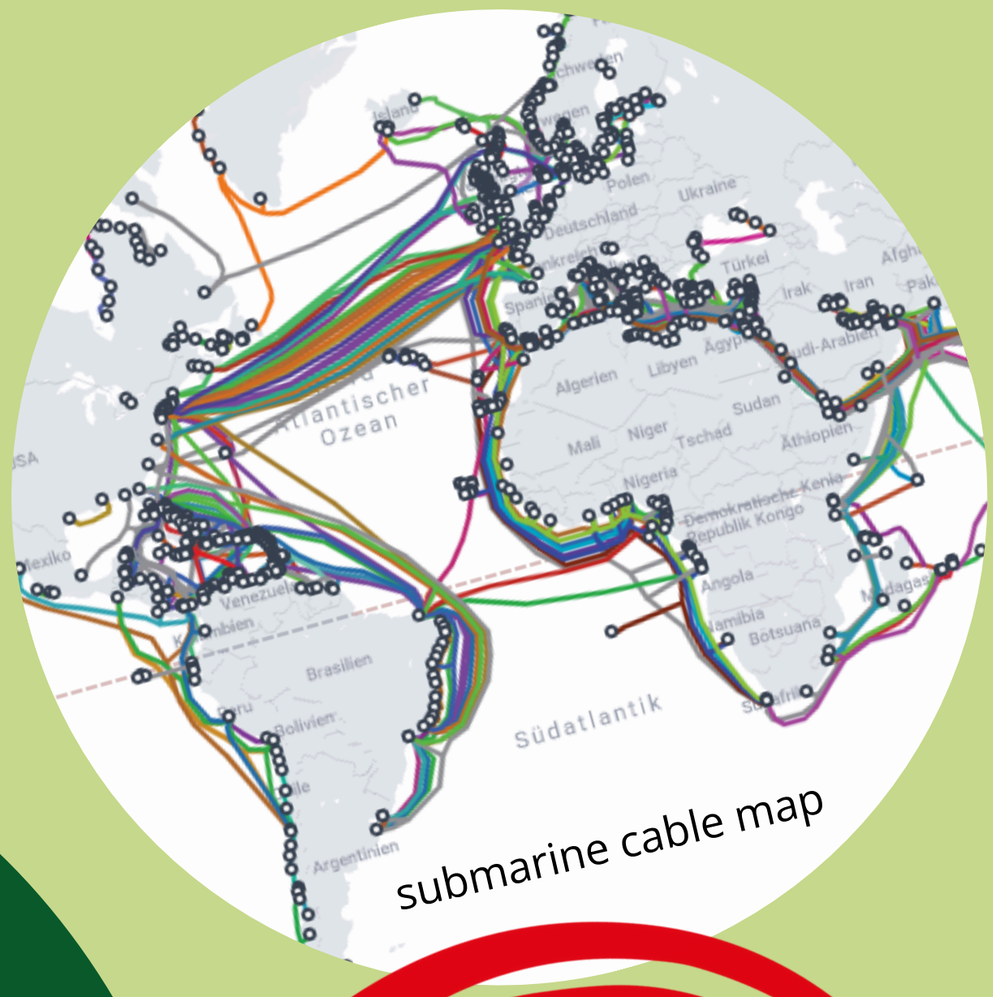
MAPPING DIGITAL TECHNOLOGY

SUBMARINE CABLES, DATA CENTRES & E-WASTE

Submarine Cable

A submarine cable is laid in the sea or in waterways. Usually these cables either carry electricity or are used for telecommunications. When you use the internet, information is usually sent through such cables.

As of early 2024, there are about **600 active and planned submarine cables**. This number is constantly changing as new cables are laid out and old ones are taken from the net.



submarine cable map

Use threads to show the cables!

Find out more about submarine cables:

Watch the short video about submarine cables.

Use the website about submarine cables to find out about how the Internet connects computers across the world.

TASK

Click on the cables to find out more about them.
Find the following and put threads on the map:

- a particularly long one
- a particularly short one
- one that is currently being constructed
- the one closest to your home country
- an area where there are a lot of cables

Submarine Cable Map

TeleGeography's comprehensive and regularly updated interactive map of the world's major submarine cable systems and landing stations.

submarinecablemap.com

https://www.submarinecablemap.com

submarine cable map

SCAN

video

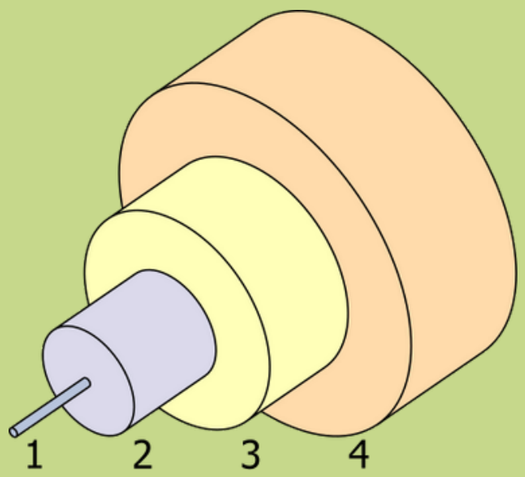


Diagram of a single mode (SM) optical fiber. 1.- Core 8-10 µm 2.- Cladding 125 µm 3.- Buffer 250 µm 4.- Jacket

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MAPPING DIGITAL TECHNOLOGY

SUBMARINE CABLES, DATA CENTRES & E-WASTE

Data centres and server farms

Imagine **data centers** as big digital warehouses where all our online files are stored. These centers need **lots of electricity (energy)** to keep our emails, videos, and games safe and cool. This energy often comes from fossil fuels like coal and natural gas, which release carbon dioxide (CO_2) and **make our planet warmer**.

Think of data centers as factories that produce **invisible pollution.** More people using the internet means we need even more data centers. It's like inviting more friends to a party – you need more space and energy!

Scientists are working to make **data centers "greener"** by using **wind and solar power**. We can also help by using the internet wisely and turning off devices when we are done.





TASK

- Use the **links below** to find out where major **data centres and server farms** are located **around the world.**

- Then take the **wooden cubes** provided and place them on the countries and continents that have the largest data centres and server farms.

Data centre map:

- https://www.datacentermap.com/
  You have to click "Explore Map".

Google also has data centers in various places. Find out where they are:

- https://www.google.com/about/datacenters/locations/

data centre map

SCAN

Google data centres







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MAPPING DIGITAL TECHNOLOGY

SUBMARINE CABLES, DATA CENTRES & E-WASTE

Global E-Waste

E-waste (electronic waste) includes anything with plugs, wires and electronic components. Common sources of e-waste include computers, mobile phones, televisions and all kinds of household appliances, from hair dryers to lamps and toys.

When broken or unwanted electronics are dumped in landfills, **toxic substances** can leach into soil and water. Electronics also contain **valuable non-renewable resources** such as gold, silver, copper, platinum, aluminium and cobalt.

In some places in Africa, people burn e-waste to get valuable metals like copper. But burning is a big problem! It makes **dangerous smoke** that can harm our planet and our health!

So it is very important to **dispose of e-waste correctly**!









global waste map

TASK

Look at the following link:
https://globalewaste.org/map/



- Find out which countries produce a lot of e-waste and which don't.
- Which European countries produce the most electronic waste? Which countries on other continents?
- Write the kilograms of e-waste per capita (=per person) on about **10 sticky notes** and find the countries on the map.
- Stick the notes to the appropriate countries **on the world map** and add some of the **e-waste samples** provided.



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MAPPING DIGITAL TECHNOLOGY

THINK ABOUT THE INTERNET

QUESTIONS FOR DISCUSSION

- How does the internet work in your home and in your town/village?

- Why is your signal sometimes very fast and sometimes very slow?

- Where can we find big server farms?

- Why are big server farms not good for our climate?

- Where can we find lots of submarine cables? Where just a few? Why?

- Why do you think some countries have better internet access than others?

- What are the drawbacks of a bad internet connection?

- Has your view of the digital network on the globe changed?

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