

# RENEWABLE ENGLISH

SAVING THE PLANET  
ONE LESSON AT A TIME

CITY + ENERGY  
BLE + HYDRO  
+ ELECTRONICS +  
MISSIONS + WATER  
+ HOUSEHOLD

PRINT + ELECTRONICS  
-FUELS + RENEWABLE  
SCIENCE + ELECTRONICS  
+ SOLAR + EMISSIONS  
TIES + CONSUMPTION

PERSON FOOTPRINT  
FOSSIL FUELS +  
WASTE + SCIENCE  
+ GEOTHERMAL +  
BARREL + RESOURCES



Pause



# LESSON 1: Electricity Consumption



# Objectives



Define and understand  
Carbon Footprints



Learn about  
electricity  
consumption  
at home



Learn where  
energy comes  
from



Think about how  
to reduce electricity  
consumption  
at home



Make a planet  
promise

# What is a Carbon Footprint?

The amount of CO<sub>2</sub> released into the atmosphere because of one's own energy use. This is called your "**carbon footprint.**"

The Environmental Protection Agency (EPA) says that largest **carbon footprints** are due to electricity electricity.





# What do we use?

Connect the picture with the word



Oven

Iron

Dishwasher



Kettle

TV



Smartphone

# What do we use?

Connect the picture with the word





# How much do we use?

What Wattage?



1100W

2200-3000W

2.5-5W



170W

2000/2200W

1050-1500W

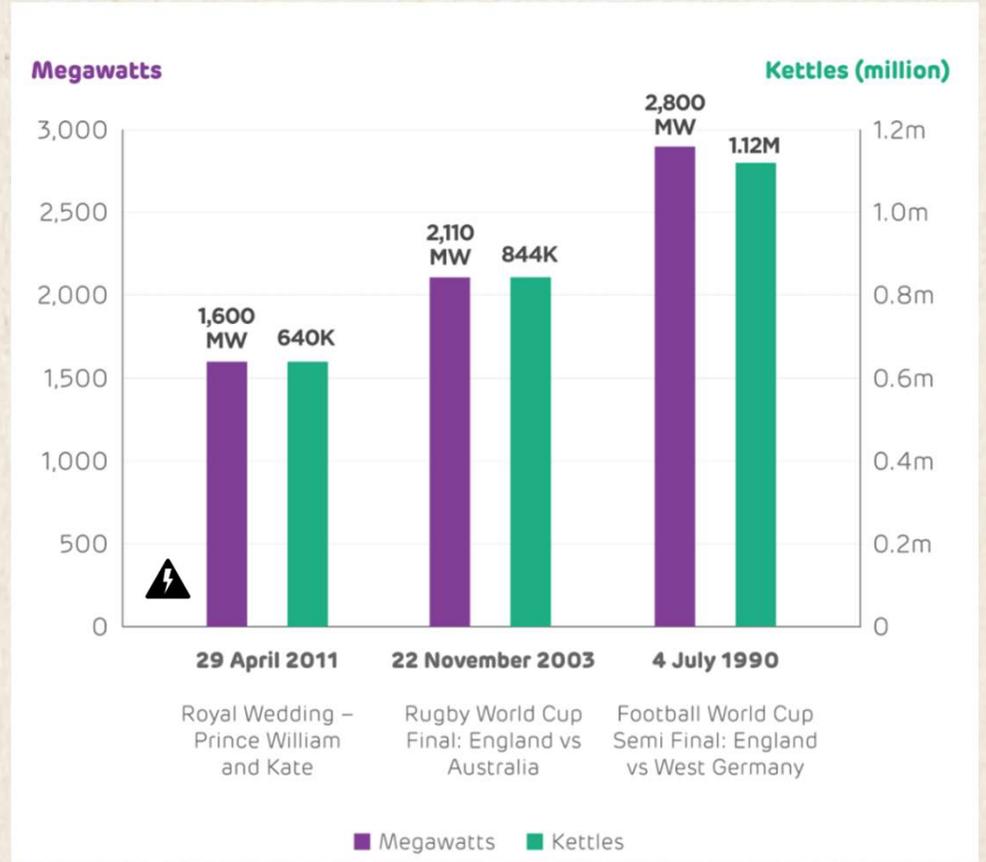
- What Wattage?



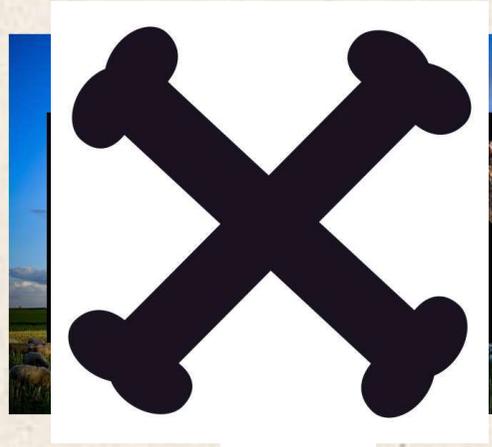
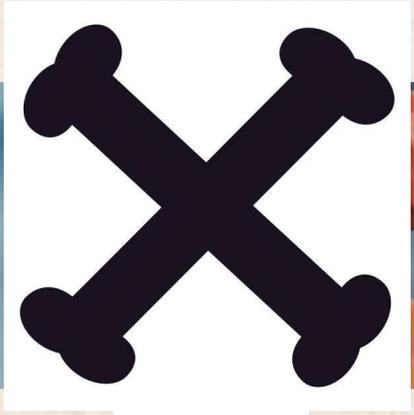
# Did you know?

Something called the **Kettle effect**, or **TV Pickup** sometimes means the UK need to “borrow” electricity from France.

This video goes into more detail.  
<https://youtu.be/slDAvewWfrA>



# Is it renewable?



# Co2 Emissions



Energy	Carbon Footprint (g CO <sub>2</sub> /kWh)
Wind	11
Coal	980
Natural gas	465
Nuclear	12
Solar	14 - 45
Hydro	7
Ocean	8
Geothermal	11.3 - 47
Biomass	43

Source: Research by NREL and BNL





# Where does it come from?



## Fossil fuels

Most of the UK's electricity is produced by **burning fossil fuels**, mainly natural gas (42%) and coal (9%). A very small amount is produced from other fuels (3.1%). The volume of electricity generated by coal and gas-fired power stations changes each year.



## Renewable energy

**Renewable technologies** use natural energy to make electricity. Fuel sources include wind, wave, marine, hydro, biomass and solar. It made up 24.5% of electricity generated in 2016 - this will rise as the UK aimed to meet its EU target of generating 30% of its electricity from renewable sources by 2020.

Read the full [Energy UK Article](#) here.

**Now for some questions**





# Questions



1) Which type of energy has the smallest carbon footprint?

**A: Wind**

**B: Coal**

**C: Hydro Electric**

2) In 2016 which type of energy produced most of the UK's energy?

**A: Nuclear**

**B: Fossil Fuel**

**C: Renewable**

3) In 2016 how much electricity was produced using renewable energy?

**A: 27.3%**

**B: 45.8%**

**C: 24.5%**

4) What was the target for 2020?

**A: 30%**

**B: 100%**

**C: 50%**



## Answers

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C: Hydro Electric

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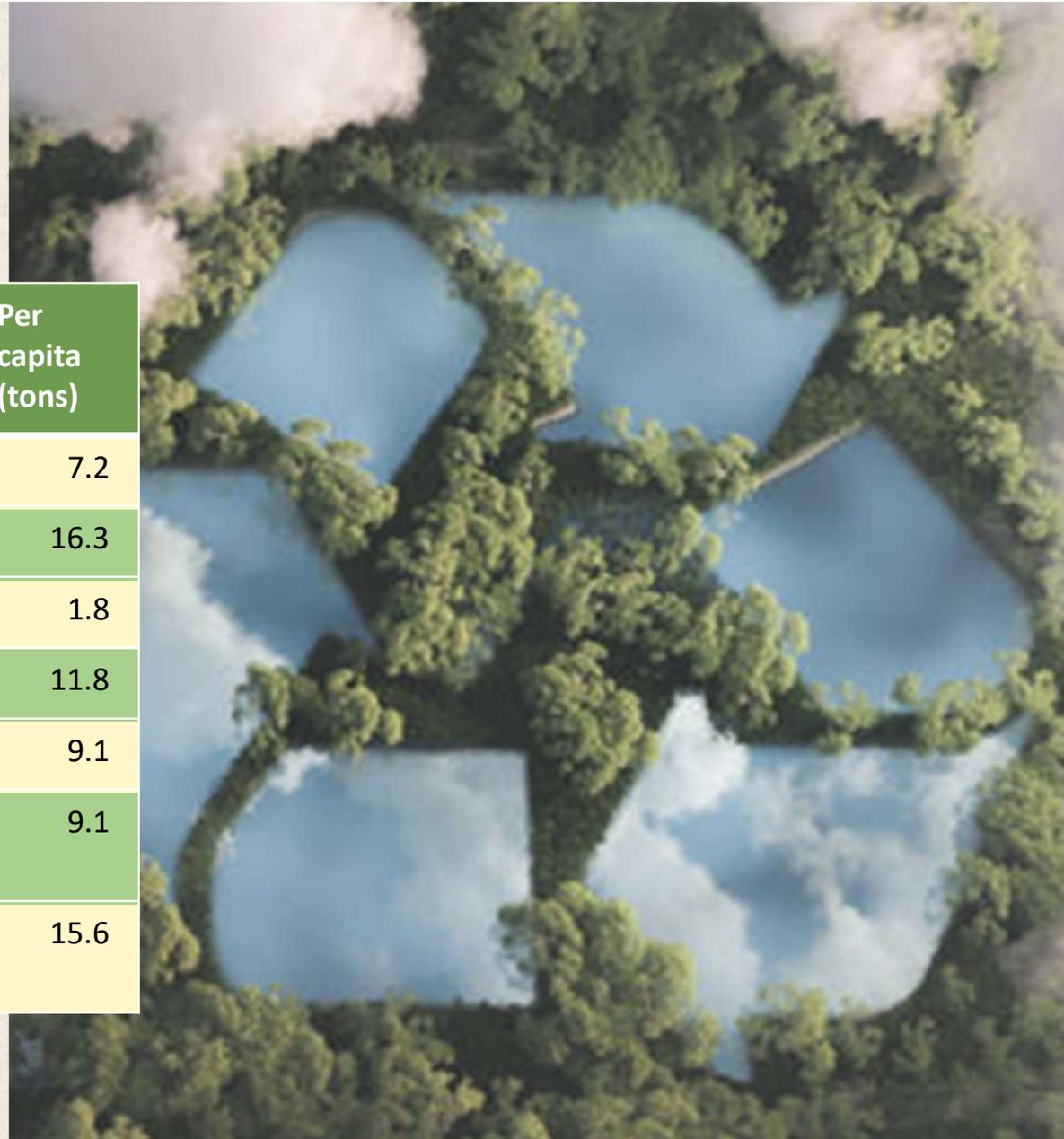
B: 100%

C: 50%

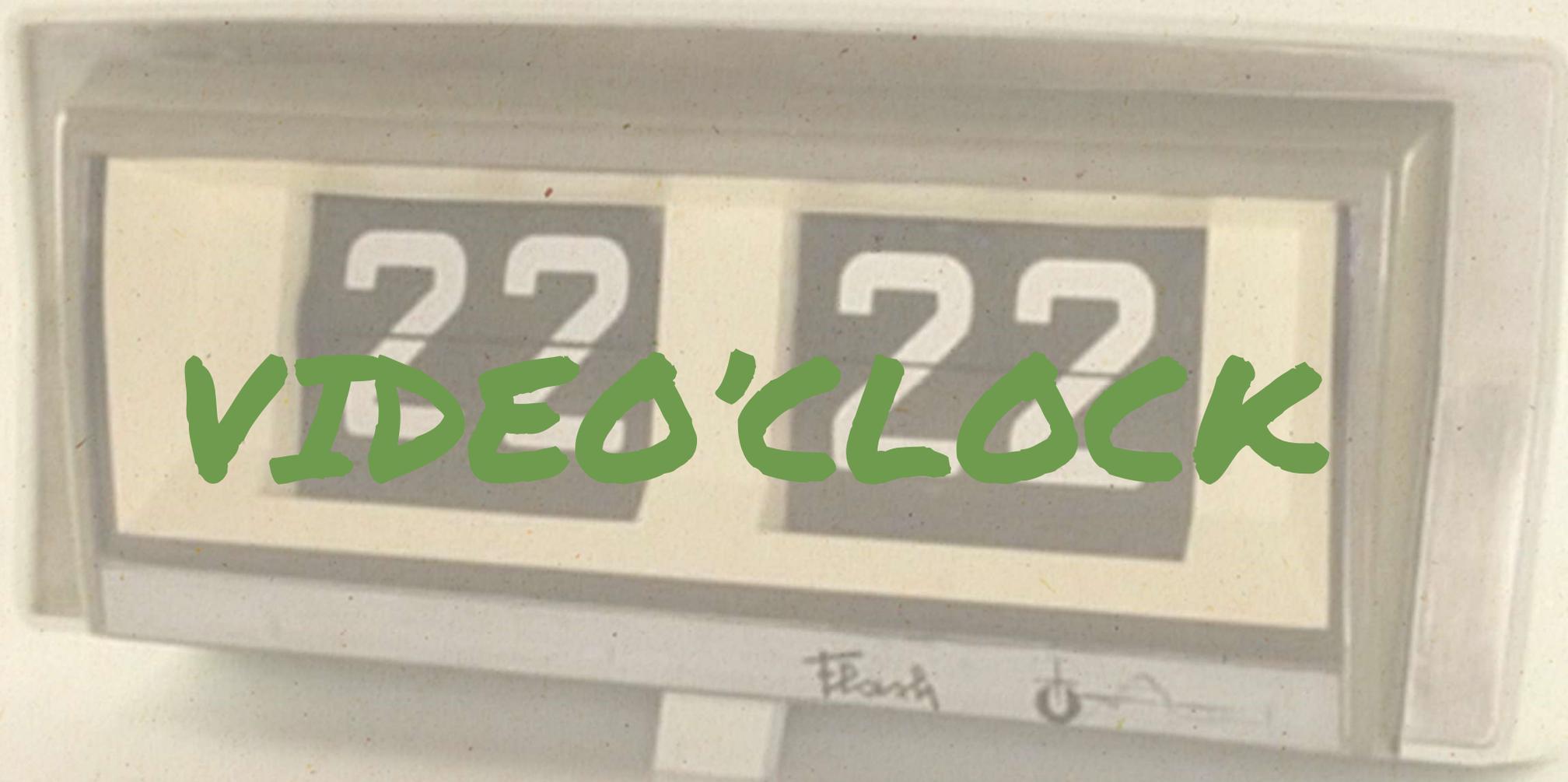
# What a waste!

COUNTRY	CO2 Emissions (tons)	Population	Per capita (tons)
1. CHINA	10,239,000,000	1,414,049,351	7.2
2. USA	5,269,000,000	323,015,995	16.3
3. INDIA	2,467,000,000	1,324,517,249	1.8
4. RUSSIA	1,711,000,000	145,275,383	11.8
5. JAPAN	1,164,000,000	127,763,265	9.1
6. GERMANY	752,000,000	82,193,768	9.1
10. CANADA	567,000,000	36,382,944	15.6

- Source: Union of Concerned scientists and worldometer



# VIDEO'CLOCK



# Before we continue..

Let's look at those numbers.

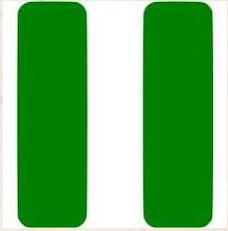
10,000,000,000 That's 10 billion.

I'm going to check this out in seconds. 1 billion seconds is Almost 31 years and 8 months, so 10 billion seconds is 317 years and 6 months. A long time.

Before we continue think about this.... 1 barbecue creates about 500g of Co2 emissions. Therefore 2000 make 1 ton.

So, it would take me and 1999 friends until the year 2338 to create as much Co2 as China did in one year, if we burnt 1 barbecue a second.

# Questions



1) According to Harry's calculations how long would it take him and his 1,999 friends to make **10bn** tons of **CO2 emissions**? If they each made 1 barbecue a second.

**OVER 317 YEARS**

2) Which country produces the most **CO2 emissions**?

**CHINA**

3) Which two countries have the **largest** populations?

**CHINA AND INDIA**

4) Which country creates the most CO2 emissions **per capita** (person)?

**USA**





## Zeros to Heroes?

- In 2017, investments in renewable energy amounted to US\$279.8 billion worldwide
- US\$126.6 billion or 45% of the global investments came from China.
- China has the world's largest hydroelectric dam.
- China produces more solar energy than any other country.

Source: Frankfurt School – UNEP Collaborating Centre for Climate & Sustainable Energy Finance (2018).  
*Global Trends in Renewable Energy Investment 2018*



## Top Tips

There are many ways we can adjust our **behaviour**. Here are just a few.

1. Turn off **unnecessary** lights
2. Unplug **unused** electronics
3. Hang dry your laundry
4. Towel dry your hair
5. **Defrost** overnight not in the microwave

PROJECT TIME



# What can I do?



Think of 5 quick and easy ways to save electricity around the home.



Make a poster

# Fast and easy energy saving tips

1

Turn off lights when not necessary



Unplug chargers after charging

2



3

Always cook with a lid

Switch off appliances in stand-by mode

4



5

Air dry laundry

A close-up photograph of a person's hand holding a small, realistic globe of the Earth. The globe is positioned in the center-right of the frame, showing the Americas and parts of Europe and Africa. The hand is cupped around the globe, with fingers visible on the right side. The background is dark and out of focus, with some light streaks on the left side. The overall mood is one of care and responsibility.

## MY PLANET PROMISE

I, Harry Waters, promise to turn off all the lights when I leave a room and not leave my computer on standby at night, because I know there is no planet B