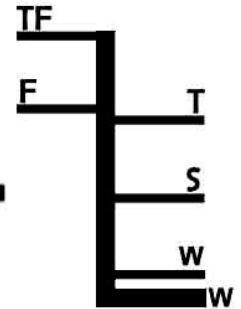
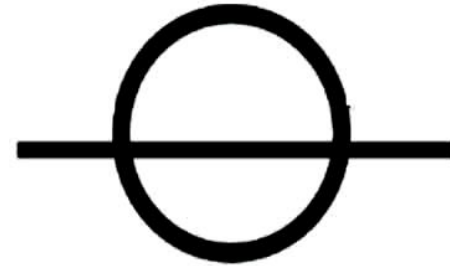
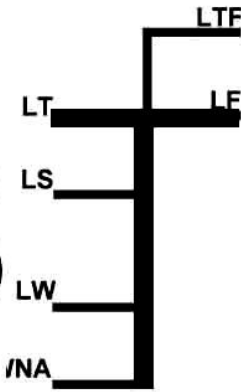


# BRIS



# TIDES ?

**BRISTOL**  
2015 EUROPEAN  
GREEN CAPITAL  
**LOVES TIDES**



# Proxi and Perri Bench Mark Scores

Theme	Proxi and Perri Benchmark Score out of 10	How can we raise the score?
Heritage	9	?
Water	4	?
Biodiversity	6	?
<b>Energy</b>	<b>9</b>	<b>?</b>
Hydro-poetics	5	?
Future	7.5	?



# Energy

We all need energy. Where does it come from?

Users	How do they get it ?	Where does it come from ?	What made it ?
Plants			
Insects			
Fish			
Animals			
You			



# Energy

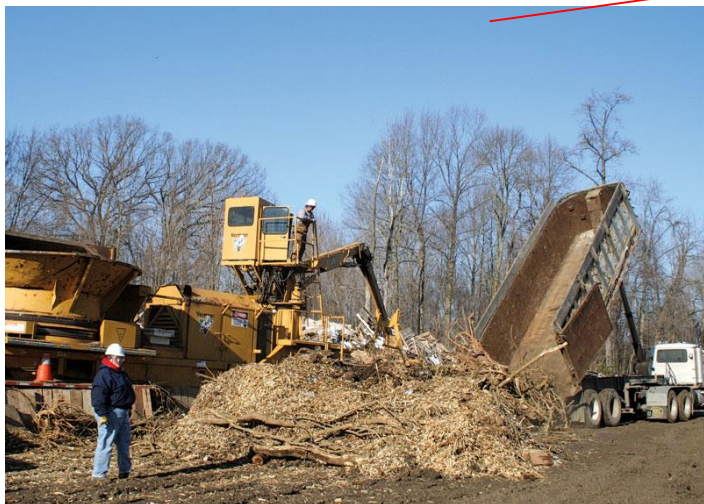
We all need energy. Where does it come from?

Users	How do they get it ?	Where does it come from ?	What made it ?
Television			
Warm Radiator			
Car			
Mobile Phone			
Calculator			





Oil      Coal      Gas      Nuclear      Bio Mass







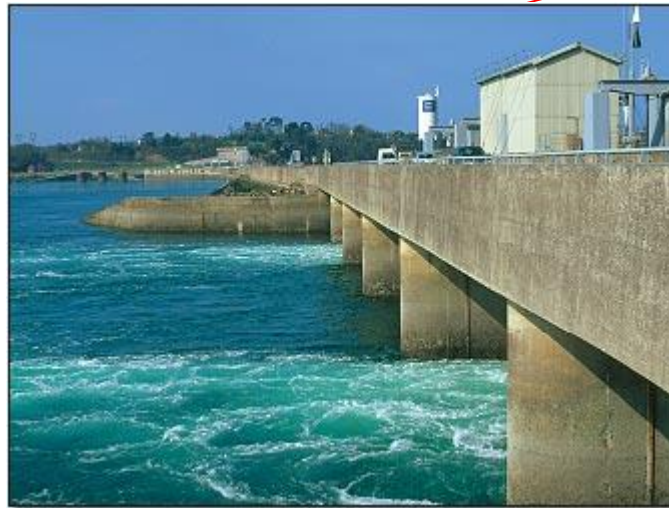
Solar

Wind

Wave

Hydro

Tidal



# Energy

We all need energy. Where does it come from?

Energy types	How do we get that ?	Will it run out?	What made it ?
Coal			
Gas			
Oil			
Bio Mass			
Nuclear			
Solar			
Wind			
Hydro			
Tidal			



# Energy

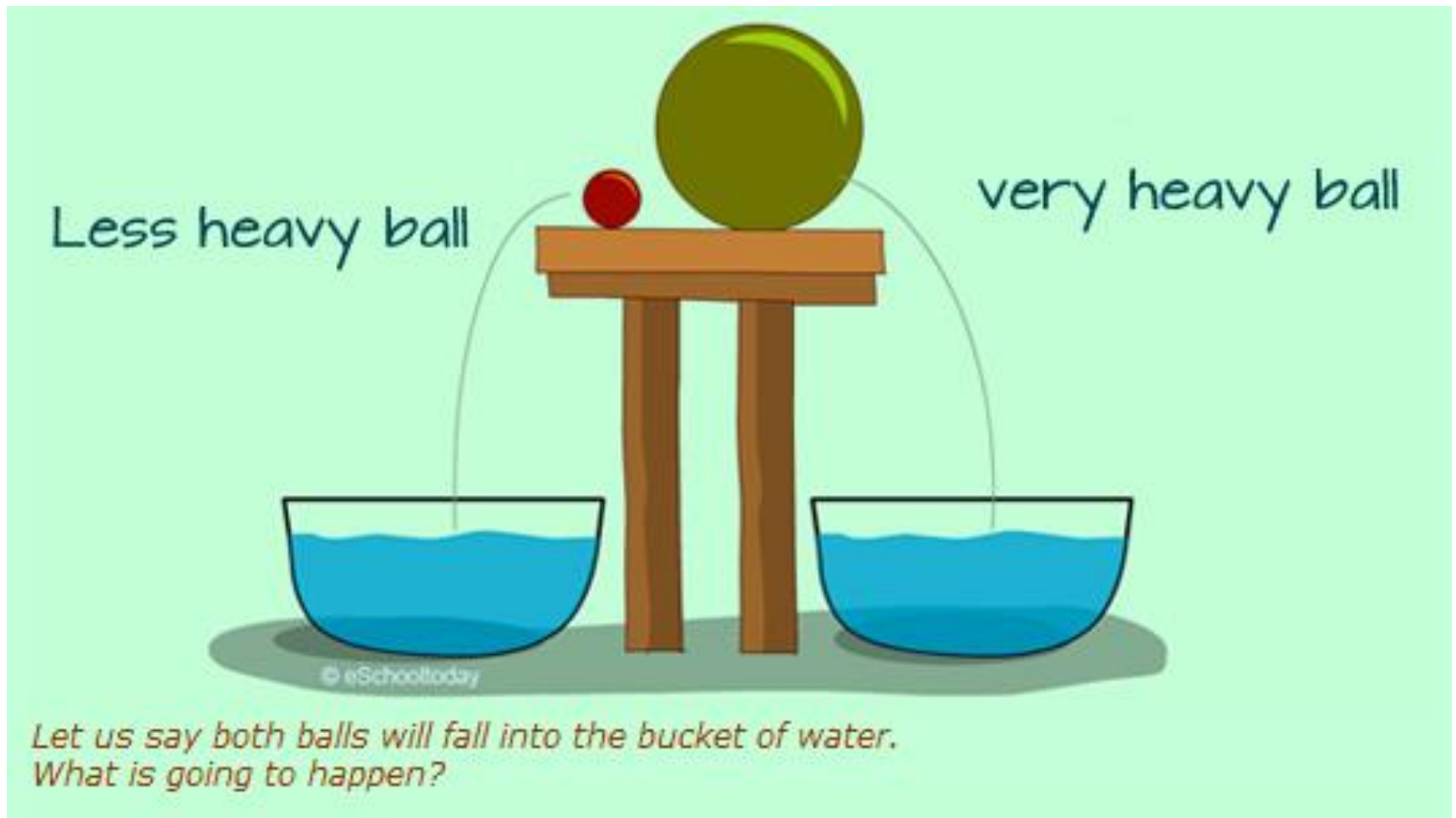
We all need energy. Where does it come from?

Energy types	How do we get that ?	Will it run out?	What made it ?
Coal	From the ground	Yes	The sun by growing plants
Gas	From the ground	Yes	The sun by growing plants
Oil	From the ground	Yes	The sun by growing plants
Bio Mass	Grow it /gather it	No	The sun
Nuclear	Uranium	Yes	Radio active metal
Nuclear	Atomic Fusion	No	Nuclear reaction
Solar	Solar Panels	No	The sun
Wind	Wind Mills	No	The wind / the sun
Hydro	Dams	No	The water cycle / the sun
Tidal	Barrages / Turbines	No	The Moon





# Potential Energy



# Kinetic Energy



*You will notice that the smaller ball makes a little splash as it falls into the bucket. The heavier ball makes a very big splash. Why?*

# Energy- Explain these key words

Fossil Fuel

Renewable Energy

Kinetic Energy

Potential Energy

Green Energy

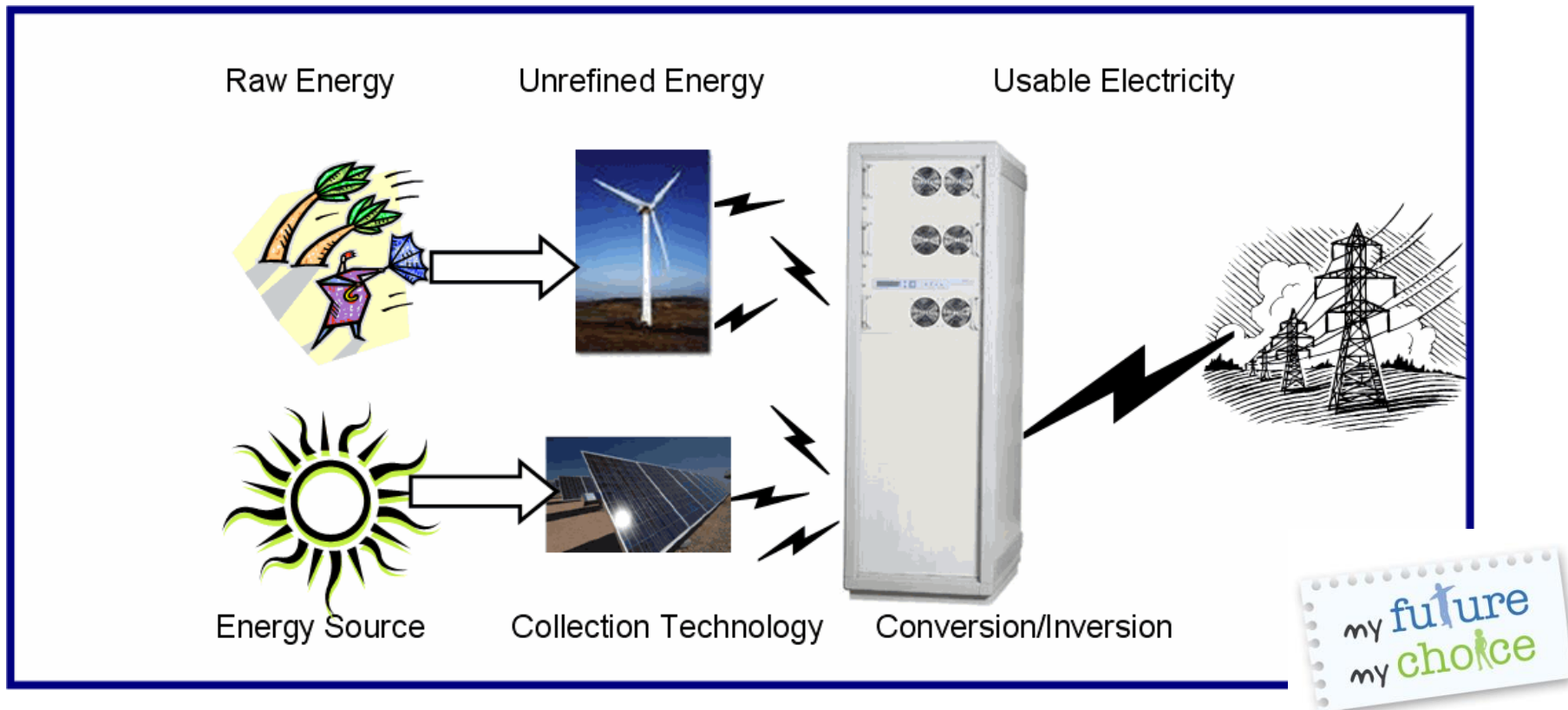


# Energy- can be converted from one form into another



The potential energy in wood is released to create heat

You can use the heat to boil water and the steam will power a turbine which turns a generator which makes electricity which can be used to heat your house.



# Energy- Tidal Energy

Our coast faces the direction of the tidal currents which are pulled east and west across the Atlantic Ocean by the gravity of the moon.



West



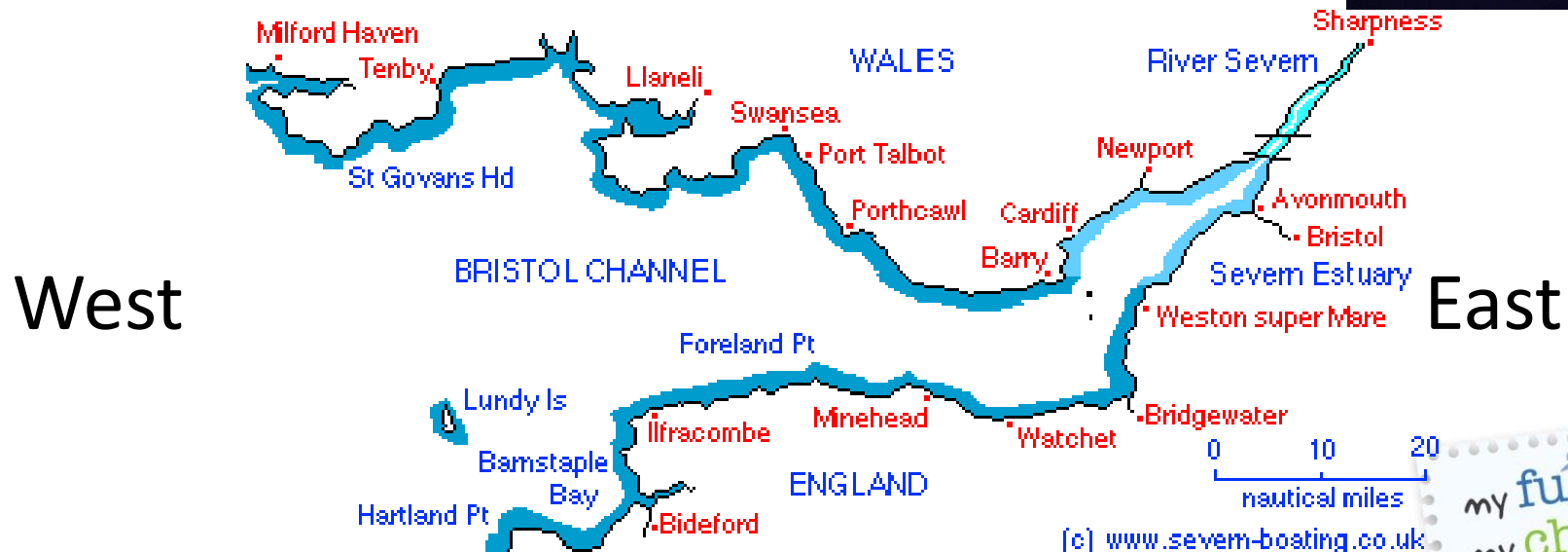
East





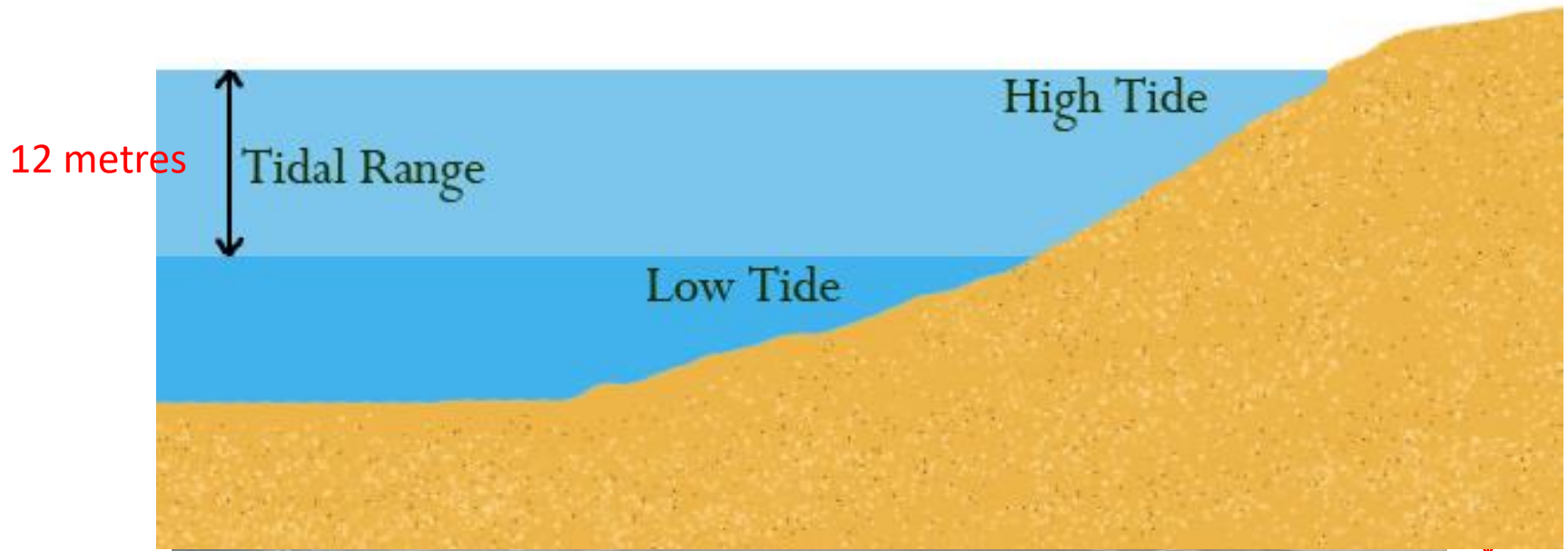
# Energy- Tidal Energy

The water is squeezed up into The Bristol Channel and Severn Estuary and the Avon – it has got nowhere to go so it rises upwards.



# Tidal Energy

A normal tide in Bristol would be about 12m  
The biggest tides are nearly 15m



# Tidal Energy – Dams and Barrages

Atlantic Ocean



Bristol

# Tidal Energy – Lagoons



High Tide  
Lagoon full



Tide goes down.  
Leaving water up  
high = Potential  
energy



Energy generated  
Low tide – no energy  
to harvest



High Tide



Energy Harvested



High Tide and  
Lagoon full



Cycle repeats twice a day



# Tidal Energy – Tidal Stream Turbines



Free standing stream Turbines allow water, fish, ships to pass.



# Tidal Energy – How to Raise the Score

To raise the Bristol Loves Tides score from 9 to 10 is going to be difficult.

Proxi and Peri want to see if the young people of Bristol know about the energy of the tides and have ideas about how to use it well.

Can you research how tidal energy could be harvested?

What are the advantages and disadvantages of different methods of harvesting tidal energy?

Do you have ideas about what is best for Bristol?

**Will the tides be used, misused or abused?**

**Does Bristol Love its Tides?**



# Research

- Look at the different ways of harnessing power from tidal currents
- Look at maps of the area
- What method would you use?
- Where would you put what?

Dam, barrage or a lagoon?



# What is good and bad about different methods of making tidal energy

Advantages	Disadvantages



# Tidal Energy – Feed Back

## **Our group thinks ...**

The best method of harvesting raw energy from the tides  
is .....

Because .....

The best place to do this near Bristol is .....

See our map.

Because .....

## **Or ...**

Our group thinks we should leave the rivers and tides  
alone and not harvest the energy

Because .....



# Activity and challenges to take home

- questionnaire – friends/family to gather opinion in the region
- Visit a place with friends/family where tidal energy could be harvested