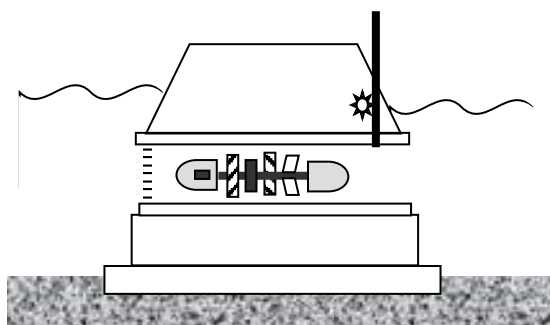


# Tidal



Tidal power uses the energy from the moving tides to generate electricity. Tidal power is considered to be a clean energy resource but it does have some environmental impact. There are also limited sites where tidal energy can be harnessed efficiently.



## Labels

- Tide movement
- Barrage
- Turbine
- Generator
- Sluices
- Embankment

## Fact File

1. Is the resource renewable?
2. % of world's electricity generated using coal =
3. Estimated amount remaining (years) =
4. Does the energy originate from the Sun?

## Research Ideas

- Describe how the tides are caused.
- Explain how tidal energy is used to generate electricity.
- What are the advantages of using tidal energy as a resource?
- What environmental problems are caused by tidal barrages?
- List examples of places that tidal barrages can be located.

## Advanced Research

- Why is the use of tidal barriers limited?
- Explain why the investment costs of a tidal barrage are prohibitive.
- Discuss the efficiency of tidal power.
- Describe some of the different designs of tidal generators.
- What effect can tidal barrages have on water quality?

## Presentation Ideas

- Create a wall display with diagrams and facts.
- Give a talk to your class.
- Write and perform a poem, play or song.
- Tell a story.
- Create a Prezi or PowerPoint.
- ...

## Internet Search Terms

- "tides are caused"
- "tidal energy" + electricity
- "tidal energy" + advantages
- "tidal energy" + problems
- "tidal energy" + locations

## Webpages

*Energy is a controversial issue – beware of misleading info.*

- [en.wikipedia.org/wiki/Tidal\\_power](http://en.wikipedia.org/wiki/Tidal_power)
- [kids.kiddle.co/Tidal\\_energy](http://kids.kiddle.co/Tidal_energy)
- [en.wikipedia.org/wiki/Renewable\\_energy](http://en.wikipedia.org/wiki/Renewable_energy)
- [www.youtube.com/watch?v=VkTRcTyDSyk](http://www.youtube.com/watch?v=VkTRcTyDSyk)

# Renewable or Non-Renewable

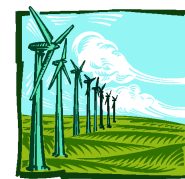


Organise the information below into three columns, one for the energy source, one for the picture that represents it and the last saying whether the resource is *renewable* or *non-renewable*.

*If you have the Word version of this resource, you may work digitally.*

*Otherwise, copy or cut and paste the properties into a table in your book.*

Coal



Wave

Solar



Renewable

Nuclear

Renewable

Oil



Renewable

Wind

Renewable

Hydro



Non-Renewable



Non-Renewable

Non-Renewable

# Burning Food Samples



**Aim** To see which food sample stores the most energy.

**Prediction** Which food do you think will give out most heat? Why?

**Apparatus**

**Method**

1. Measure the mass of the first food sample and place it on a needle mounted on a cork.
2. Place 40ml of water in a boiling tube and clamp it so the base is about 6cm above the safety mat. Use water that has been left to reach room temperature.
3. Measure the temperature of the water.
4. Light the food sample with a Bunsen (away from the boiling tube). Immediately place the burning food under the tube.
5. Record the highest temperature reached. Make sure you are measuring the temperature of the water rather than the glass.
6. Measure the mass of the burnt remains.
7. Repeat using fresh water of the same starting temperature and a different food sample of about the same mass.

**Diagram**

**Results**

Food sample	Temperature (°C)			Mass (g)		
	Initial	Final	Change	Initial	Final	Change

**Conclusion** What do the results suggest? Was this as you predicted?

**Evaluation** It can be difficult to get meaningful results in this experiment. What are the problems?

# How do Living Things Use Energy?



## How do Living Things use Energy?

*source**joules**calorie**measured**metre**lift**apple*

Food is the \_\_\_\_\_ of energy for animals. Energy is \_\_\_\_\_ in units called \_\_\_\_\_. One joule of energy is used when a small \_\_\_\_\_ is lifted through one \_\_\_\_\_. The energy in food is often given in calories. Each food \_\_\_\_\_ is the same as about 4187 joules, so one calorie should be enough to \_\_\_\_\_ the apple over 4km.

## How do Living Things use Energy?

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