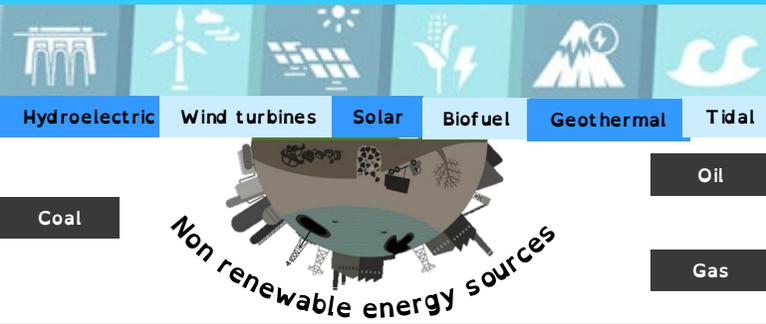


## Renewable energy sources



These are all fossil fuels. They are over a million years old and as a result they are depleted faster than new ones are generated

**FSC**

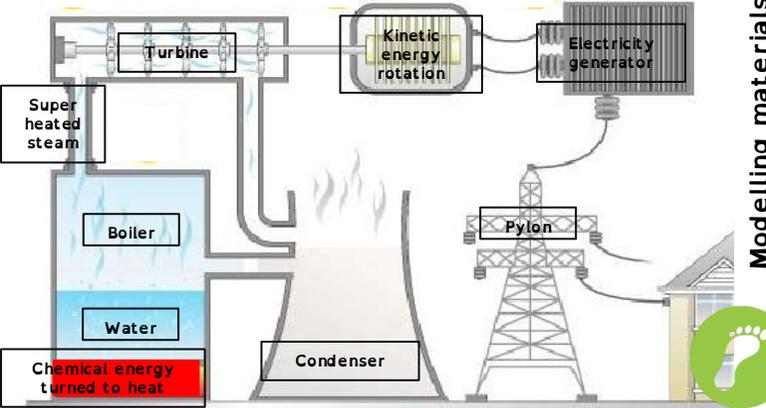
The Forestry Stewardship Council is an organisation that promotes responsible management of the world's forests

Items that display the green dot mean they have paid a contribution towards a packaging recovery scheme

The Tidyman is an icon found on product packaging which encourages people to dispose of it after use. Also used in the keep Britain tidy campaign

The Mobius loop is the widest used recycling symbol meaning you can recycle it.

## Generating energy through fossil fuels



## Working properties

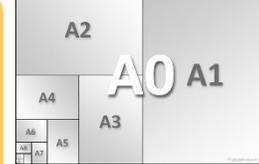
Consider the different properties when selecting your material

- Strength**: The amount of load or compression it can withstand
- Elasticity**: Will it return to shape after being compressed?
- Toughness**: Absorption of energy through shock before splitting
- Hardness**: How resistant is the surface? Will it survive scratches, knocks and abrasion?
- Malleability**: Ability to deform under compression without cracking, splitting or tearing
- Ductility**: Ability to be stretched out or drawn into a thin strand without snapping

Modelling materials

String, Styrofoam, corrugated card, wire, matchsticks, polypropylene, straws, paper, lollipop sticks, tape, plasticine, calico, polymorph

# ECO HOTEL



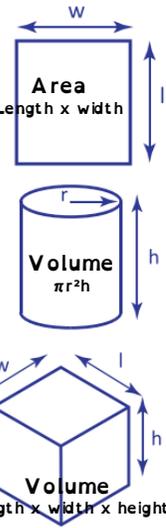
## Paper

Stock forms are the standard sizes materials are produced in. Knowing what shapes and sizes are available makes design, manufacture and purchasing easier.

Paper comes in standard size sheets. The biggest is A0, then halving each time to A1, A2, A3 all the way to A6. It also comes in different weights measured in grams per square metre (GSM). Ply is the thickness of paper in layers such as toilet roll.

## Paper making process

1. Trees are felled
2. Debarking and chipping. Bark can be used as biomass
3. Chips cooked with water and additives, creating pulp
4. Pulp poured over mesh, liquid drained and pressed by rollers. Adhesives, dyes or additives can be put in at this stage.



	Positives	Negatives
<b>Nuclear power</b>	Non finite-last 1000 years	Fossil fuel-uranium
	Low levels of CO2 produced - low carbon footprint	Radioactive bi-product
	Provides significant amount of the world's electricity	Reactors expensive to build
	Reliable and cost effective	Hard to find suitable location to build
	Does not contribute to global warming	Thermal pollution form waste water affects marine life

### Harvesting materials

Mining  
Deforestation  
Drilling  
Farming

## Advantages-Solar-Disadvantages

Only harnessed when day/sunny  
Expensive to manufacture  
Does not match power stations  
Large areas needed  
Used to charge batteries but need space for these

Price is dropping to  
Fitted easily  
Grants sometimes available  
Reduces owners electricity bill  
Reduces reliance on fossil fuels  
Environmentally friendly

## Advantages-Wind-Disadvantages

No power if too much or too little wind  
Harms wildlife-particularly birds  
Eyesore  
Can be noisy to those nearby  
Visual impact on the landscape

Relatively cheap  
No waste produced  
No greenhouse gases

# The 6Rs

Use the Six Rs to make your own designs sustainable and to evaluate the environmental impact of other products.

### REPAIR

Can it be repaired easily and cheaply?  
Can parts be replaced rather than the whole product becoming unusable?

### REUSE

Can the product be used in a different way? Can parts be re-used as something? Is it easy to dismantle for this?

### REFUSE

Refuse something that is not needed  
Refuse finite materials and unsustainable design  
Refuse one time use

### REDUCE

Reduce amount of materials used  
Reduce energy used in manufacture  
Reduce waste and packaging needed

### RETHINK

Is it needed?  
Can it be made to be more durable  
Can it be made easier to recycle?

### RECYCLE

Use recycled materials  
Recycle after use  
Parts can be separated easily