

# THE DIFFERENCE THAT ETHICAL TRADING MAKES.



KEY  
symbols



**Sweat shops** :- is a name used to describe factories that mistreat their workers and do not follow any employment laws or standards. The following is list of key issues.

Preventing sweat shops is one on the aims of fair and ethical trading as well as providing fair prices for individual farmers and groups of farmers

- A "sweatshop" is a factory that violates labour & safety laws.
- Sweatshops often have poor working conditions, unfair wages, unreasonable hours, child labour, and a lack of benefits for workers. Take a stand and protest: Ask your school to make its apparel under fair conditions.
- In developing countries, an estimated 168 million children ages 5 to 14 are forced to work.
- Products that commonly come from sweatshops are garments, cotton, bricks, cocoa, and coffee.
- Sweatshops do not alleviate poverty. The people who are forced to work must spend the majority of their small pay on food for their families to survive.
- Child labour is common, the majority of child labourers are found in Asia and the Pacific. Sub-Saharan Africa has the highest prevalence, with one in five children in child labour.

Use these video links for some examples

Ethical trading / Fair trade explained

Fair Trade explained in under 2 minutes.

<https://www.youtube.com/watch?v=8pklW30EJs8>

**Bangladesh an example - Why is fair trade important**

<https://www.youtube.com/watch?v=XU6pwiSTMs>

[o](#)

Life inside the Horrific, Unregulated SweatShops of Bangladesh : Inhuman Conditions

Other ethical issues – research & bullet point

- Animal protection
- Rain forest and manage forests
- pollution reduction
- Sustainable material use



Animal Welfare



Rainforest Alliance



Carbon Footprint

**Question**

**discuss the Key issues of fair trade (8 Marks)**

I think fair trade is a good idea because. firstly It helps to .....  
.....

Secondly another key reason is .....  
.....

this means that .....

Thirdly .....

Leading to.....

In conclusion Fa\_\_\_\_\_Tra\_\_\_\_\_ is a \_\_\_\_\_ idea which has benefits

This means that.....  
.....  
.....

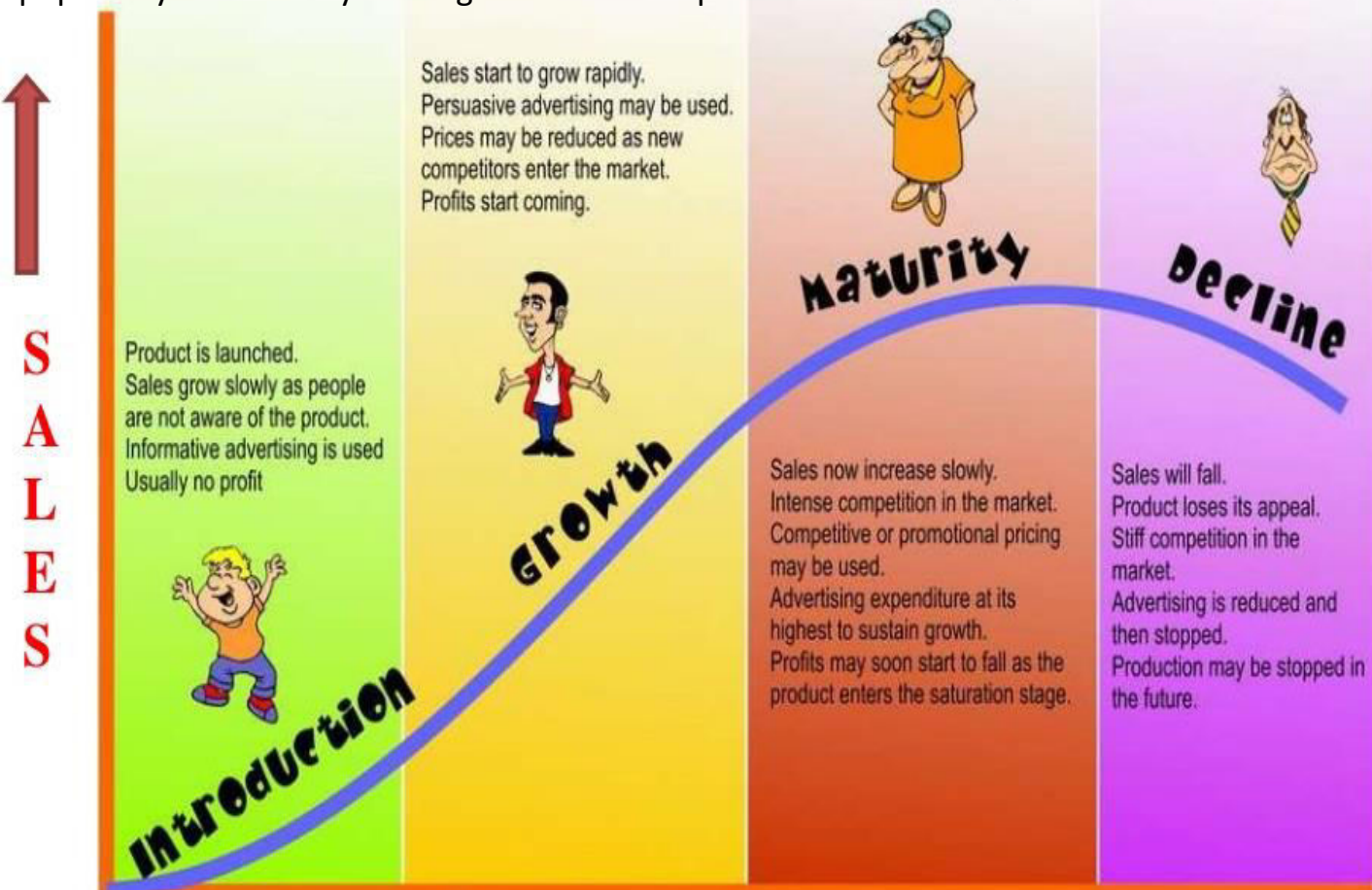
**Use connectives** - Further more, the impact of this, this results in , this can be seen ,  
leading to, creating, so that, in order to

**Key points table below** – how can you lean this?  
Make a mind map ,read cover re – write , plan a paragraphed model answer

| <b><u>Drawbacks</u></b><br><b>of ethical or fair trade</b>              | <b><u>Benefits</u></b><br><b>of ethical or fair trade</b>   |
|---|---|
| <b>point</b>  | <b>explanation</b>  |
| Poor pay (or no pay - slavery)  | Better pay = healthier happier workers who are more efficient<br>Resulting in better productivity and profit            |
| No rights - to complain or challenge the employer                       | Workers can bring ideas that can benefit the company and productivity   |
| Dangerous working conditions , no safety rules are followed             | Safe working conditions means workers have less illness which will improve productivity                                 |
| Very long working hours with few or no breaks (sometimes 7 days a week) | Reduced hours create healthier happier workers who are more efficient. Resulting in better productivity and profit      |
| Child labour - which also prevents education / schools.                 | Children that are educated will provide more skilful workers in the future. Resulting in better productivity and profit |
| No medical care   | Healthier happier workers who are more efficient<br>Resulting in better productivity and profit                         |
| No education or training  | Better trained workers are more efficient and can contribute ideas for the benefit of the company.                      |

Activity : Read and make note / diagrams / mind maps / Flash cards:

Products are introduced, grow in popularity, become less competitive and decline in popularity so that they no longer sell or make profit



## Things that drive new products

### **Technology Push**

New science and engineering can make new and better products with more functions.

### **Market pull**

Fashions change over time and customers want the latest styles & features in products.

Fashion often looks to trends & styles from the past to create new products

### **Planned obsolescence**

Companies now plan to make products that only last for a limited time so that they can produce and sell more products. This is bad for the environment because.

- Wastes more material than is really needed
- Uses more energy than is needed
- Creates more packaging
- Creates more rubbish for land fill

Task: ( Using PEE points and explanations)

Using mobile phones as an example explain why phones are soon replaced by their owners

.....

.....

Why are models replaced by companies

.....

.....

Describe what happens in each stage of the sales life cycle

.....

.....

Give reasons why products decline in popularity

.....

.....

Explain market pull and technology push with an example

.....

.....

Why is planned obsolescence bad for the environment? Give at least 3 explained examples

.....

.....



**Sustainability & Environmental concerns 2a ) Product manufacturing life cycle**

Task: Make a bullet point list of facts you will need to remember

Plastics and metals use the earth's resources in their production. If these materials are not reused or recycled, the planet will run out of them. There is a limited amount of the ores (rocks or minerals) that make metals, and a limited amount of oil from which most plastics are made. If trees are not replanted as quickly as they are felled, we will run out of timber. A material is said to be sustainable if it can be replaced continuously, or if it can be recycled or reused indefinitely.

- In the life cycle of a product, the materials need to be:
- harvested from forests (timber) or extracted from the ground (oil and ore)
  - transported to a place of processing
  - transported to a place of manufacture
  - transported to the consumer
  - transported to a place of disposal, reuse or recycling.

Each of these stages can use huge amounts of energy, causing pollution. One way to reduce the consumption of energy is to process materials and manufacture products close to the source of the material.

The Diagrams **A, B and C** show the life cycle of materials, and the possibilities for making them sustainable.

Less transport = less fuel = less pollution & a lower carbon foot print  
So for these reasons having sources and factories closer together helps  
Finding sources & manufacturing in the same country products are sold is better

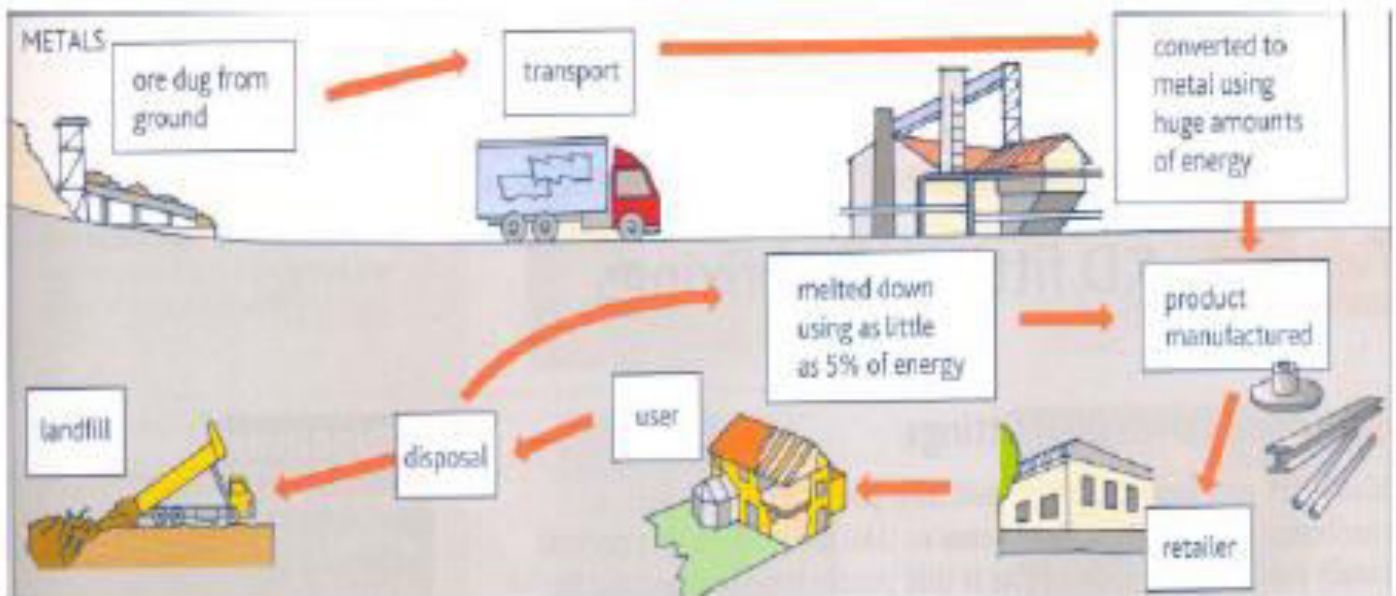
**The Life Cycle of Wood**



Task: You will need to be able to draw simple versions of these 3 cycles so.....

- Can you simplify and re draw these manufacturing life cycles.
- Can you list the main stages for each material (are they similar).
- Can you explain ways to improve sustainability (6 R's).
- Explain why keeping all the stages nearer to each other would reduce pollution.

## The Life Cycle of Metals



## The Life Cycle of Plastics



Q6 (d)

Evaluate how designers can lessen the impact on our environment when designing new plastic products made from thermoforming or thermoset plastic  
[8]marks

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Plastics and the environment

How to minimise impact – key points and explanations you should know

Apply the **6 “R”s**

- ☐ Choose sustainable materials where possible (bio plastic) or more easily recyclable plastic. So that plastics do not get into the environment and food chain **Rethink**
- ☐ **Reduce** the use of crude oil – because it poisonous to life and Finite + adds to pollution
- ☐ Use Biodegradable & Bio plastic so that it Reduces impact on wild life because it breaks down quickly **Rethink**
- ☐ Minimise waste in the process for example reducing the weight or size . **Reduce** the amount of plastic used in each products or **Recycle** unused or waste parts to make more parts so that
- ☐ Plan the process to **Reduce** energy needed & less pollution is needed (carbon foot print)
- ☐ **Rethink** Modify or change the design to reduce the amount off plastic or energy used.
- ☐ Design the product to have a secondary use (**Re use**) in order to extend its useful life.
- ☐ **Refuse** to use oil based plastic at all which will save resources and reduce pollution
- ☐ Design products to be **Repaired** so they will be used for longer which will save resources and reduce pollution

### Revision tasks

To revise the key point You can use

- Read
- Cover
- Repeat or re-write

And / Or

Plan and re write a model answer



Eco friendly and recycled products have symbols printed on them; labels on these products indicate the way they are manufactured and what processes they have undergone to bring out the final product. Know more about them:

**1 Mobius Loop**

This indicates that the product can be recycled but not necessarily made from recycled materials.

**2 Mobius Loop with Percentage**

This indicates how much of the product is made from recycled materials.

**3 Tidyman Symbol**

Implies that you should dispose of the product carefully. Do not litter.

**4a Green Dot**

indicating that the producer has made a financial contribution towards the recovery and recycling of packaging material. NOT that it can be recycled

**4b Green Seal**

A symbol used to show that a product has been produced in an eco friendly manner from recycled material.

**5 Glass**

This symbol indicates to recycle glass in bottle banks.

**6 Aluminium**

This symbol indicates that the product is made from recyclable aluminium.

**7 Steel**

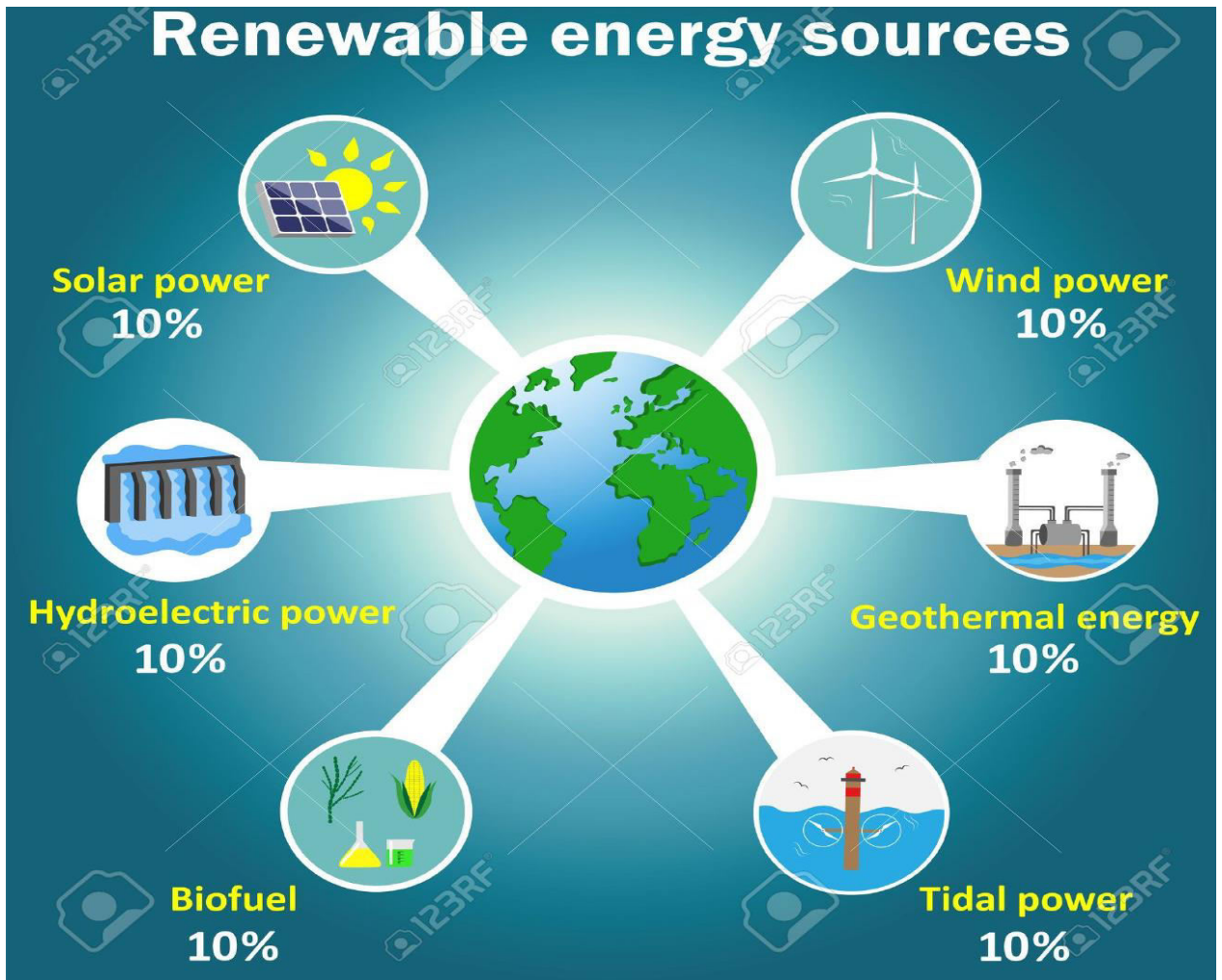
This symbol indicates that the product is made from recyclable steel.

**Tasks:**

**Can you cover the information and explain all of these symbols**

**Try Read cover repeat then test yourself**





Task1 These sources are not all reliable

1) Explain / identify where there might be problems with these energy sources.....

2) Put them in order of most reliable

These will help the environment by

Reducing the consumption of .....

Reducing the production of .....

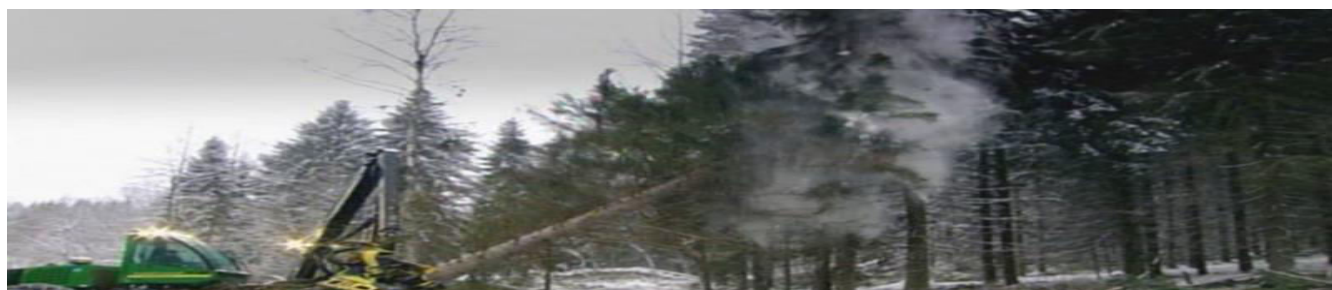
This will help reduce the effects of Glo..... War.....



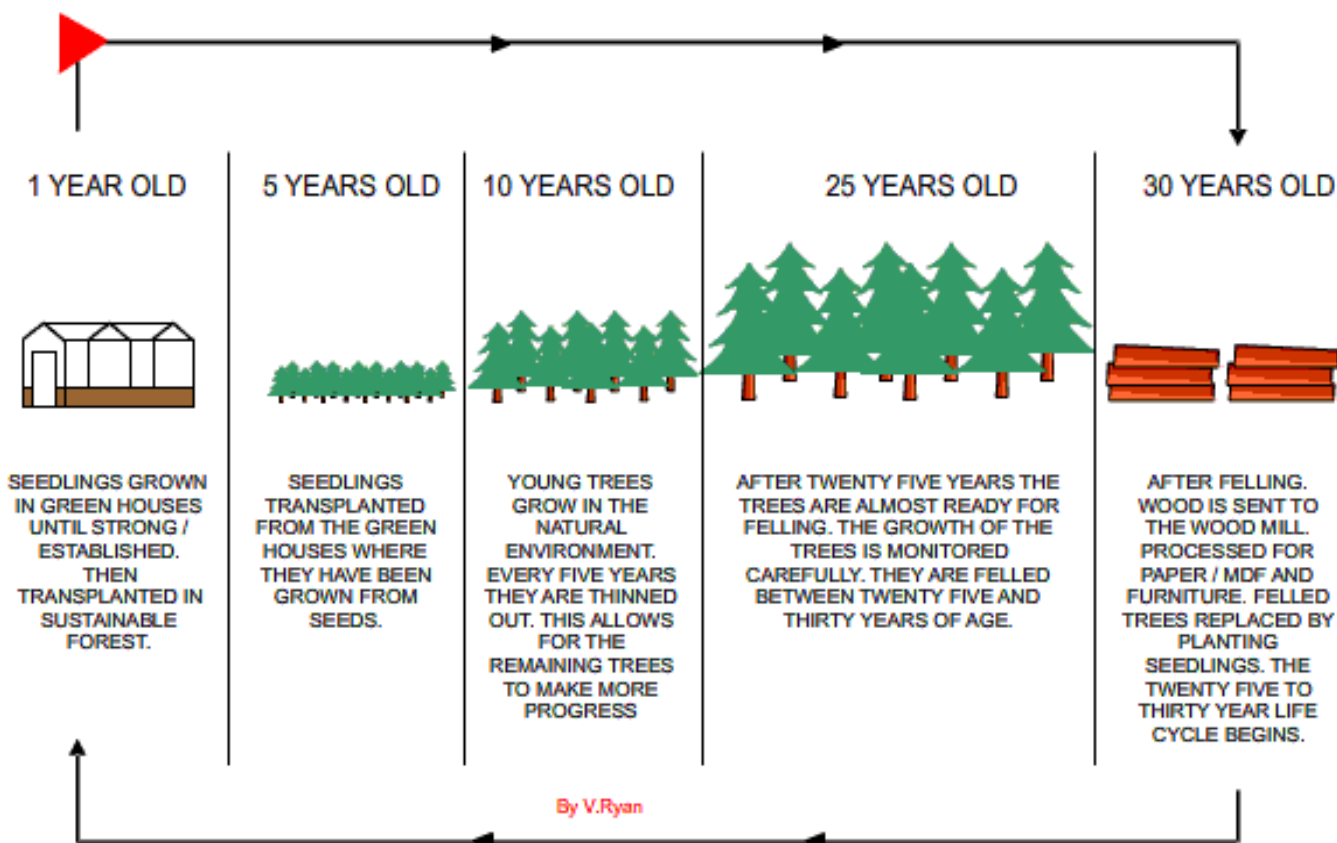
# WHAT IS A SUSTAINABLE FOREST?

A sustainable forest is a forest that is carefully managed so that as trees are felled they are replaced with seedlings that eventually grow into mature trees. This is a carefully and skilfully managed system. The forest is a working environment, producing wood products such as wood pulp for the paper / card industry and wood based materials for furniture manufacture and the construction industry. Great care is taken to ensure the safety of wildlife and to preserve the natural environment.

Sustainable forests are the result of a commonsense policy to replace trees that are felled so that forests continue to exist providing natural materials for us all.



## SUSTAINABLE FOREST LIFE CYCLE



Task:

Make an explained table of key facts and benefits

Key benefit – don't forget that the wild life habitat is also protected and maintained.

Write an example of exam question you would see for this topic

# Task: Make Question cards of key facts and benefits or a mind map

## Carbon footprint

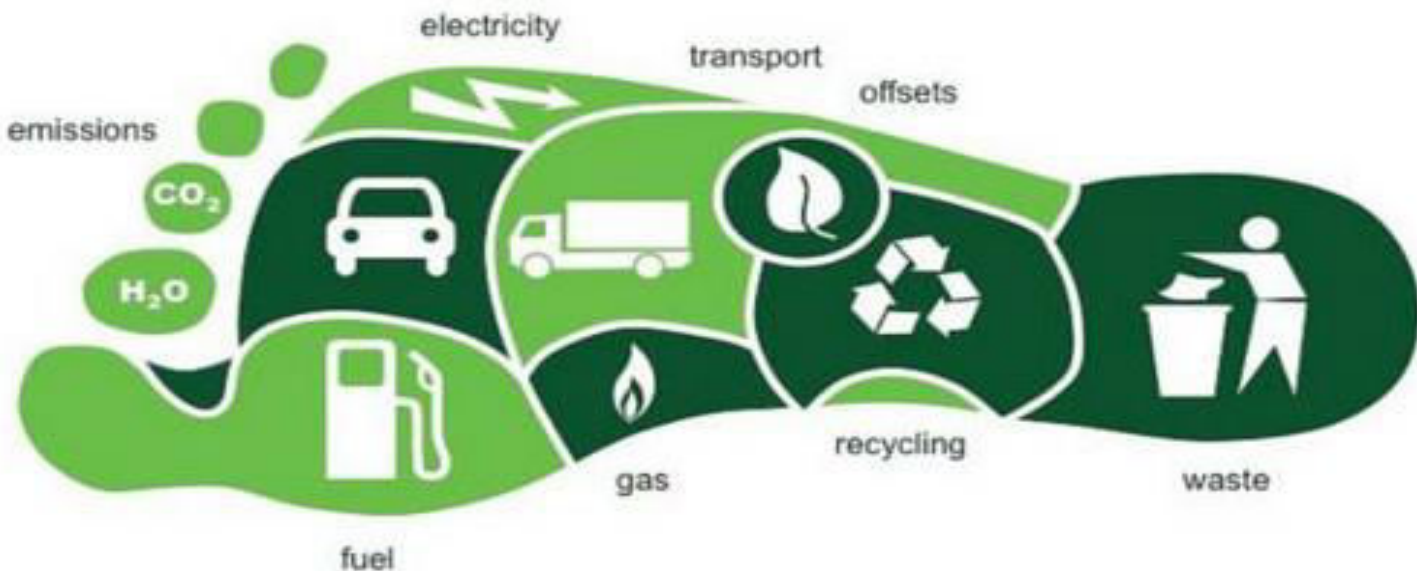
is the measurement of Carbon Dioxide produced from burning fossil fuel for energy

- An individual's carbon footprint is a measurement of a person's negative impact on the environment. Everyone has a carbon footprint, it does not only apply to industry and business. It relates closely to the amount of pollution a person creates through the use of energy (for example electricity) and resources such as fossil fuels.
- Environmental pollution can be created every time we get into a car, bus, train or plane by the burning of fuel. Every time we use something that has been manufactured we also add to our carbon footprint.

### MANUFACTURED ITEMS AND OUR CARBON FOOTPRINT

- A person who is concerned about reducing the amount of pollution he/she creates may decide to use a bicycle to get to and from work.
  - However, even transport of this nature leaves a carbon footprint. This is because the bicycle has been manufactured in a factory. The factory has used electricity to power the machines that help make the bicycle. The electricity has been created by burning polluting fossil fuels such as oil and coal.
- The materials used to manufacture the bicycle have been mined and refined. This uses electrical power produced in power stations by burning fossil fuels, in turn creating more pollution.
  - The materials are transported to the bicycle manufacturing plant in large lorries burning petrol or diesel, again creating pollution. And finally, the bicycle is transported in lorries / delivery vans to the bicycle shop where it is sold.
  - If the bicycle has been manufactured in China and is transported by ship to the UK/Europe again more polluting fuel has been burnt to transport it thousands of miles around the world.

Even a bicycle leaves a carbon footprint. However, transport of this nature leaves a much smaller footprint than a car.
- Every manufactured product leaves behind it a carbon footprint whether it is a small iPod/mp3 player or a large luxury car.



## **Bangladesh an example - Why is fair trade important**

<https://www.youtube.com/watch?v=XU6pwiSTMso>

Life inside the Horrific, Unregulated SweatShops of Bangladesh : Inhuman Conditions

### **These are the key issues related to fair trade**

1. . point \_\_\_\_\_ Exa/Exp \_\_\_\_\_
2. . point \_\_\_\_\_ Exa/Exp \_\_\_\_\_
3. . point \_\_\_\_\_ Exa/Exp \_\_\_\_\_
4. . point \_\_\_\_\_ Exa/Exp \_\_\_\_\_
5. . point \_\_\_\_\_ Exa/Exp \_\_\_\_\_

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

### **Ethical trading / Fair trade explained**

Fair Trade explained in under 2 minutes.

<https://www.youtube.com/watch?v=8pkIW30EJs8>

#### Question

discuss the Key issues of fair trade

I think fair trade is a \_\_\_\_\_ idea because.

One of the key reasons is \_\_\_\_\_ this means that \_\_\_\_\_  
\_\_\_\_\_.

Another thing \_\_\_\_\_

Leading to \_\_\_\_\_

This means that \_\_\_\_\_

Further more, the impact of this, this results in , this can be seen , leading to, creating, so that, in order to

In conclusion \_\_\_\_F\_\_\_\_T\_\_\_\_ is a \_\_\_\_\_ idea which has \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



# AQA GCSE

Design and  
Technology 8552



Energy  
generation

Unit 2  
Energy, materials,  
systems and devices



PG ONLINE



# Objectives

- Understand how power is generated from fossil and nuclear fuels
- Understand how power is generated from renewable energy sources such as: wind, solar, tidal, hydroelectric and biomass
- Be aware of the arguments for and against the selection of fossil fuels, renewable energy and nuclear power

# Where does our energy come from?

- Name as many energy sources as you can think of
  - How is power generated from these sources?



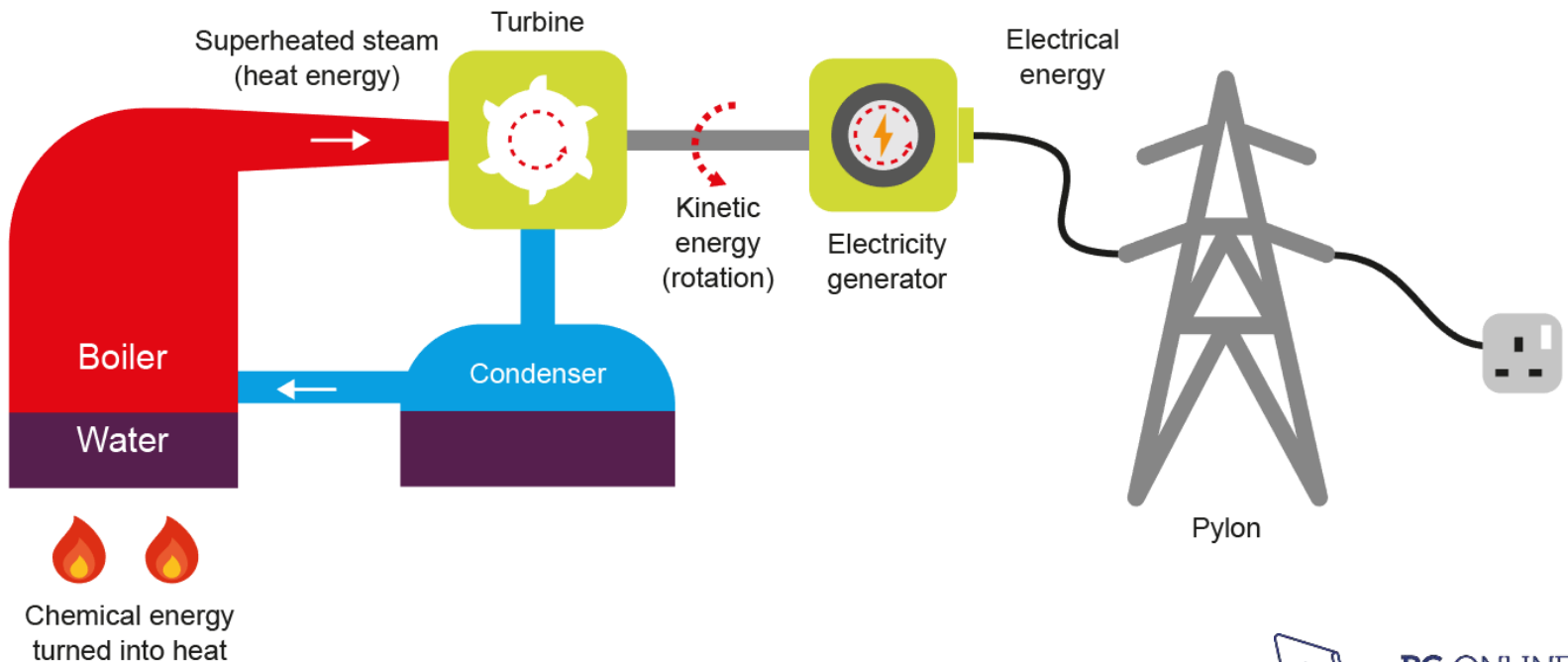
# Fossil fuels

- Fossil fuels are formed from the fossilised remains of plants and animals over millions of years
  - Coal, oil and gas are extracted through mining and drilling
  - Why are fossil fuels considered a **finite** resource?
  - Why are they so relied upon for power generation?



# Energy generation

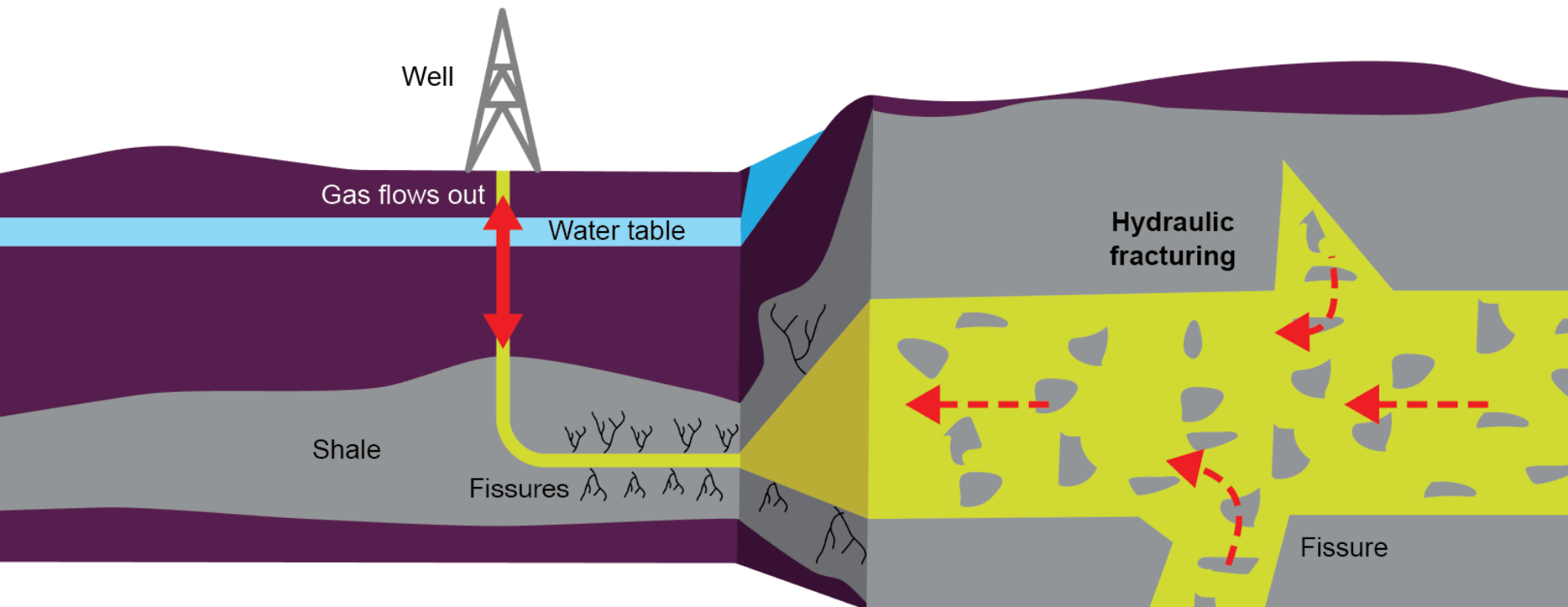
- Fossil fuels can be burned to superheat water under pressure, which in turn, drives turbines
  - How is energy from fuel converted to electricity at this point?





# What is fracking?

- Fracking involves drilling into layers of shale rock deep in the earth to release pockets of gas
  - Water, sand and chemicals are injected into a well in order to force gas back up – what could go wrong?



# Renewable energy sources

- Renewable alternatives to fossil fuels include:
  - Wind
  - Solar
  - Tidal
  - Biomass
  - Hydroelectric
- Why are these classified as 'renewable'?



# Wind turbines

- What are the arguments for and against wind power?
  - Would you want a turbine constructed beside your house?



# Wind turbines

- What are the arguments for and against wind power?

| For | Against |
|-----|---------|
|     |         |
|     |         |
|     |         |
|     |         |



# Wind turbines **Answers**

- What are the arguments for and against wind power?

| For                  | Against              |
|----------------------|----------------------|
| Low maintenance      | Only work when windy |
| Clean energy         | Eyesore to some      |
| Higher winter output | Hazard to birds      |
| Low cost energy      | Noise                |



# Solar energy

- The Sun produces a constant stream of solar energy that reaches Earth
  - In just **one hour** it provides enough energy to power the world for **one year**



# Photovoltaic cells

- Light photons hit the PV cell which allows electrons to flow, creating an electric current
  - Where are PV cells used?
  - What are the advantages and disadvantages of PV cells?





# Solar energy

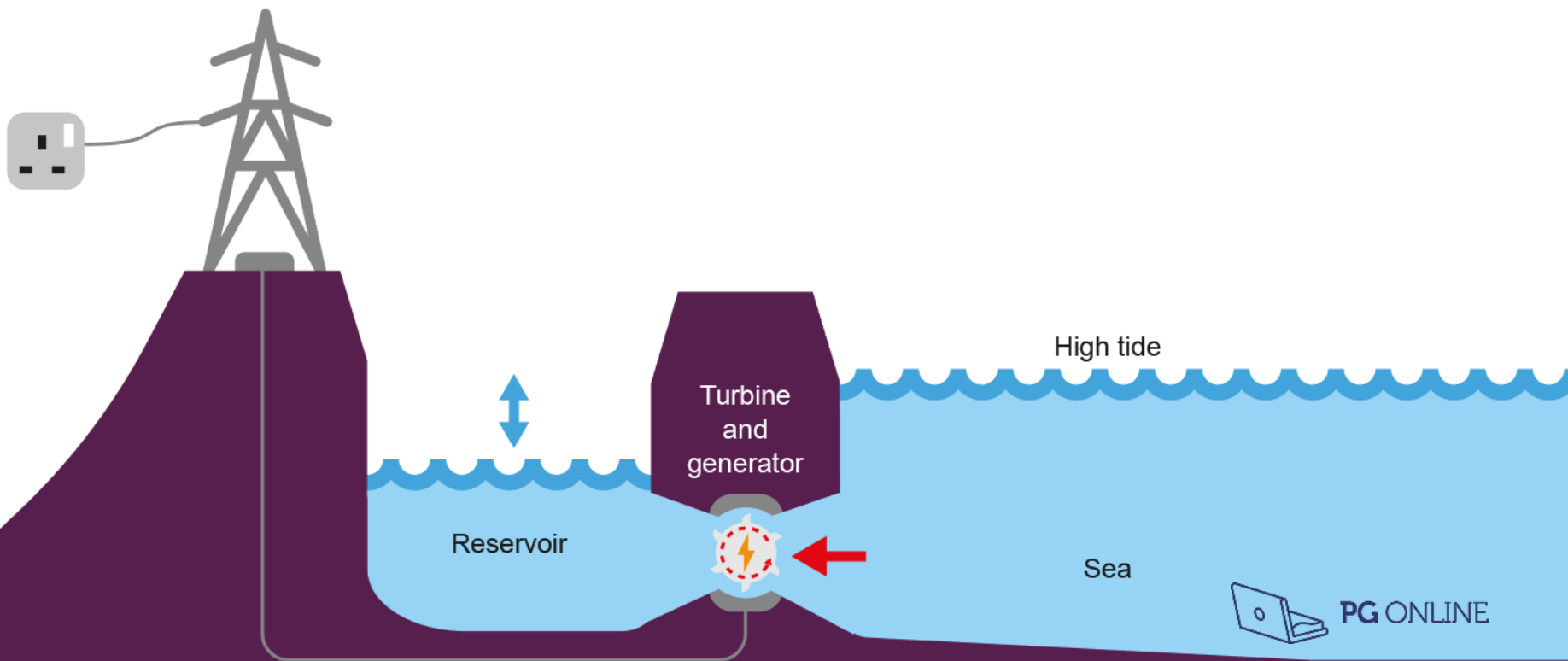
- The advantages and disadvantages of using PV cells to harness solar power include:

| Advantages          | Disadvantages               |
|---------------------|-----------------------------|
| Low maintenance     | Seasonal fluctuations       |
| Clean energy        | No power generated at night |
| Relatively low-cost | Complex positioning issues  |



# Tidal energy

- The rise and fall of the tide forces water through turbines which drive generators to produce electricity
  - What are the advantages and disadvantages of this system?



# Hydroelectric power (HEP)

- Hydroelectric power is a very reliable and controllable energy source
- The set-up costs are financially and environmentally expensive
  - Vast areas need to be flooded to create reservoirs
  - How would this affect those living locally?





# Biofuel and biomass

- Biofuel and biomass are created from organic matter which is burned to generate power
  - Biomass fuels include food and farm waste, compost and wood chips or compressed pellets
  - Why is biomass considered to be carbon neutral?



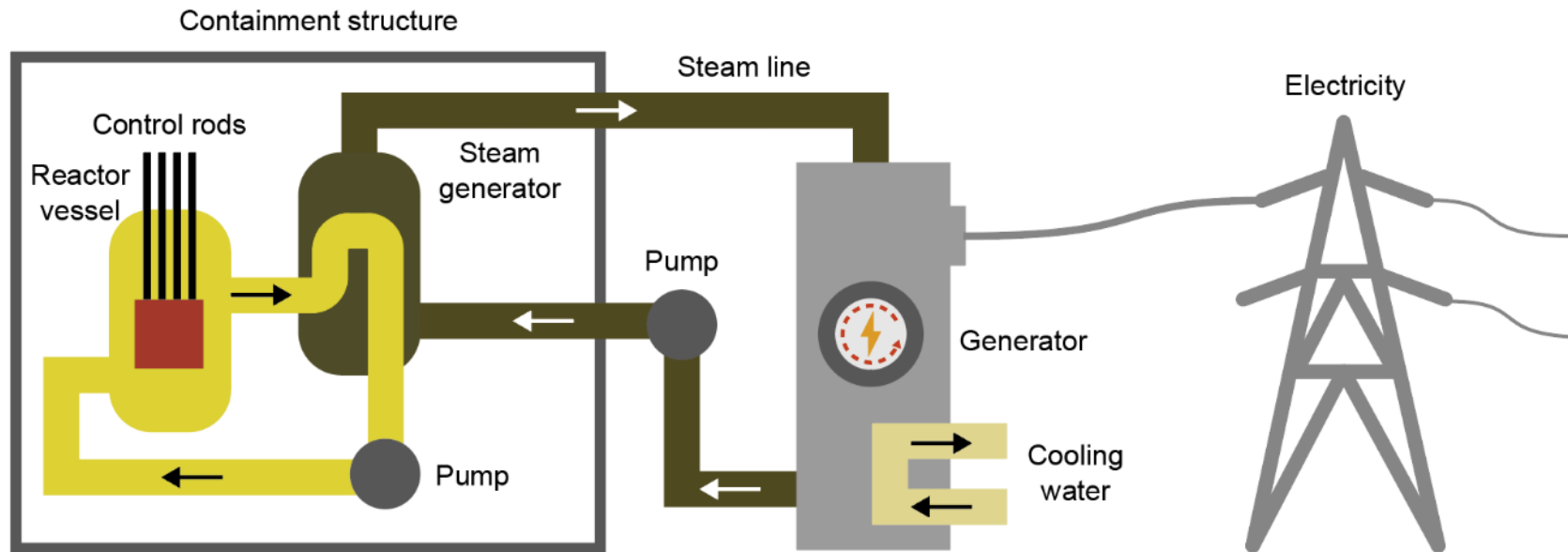
# Nuclear power

- Nuclear power accounts for over 11% of the world's electricity
  - Is nuclear power a renewable energy source?



# What about nuclear power?

- Nuclear power provides an abundant, reliable supply of clean energy
  - Why, therefore, is it so unpopular with some campaigners?





# Worksheet 1

- Complete **Tasks 1** and **2** of the worksheet
  - Look at the mix of the UK's electricity supply
  - Examine the arguments for and against nuclear energy

# Plenary

- Explain the role heated water plays in producing electricity along with turbines
- Explain how a mixture of energy sources can provide a reliable supply of electricity
- Explain why fossil fuels are a finite resource
  - What is their connection with greenhouse gases?



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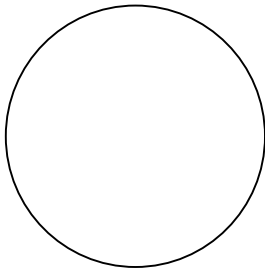
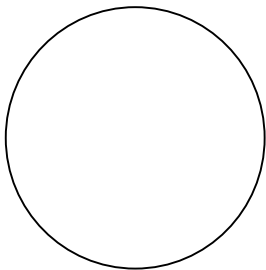
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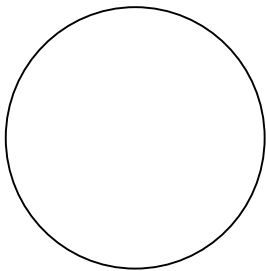
Can you identify the typed of \_\_\_\_\_

# Do Now



Can you identify the typed of     Sustainable / Renewable Energy

# Do Now



Wave Energy



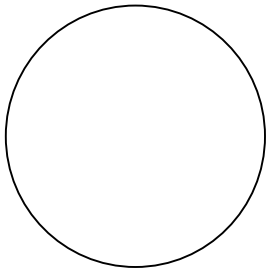
Hydro Electric



Solar power



Wind Turbine



Nuclear



Bio Mass



Geo Thermal

# Bangladesh an example - Why is fair trade important

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- <https://www.youtube.com/watch?v=XU6pwiSTMso>
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- Question
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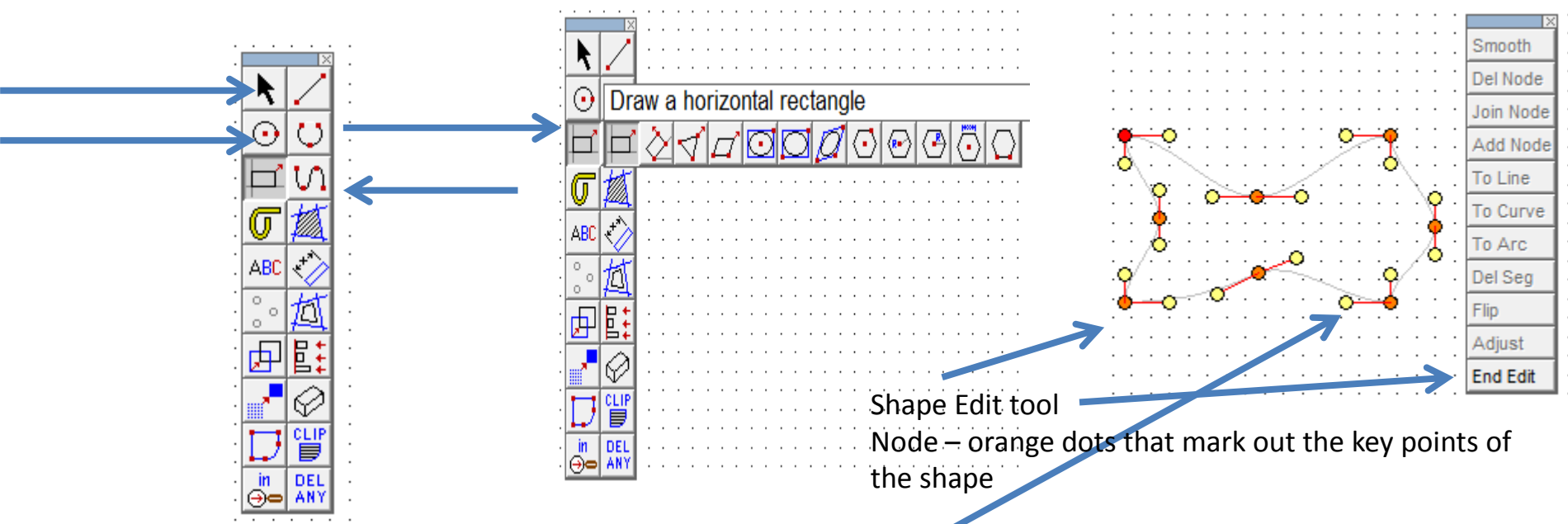


# Assessment objective 4

Production Log

| <b>Prototype manufacture</b>  | <b>Level of response</b><br><br>Production log will contain images and explanation of the processes undertaken to complete the prototype, plus a range of digital images/ photographs showing the quality and functions of the completed product.<br><br>These must be available for moderation for any marks to be awarded for this objective. | <b>Mark range</b> |
|---|---|-------------------|
| Candidates will need to: <ul style="list-style-type: none"> <li>make a 3D prototype using appropriate media; the prototype to have working features to demonstrate how the product will function</li> <li>complete a production log of the stages of making the product</li> <li>select and use the appropriate tools, equipment</li> </ul> | Production log shows a high degree of skills, use of materials, tools and equipment; images are explained with detail and reasoning; justification of modifications and problem solving during making   | 13–18             |
|   | Production log shows a good range of skills; use of materials, tools and equipment explained clearly; modifications and problem solving during making recorded  | 9–12              |
|   | Production log shows a adequate range of skills, use of materials, tools and equipment  | 5–8               |
|   | Production log shows a limited range of skills, use of materials, tools and equipment   | 1–4               |

Name and explain the key tools – when you hover over the tools the names appear

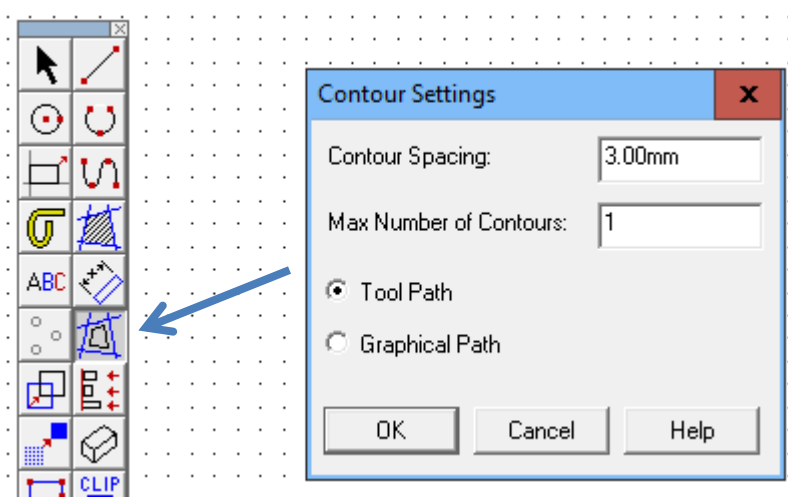


This screenshot shows the top portion of the software interface. On the left is a vertical toolbar with various icons. In the center is a horizontal toolbar with a dropdown menu currently set to 'Draw a horizontal rectangle'. To the right is a workspace with a grid. A complex shape is drawn on the grid, featuring orange dots at its vertices and red tangent lines extending from the curved segments. A vertical panel on the far right contains a list of actions: Smooth, Del Node, Join Node, Add Node, To Line, To Curve, To Arc, Del Seg, Flip, Adjust, and End Edit. Blue arrows point from the text labels to their corresponding elements in the interface.

Shape Edit tool

Node – orange dots that mark out the key points of the shape

Tangents – Have red lines and yellow dots and show the direction of curved lines



This screenshot shows the 'Contour Settings' dialog box. It has a title bar with a close button (X). The dialog contains two input fields: 'Contour Spacing' with the value '3.00mm' and 'Max Number of Contours' with the value '1'. Below these are two radio buttons: 'Tool Path' (which is selected) and 'Graphical Path'. At the bottom are three buttons: 'OK', 'Cancel', and 'Help'. A blue arrow points from the 'Tool Path' radio button to the text label.

Contour Settings

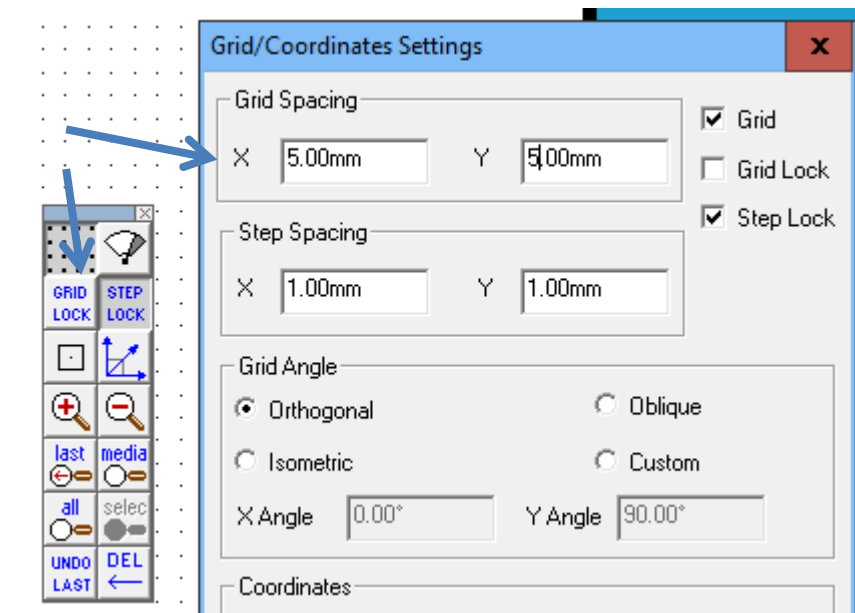
Contour Spacing: 3.00mm

Max Number of Contours: 1

☒ Tool Path

☐ Graphical Path

OK Cancel Help



This screenshot shows the 'Grid/Coordinates Settings' dialog box. It has a title bar with a close button (X). The dialog is divided into several sections. The 'Grid Spacing' section has input fields for X (5.00mm) and Y (5.00mm), with checkboxes for 'Grid' (checked), 'Grid Lock' (unchecked), and 'Step Lock' (checked). The 'Step Spacing' section has input fields for X (1.00mm) and Y (1.00mm). The 'Grid Angle' section has radio buttons for 'Orthogonal' (selected), 'Oblique', 'Isometric', and 'Custom', along with input fields for 'X Angle' (0.00°) and 'Y Angle' (90.00°). The 'Coordinates' section is partially visible at the bottom. A blue arrow points from the 'Grid' checkbox to the text label.

Grid/Coordinates Settings

Grid Spacing

X 5.00mm Y 5.00mm

☒ Grid

☐ Grid Lock

☒ Step Lock

Step Spacing

X 1.00mm Y 1.00mm

Grid Angle

☒ Orthogonal ☐ Oblique

☐ Isometric ☐ Custom

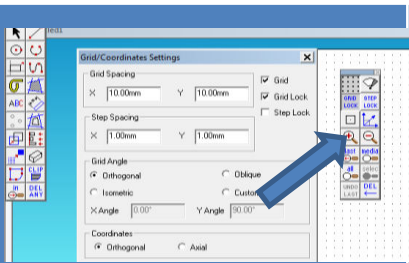
X Angle 0.00° Y Angle 90.00°

Coordinates

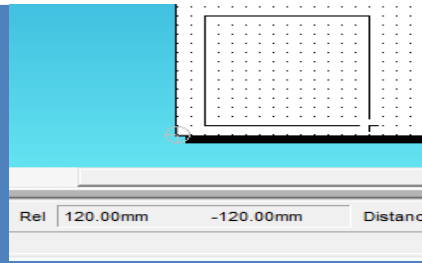


# Production log for final product

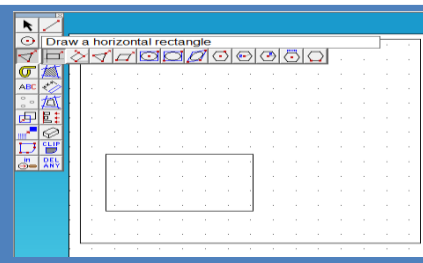




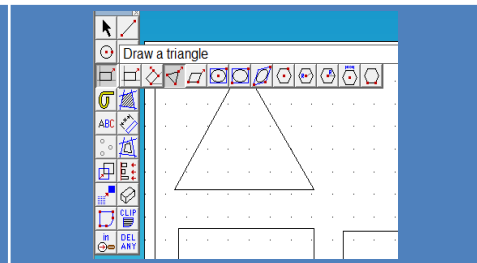
Set grid size and lock to grid for accuracy. So that  
 .....  
 .....  
 .....



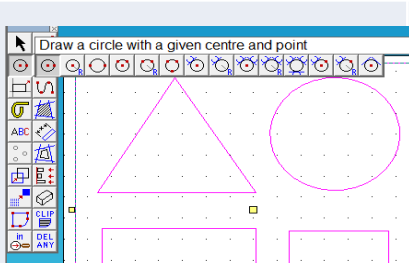
Use the relative dimension bar to set the size so  
 .....  
 .....  
 .....



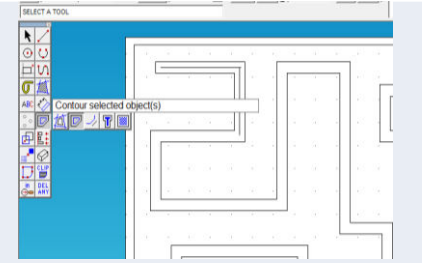
Use the rectangle shape drawing tool to make the rectangle and square shape.  
 When shapes are the wrong size you can edit them



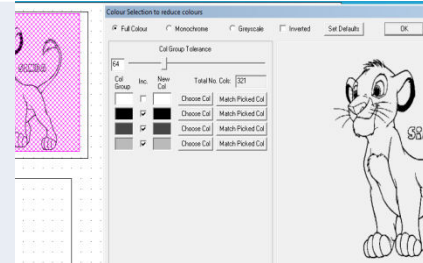
Use the Triangle tool to make the shape.  
 Tessellate the shapes to create the best fit for the piece. Save the pieces to make best use of material and reduce waste



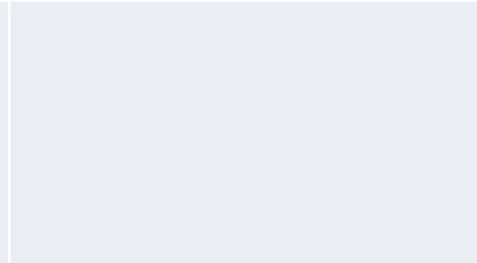
Use circle tool to add the final shape in order to



I used the line tool and contour tool to make the maze



I used a bit map image of Simba to raster the shape onto the shelf of my product.  
 Edit bitmap helped reduce the white background



I used the print set up to set the power and speed of the laser for cutting 1.9 % speed and 100% power. For raster I used 50% speed and 80%

**Production Log of product**

| Task   | How?   | Equipment and machines   | Safety   | What went wrong?                    | How can I fix it?  | Sustainability   |
|--|--|--|--|-------------------------------------|--|--|
| Measuring my piece of wood so they are all the right measurements. | I used a steel ruler and a tri square to measure the pieces of wood. | 100cm Ruler<br>Tri Square<br>MDF<br>Plywood<br>File<br>Sand paper. | I took of my blazer and wore a apron to tuck in my tie so its away from all obstacles. | The measurements were not accurate. | I had to file it to the correct size re measured and re cut the piece. | Making markings on the wood so that I use less material. |



To make measuring my pieces of wood accurate as possible I used gauge and a tri square the gauge was used to make parallel lines to an edge and the tri square was used to make 90degrees angle accurately.

| Task  | How?  | Equipment and machines                      | Safety   | What went wrong?      | how can i fix it?              | Sustainability   |
|---|---|---|--|-----------------------|--------------------------------|--|
| Sand and saw the sides of boat to the correct size and shape and do the same to the other size. | I used a Tenon saw to cut my side of my boat to the right size. | Tenon saw<br>Ply wood<br>File<br>Tri square | I took of my blazer and wore a apron to tuck in my tie so its away from all obstacles. I kept the saw faced down while going to my work station. | The edges were rough. | Use sand paper to smoothen it. | Use small bits of sand paper so the sand paper doesn't get wasted. |

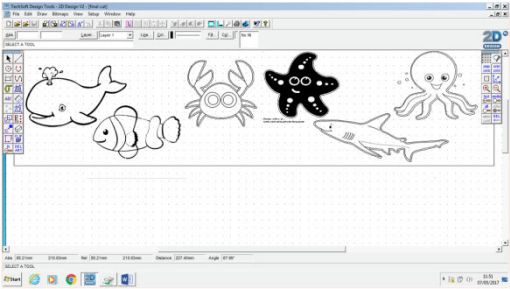


To make the correct sizes for the boat and to make sure the sides where accurate li re measured it with a steel rule to measure it straight.

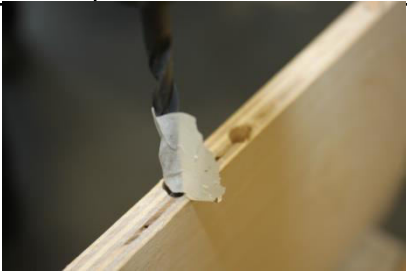


Production Log of product

| Task  | How?                | Equipment and machines | Safety   | What went wrong?                           | How can I fix it?   | Sustainability |
|---|---------------------|------------------------|--|--|---|----------------|
| use a laser cutter to cut out the shapes of the animas that I have created on 2d design with both sides of the boats. | I used 2d design to | Laser cutter           | Do not look directly at the light on the laser and shut the lid on the laser cutter. | It left burnt marks behind and rough edges | I used sand paper to smoothen the edges and to get rid off the burnt marks left behind. |                |



| Task   | How?   | Equipment and machines                          | Safety  | What went wrong?                               | How can I fix it?  | Sustainability                               |
|--|--|---|---|--|--|--|
| I made a dowel joint to connect the bottom of the boat to the 2 sides of the boat. | I used a hand drill to make a dowel sized hole. I measured the width of the boat and divided it by 5 to make sure the holes are drilled in the correct spot. I made marking of the spots that needed to be drilled with a pencil. I then did the same thing with the other side. I then put dowels in the holes and put pave glue to make sure the wood pieces do not detach. I waited approximately 5mins for the pieces to attach firmly and for the pave glue to dry. | Hand drill<br>Dowell<br>Vice<br>Ruler<br>pencil | I took of my blazer and wore a apron to tuck in my tie so its away from all obstacles. I kept the hand drill faced down while walking to my work station. | I couldn't keep the wood still while drilling. | I used a vice to keep the wood still so I can drill safely and easily and keep the wood still. | I only drilled a few holes and not too many. |

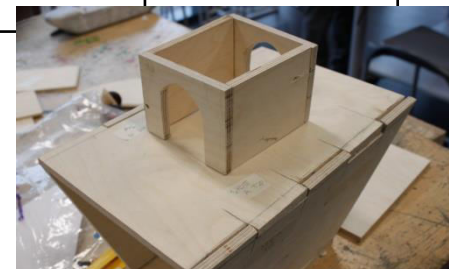


**Production Log of product**

| Task  | How?   | Equipment and machines   | Safety  | What went wrong?   | How can I fix it?  | Sustainability |
|---|--|--|---|--|--|----------------|
| I made a comb joint to connect the deck of the boat to the 2 sides of the boat. | To keep the wood still I used a vice. I Layer one of the wooden planks flat on the work desk. Place the other plank in a vertical position on top of the first plank; the ends of the planks should be flush together. Using the edge of the vertical plank as a ruler, I drew a line across the horizontal plank equal to the thickness of the woodsia then measured the width and divided it by 5 I shaded three of the five boxes. I then put the other scrap of wood on top of the side of the wood and and held it down with a vice. I then used a file and a mallet to hammer the unwanted wood off. | File<br>Scrap piece of wood<br>Sand paper<br>Mallet<br>Vice<br>Ruler<br>Pencil<br>Bench vice | I took of my blazer and wore a apron to tuck in my tie so its away from all obstacles. I kept the hand drill faced down while walking to my work station. | There was pieces of wood sticking out of the comb joint. | I used sand paper to sand the unwanted pieces of wood off and smoothen the edge of the comb joint. |                |



| Task  | How?   | Equipment and machines                     | Safety  | What went wrong?                               | How can I fix it?  | Sustainability                               |
|---|--|--|---|--|--|--|
| Make the bottom part of the cabin using a comb joint. | I used a hand drill to make a dowel sized hole. I measured the width of the boat and divided it by 5 to make sure the holes are drilled in the correct spot. I made marking of the spots that needed to be drilled with a pencil. I then did the same thing with the other side. I then put dowels in the holes and put pave glue to make sure the wood pieces do not detach. I waited approximately 5mins for the pieces to attach firmly and for the pave glue to dry. | Hand drill<br>Pencil<br>Ruler<br>PVAs glue | I took of my blazer and wore a apron to tuck in my tie so its away from all obstacles. I kept the hand drill faced down while walking to my work station. | I couldn't keep the wood still while drilling. | I used a vice to keep the wood still so I can drill safely and easily and keep the wood still. | I only drilled a few holes and not too many. |

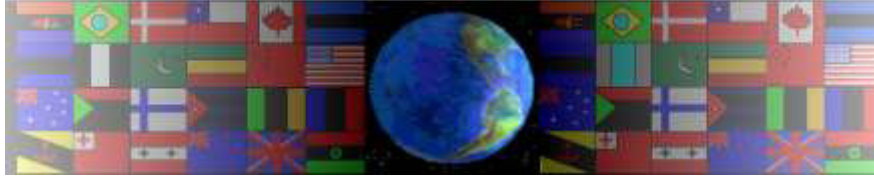


# SUSTAINABLE FORESTS

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On behalf of The World Association of Technology Teachers

## W.A.T.T.



World Association of Technology Teachers

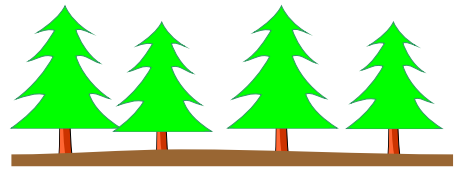
The 'Sustainable Forest Exercise' can be printed and used by teachers and students. It is recommended that you view the website section 'Graphics' ([www.technologystudent.com](http://www.technologystudent.com)) before attempting the design sheet .

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# SUSTAINABLE FORESTS

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Complete the paragraph below by filling the blanks with the missing words. Select each word from the list below.

A \_\_\_\_\_ forest is a forest that is carefully managed so that as trees are \_\_\_\_\_ they are replaced with \_\_\_\_\_ that eventually grow into \_\_\_\_\_ trees. This is a carefully and skilfully managed system. The forest is a working environment, producing wood products such as wood \_\_\_\_\_ for the paper / card industry and wood based materials for furniture manufacture and the construction industry. Great care is taken to ensure the safety of wildlife and to preserve the natural \_\_\_\_\_. Sustainable forests are the result of a commonsense policy to replace trees that are felled so that forests continue to exist providing natural materials for us all.

**seedlings**

**felled**

**environment**

**sustainable**

**pulp**

**mature**

1. Use the internet to research the type of work / careers available for those wanting to work in sustainable forests. Describe the type of work available.

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2. In simple terms - explain the nature of a sustainable forest.

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3. In your opinion, why is it important to support sustainable forestry.

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4. List regions of the world that produce wood based products through sustainable forests.

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# **WHAT IS A SUSTAINABLE FOREST?**

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**PDF FILE** - [CLICK HERE FOR PRINTABLE VERSION OF EXERCISE BELOW](#)

**PDF FILE** - [SUSTAINABILITY](#) - Boxed Learning Exercise

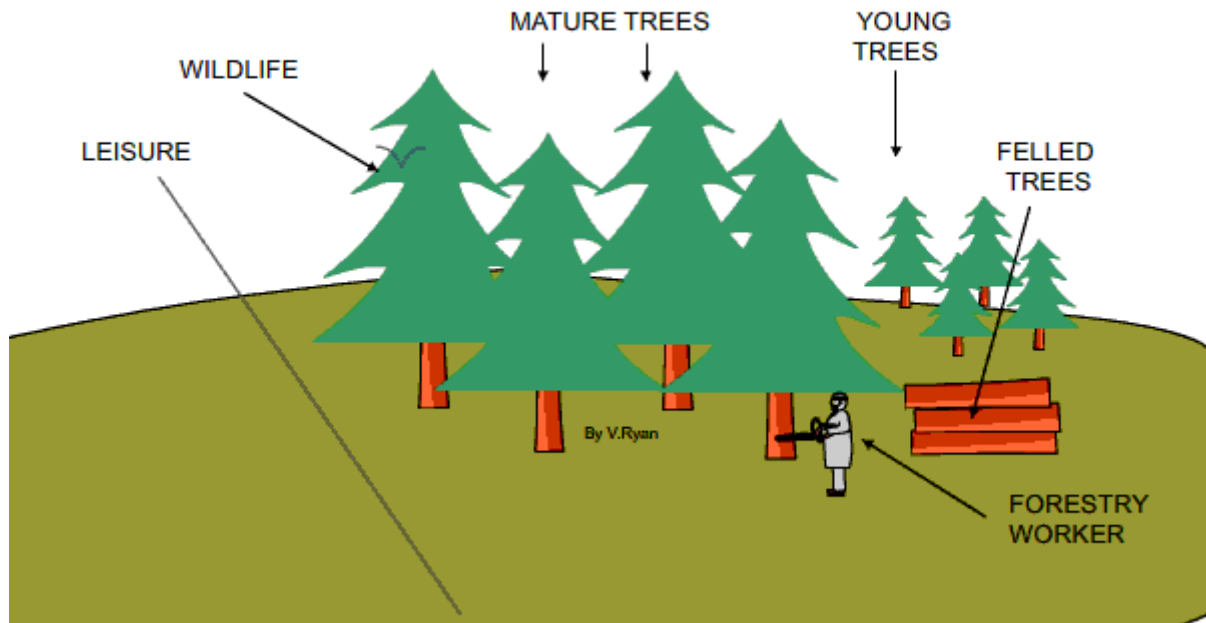
A sustainable forest is a forest that is carefully managed so that as trees are felled they are replaced with seedlings that eventually grow into mature trees. This is a carefully and skilfully managed system. The forest is a working environment, producing wood products such as wood pulp for the paper / card industry and wood based materials for furniture manufacture and the construction industry. Great care is taken to ensure the safety of wildlife and to preserve the natural environment.

Sustainable forests are the result of a commonsense policy to replace trees that are felled so that forests continue to exist providing natural materials for us all.

## **TREE FELLING IN A SUSTAINABLE FOREST - NORWAY**



A typical sustainable forest will contain trees of all ages and often different species of trees. As the trees mature they are felled and the natural wood is processed at saw mills. Felled trees are replaced with seedlings. In this way the forest is constantly renewed.



Sustainable forests are not only productive in terms of the wood products they provide but also they are regarded as places that can be exploited by the leisure industry. Sustainable forests add greatly to the look of the natural environment and consequently attract tourists such as walkers and hikers.

Sustainable forests can only survive if they make a profit and provide employment, often for local people. The type of employment available will include work related directly to managing and maintaining the forests but also jobs related to the tourist industry. This will include the hotel and catering industry.

1. Use the internet to research the type of work / careers available for those wanting to work in sustainable forests. Describe the type of work available.
2. In simple terms - explain the nature of a sustainable forest.
3. In your opinion, why is it important to support sustainable forestry.
4. List regions of the world that produce wood based products through sustainable forests.

## SUSTAINABLE FOREST LIFE CYCLE

