



Knowledge Organiser: Year 9 'Sustainable Regeneration'

Keywords and glossary

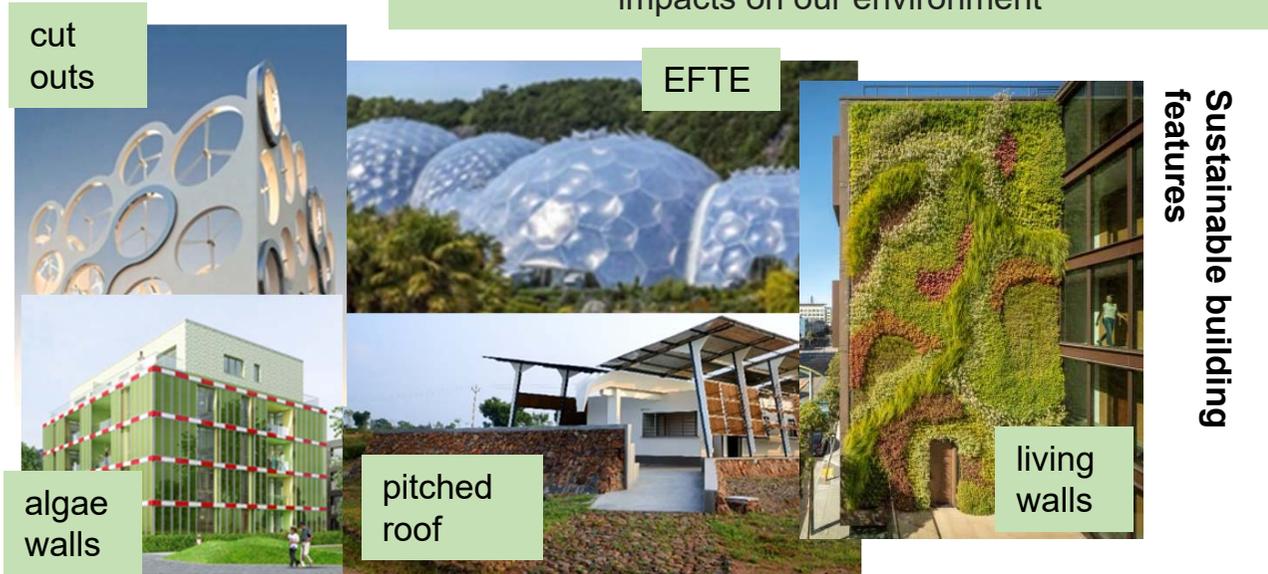
| | |
|-----------------------|--|
| renewable | a natural resource or source of energy that is not depleted by use, such as water, wind, or solar power |
| finite | having bounds or limits, for example non-renewable energy will eventually run out |
| non-finite | having no limits and can be replaced |
| construction | assembly of any building or infrastructure |
| manipulate | to handle or operate skilfully with the hands |
| model | a three-dimensional representation of a person, thing or of a proposed structure, typically on a smaller scale than the original |
| prototype | a prototype is an early sample, model, or release of a product built to test a concept or process |
| architecture | the style, design and construction of buildings or other physical structures |
| sustainability | using resources in such a way that they meet our needs now, but will also be available for future generations |
| design brief | a statement outlining what problem a design will solve. It should be referred to throughout the project to make sure what you are working on will solve this problem |
| scale | the overall physical size of an object, building etc |
| material | the substance used to make something |

| | |
|----------|---------------------------|
| A | is for Aesthetics |
| C | is for Cost |
| C | is for Customer |
| E | is for Environment |
| S | is for Size |
| S | is for Safety |
| F | is for Function |
| M | is for Material |

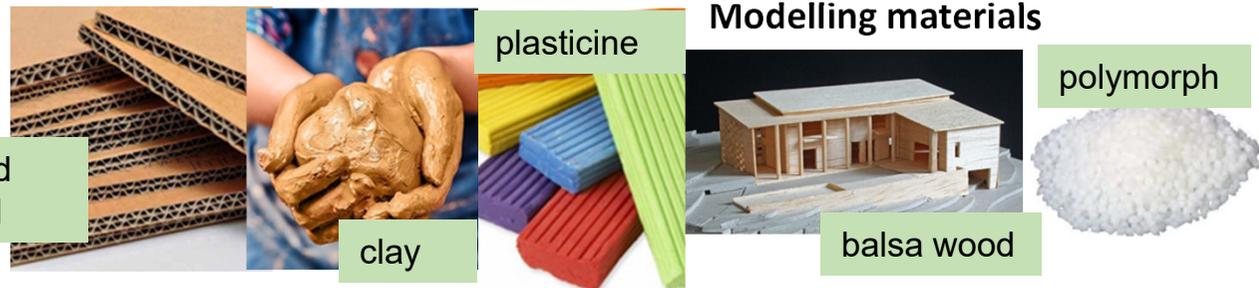
Renewable energy is known as **non-finite**.
Non-renewable energy is known as **finite**.



A '**sustainable building**' is a building that is designed and constructed to reduce or eliminate negative impacts on our environment



Sustainable building features



Modelling materials

Construction materials



plastic bricks



eco-bricks



FABbricks



timber



steel

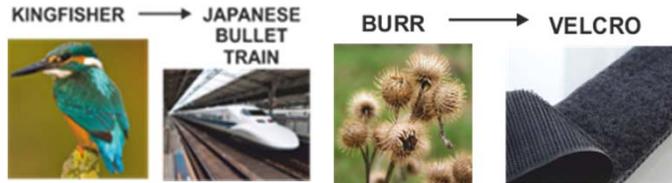


steel-reinforced concrete

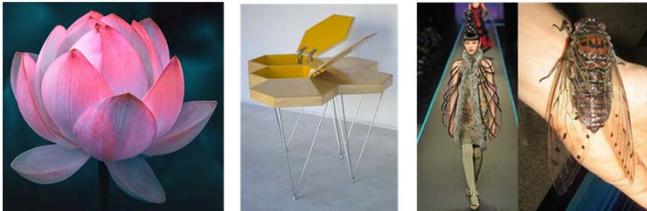
Timbers

- **Softwoods** come from coniferous trees which have needles instead of leaves e.g **pine**.
- They grow faster than hardwoods so are cheaper.
- Trees grow tall and straight so give long planks of wood.
- Often used as building material.

Biomimicry is designs based on how nature works. These ideas are applied to human engineering and invention to solve human problems. It was used to create the first flying machine, inspired by eagles and owls—this paved the way for technologies like jets and planes. It was also used in the invention of Velcro, which works in much the same way as the hooks on burrs when they stick to animal fur.



Biomorphism is the design of structures or products inspired by the way living forms such as animals, insects and plants look.



Examples of biomorphic architecture:



Thomas Heatherwick



Vincent Callebaut



Santiago Calatrava

Why do we use scaled models/drawings?

- to test out a design at an early stage
- making life size designs and models is **difficult and unnecessary** e.g someone designing a shop would not produce a to scale model.
- it is **cheaper** than making a full size model and **uses less materials**

Models vs Prototypes

A model is used to demonstrate how a product will look. A prototype is created to test how a product will function.