Design an Earthship

Creating buildings and infrastructure has a **significant** environmental impact. Currently, buildings cause **20% of global greenhouse gas emissions** and the most popular insulation materials are either toxic or never biodegrade. Further, construction often involves secretive and shady labour practices.

One alternative to the mainstream construction methods is **biotecture**: architecture that involves the use of organic materials. Biotecture is used to create **earthships**. An earthship is a type of shelter made from both natural and upcycled materials that requires little to no material consumption after construction.

In this activity, your students will be **designing their very own earthship.** This will allow them to apply their knowledge on sustainability as well as **creativity to develop climate solutions.**

Instructions

Students should each **design** an earthship using a side profile as shown in the handout. Their design should be **labelled** with brief **explanations** of the various elements and how they work. Students should be encouraged to research earthships to gain a better idea of all the innovative ways an earthship can be made **sustainable and off-grid.**

We recommend your students spend the class time researching together and asking questions if need be, and are assigned the design section of the activity as homework. The activity sheet includes an example of an earthship design. If possible we recommend not printing out this activity as the blueprint page found in the handout may use a lot of ink.

Their design should also include the following:

- An area for growing food (e.g. a small greenhouse or outdoor garden)
- A way to collect and supply energy (e.g. solar panels, wind power)
- A way to provide cooling/heating and ventilation (e.g. tires provide a good form of insulation, cooling tubes or air vents)
- A way to collect and supply water (e.g. using barrels and pipes to collect rainwater, recycling of water used for washing, cooking, etc.)
- A way to manage waste (composting, reusing, landfill)

We welcome feedback and would be delighted to hear your thoughts on this activity. Feel free to send an email to schools@climatescience.org and we'll be sure to get back to you soon :)