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| YNBRIEFYou have been asked to research, design and develop prototypes of modular housing that will be used for new towns and villages being built over the country. The aim will be supporting families in modern, affordable, energy efficient homes.Exampleshttps://i.ytimg.com/vi/nAfmba3hLPw/maxresdefault.jpgRelated image |

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| Concept Housing |

SPECIFICATIONThis is your success criteria: • * It must have several zones – Kitchen, living/communal room, Sleeping areas, Bathrooms
* It must be practical for a range of groups – families, children, elderly
* It must be constructed using SIP (Structured insulated panels)
* It should be energy efficient
* It should use modern technologies and materials
* It should be made suing sustainable materials
* It should be visually creative
* It could be possible for the building to link together
* It could incorporate renewable energy resources
* It could have several floors

TASKSWhat you will need to do over the day:1a - Research: Materials and Energy1b - Company branding & logo development2a - Concept designs – 2d Drawing & 3d Drawing (Profile, 2 point  perspective and isometric)2b - Floor plans and side/section/layout drawings3a - CAD training with Google Sketch up3b - CAD Design developments (Google Sketch up)4a – Modelling prototypes with card4b - SIP Design – CAD/CAM using 2D design. ***End of the day: Final Presentation of Ideas and Judging of the winners*** ***The final winning designs will be made in plastic and presented to each of the winners – A large model will then be on display in school*** |

### Technology

What are **Photo-voltaic** cells? <http://www.energysavingtrust.org.uk/renewable-energy/electricity/solar-panels>

Are they worth the initial cost? How long do they currently take to pay for themselves, Should they be used in your build and why?

What is a **MHVR** unit? How can it make homes more energy efficient?

How can **Geothermal energy** be used in your housing development?

### Building materials

What are Structural insulated panels (SIPS)? <https://www.homebuilding.co.uk/sips-how-do-they-work/>

Why are they a sustainable way of building houses?

How can you make a house energy efficient?

What other types of building materials are sustainable?

What materials have a low carbon footprint?

What are the advantages and disadvantage of using sustainable materials?

*Final Logo*

*Company name ideas*



Side view

Front view

Plan view

*Final Orthographic design*