



Design Brief

To design, make and evaluate a prototype for a portable mountain shelter, which could be used by mountaineers or rescue crews. It must be easy to assemble and provide protection from a range of elements in an emergency.

Key Vocabulary

reinforcing	To strengthen or support (an object or substance), especially with additional materials.
rigid	To be unable to bend or be forced out of shape; not flexible.
water resistant	To be able to resist the penetration of water to some degree but not entirely.
water-proof	Keeps water out completely.
climate	The weather conditions prevailing in an area in general or over a long period.
withstand	To remain undamaged or unaffected by something (to resist).
temporary	To last for only a limited period of time; not permanent.

Key Skills

- Sketch a design from different viewpoints.
- Use cardboard triangular joints to stiffen the structure and make it sturdy.
- Use an example of triangulation to strengthen and support the shelter.
- To consider the materials needed for structure building.

What I Should Already Know

- How to sketch a design from different viewpoints.
- How to choose tools and materials that are appropriate to the task.
- How to measure and mark accurately for cutting.
- Materials can be joined in different ways for example using glue, sticky tape.
- Different joins have different effects.
- Joints must be tight ensuring they don't move.
- They must be given enough time to fully dry.





Key Information

- A shelter gives temporary protection from the weather or danger and is a place of safety and retreat. Animals create shelters- for example, foxes, moles, and meerkats burrow into the ground.
- Over time, humans learned that they could use shelters to adapt to different climates. This was one way that humans were able to live all over the planet, in all different conditions.
- Mountain climbing is a strenuous and often dangerous activity. Weather conditions on mountains can suddenly change without notice, therefore shelters can play a critical role in keeping climbers safe and protected.
- Shelters are usually located in strategic positions, as a base for climbing nearby peaks, or as a stopover for the night. They offer food, shelter, a bed for the night and allow hikers to store heavy equipment.

Links to other Learning

- Geography - mountains
- History - WWII
- Science - materials
- D & T - structures all year groups

Key Questions

- Appearance/aesthetics - how will it look? Why might you choose to design your shelter in a certain way?
- Cost - would your shelter be expensive to make if it was to be built for real?
- Customer - who is it for?
- Environment - what environments can your shelter be used in?
- Size - how big or small is it? Would it be big enough to accommodate a group of climbers or a small family?
- Safety - is it safe to use by everyone? Would it withstand wind/rain? Did your shelter work and why?
- Function/purpose - how does it work? What qualities make a good shelter?
- Materials - what are the most appropriate tools, equipment and materials needed to produce a shelter?
- Manufacture - how will you make it? How might you change your design if you were to create another shelter?



Examples of shelters