

How to Build a Quinzhee



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A quinzhee (or quinzee) is a temporary snow shelter made from a large pile of snow which is shaped and then hollowed. In contrast, an igloo is built up from blocks of hard snow and then stacked around a circular terraced hole in the snowy ground. Building an igloo is labour intensive while a quinzhee can be completed in about four hours.

Building a quinzhee during school hours can incorporate lessons from mathematics, science and physical education and may also include basic survival skills if students should get lost on winter trips.

It is a suitable activity for most students, but adult supervision must be in place. The structure should not be left standing if supervision is not available because it is hollow and can collapse if climbed on.

The following items are needed to build a quinzhee:

1. Shovels to build a pile of snow.
2. A tarp or sled to remove snow from the interior.
3. A few candles to help glaze the interior.
4. Twelve or more sticks about 30 to 45 cm. in length used to determine wall thickness while carving out the interior.

Step 1: Make a spot big enough for the number of people working on the project. For two people, the spot should be around 2.5 to 3 meters. The snow pile should be built at least 2.5 meters tall. Once the pile is built, walk all over it to compact the snow. The top of the pile should be rounded or domed as a flat roof would collapse.

Step 2: Collect about two dozen measuring sticks around 30 to 45 cm. in length. Some quinzhee builders have used paint stir sticks.

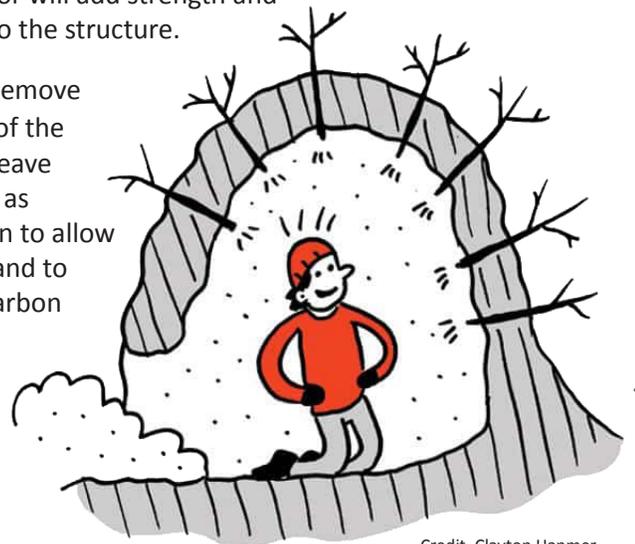
Poke the sticks into the snow pile about .6 meters apart to a depth of at least 30 cm. over the full surface of the snow pile. The sticks should pierce the pile perpendicular to the snow. These sticks are your guide to maintain adequate wall thickness when hollowing out the interior.

After piling the snow, let it sit and sinter. Sintering is the process of compaction through heat and pressure. Let the pile sit for at least two hours, longer is better. This step is crucial as it gives the wall and ceiling structural integrity.

Step 3: Carve out the interior with a small shovel. Start by digging a small door and then a small tunnel. Eventually excavate upwards and inwards then work from top down keeping an eye on the sticks to know the depth of the walls and ceiling. The job works best with one person inside and another outside. The person inside places snow on a sled or tarp and the people outside pull the snow away and dump it.

Step 4: Consider using a few candles to glaze the interior walls and allow 15 to 20 minutes for this process. Glazing the interior will add strength and stability to the structure.

Step 5: Remove a couple of the sticks to leave the holes as ventilation to allow fresh air and to release carbon dioxide.



Credit, Clayton Hanmer

Risk Management Controls:

1. Always supervise during construction and use.
2. Do not allow climbing on the dome once hollowing out of the quinzhee has begun.
3. Erect a pole by entrance to mark opening and tie a cloth or flag to pole whenever anyone is inside the quinzee. Keep a small shovel inside in case any snow collapse covers the entrance.
4. Take down the quinzhee after the activity is over and supervision is no longer in place, so that student's injury or suffocation will not occur.

Reduce Liability Hazards:

There is a serious suffocation hazard should the top snowpack collapse with anyone inside or even to anyone climbing on top of quinzhee when it collapses. To avoid injuries and possible liability, ensure that the quinzhee has been collapsed with all the sticks removed, whenever supervision ceases for the day. **Do not leave the structure up overnight.**



Credit, Clayton Hanmer