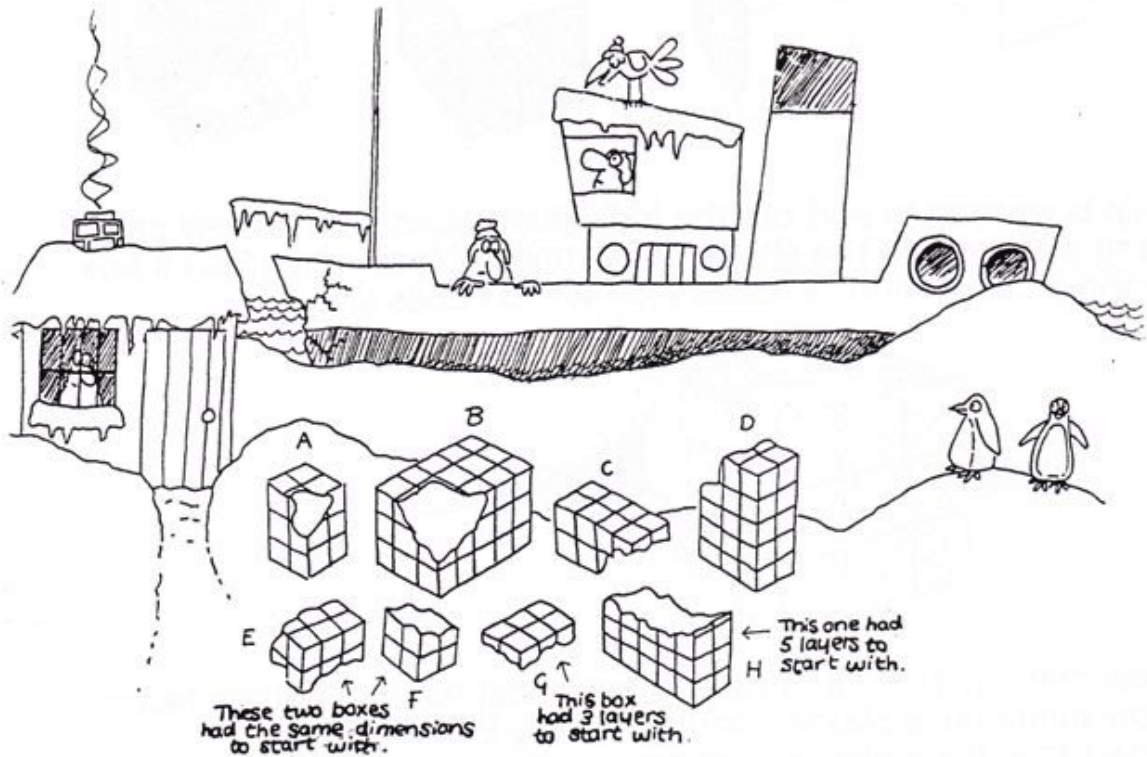


# STORM DAMAGE

The ship taking an expedition to the ice-cap was badly hit by storms. The provisions in the ship's hold were damaged. The hold contained cubes packed into box-shaped loads. This is what some of them looked like after the storm :

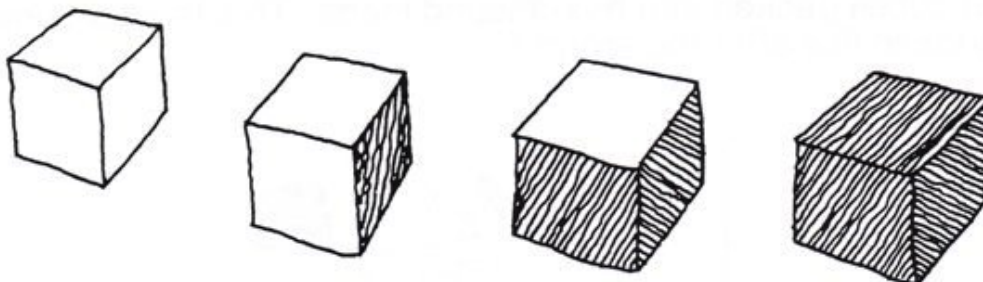


(NOTE: Your answers may be different from those of your friends. Be prepared to explain why you think your answer is the correct one !)

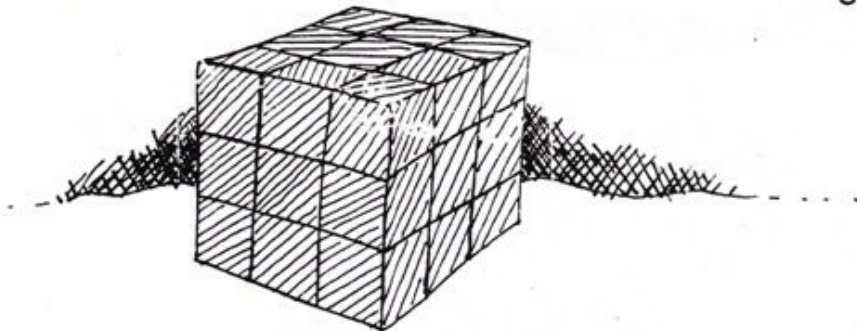
For each load shown above, work out :-

- the original number of cubes
- the original surface area of each load
- the number of lost and damaged cubes in each load

At the bottom of the ship's hold are 27 individual cubes which had originally been intended should stand outside the expedition camp huts in the snow until needed later in the year. To avoid weather damage, each outside face of the load has been coated with special weather proof plastic. Here are some of the cubes :



Help is needed to sort out the individual cubes so that they can be re-packed into the shape of the original load which was a box shape 3 cubes high, 3 cubes wide and 3 cubes long.



- How many of the cubes have plastic coating on 3 of their faces ?
- How many have plastic coating on only 2 faces ?
- How many have plastic coating on only 1 face ?
- How many have no plastic coating at all ?

**FURTHER IDEAS :**

Keeping Costs to a Minimum

1. Investigate box-shaped loads of different numbers of cubes: e.g. 42, 64, 24 and 36 cubes each time.  
Can you find any sort of rule to help you decide which is the best arrangement of any number of cubes ?
2. What difference to your results does it make if the bottom of each load does NOT need plastic coating ?