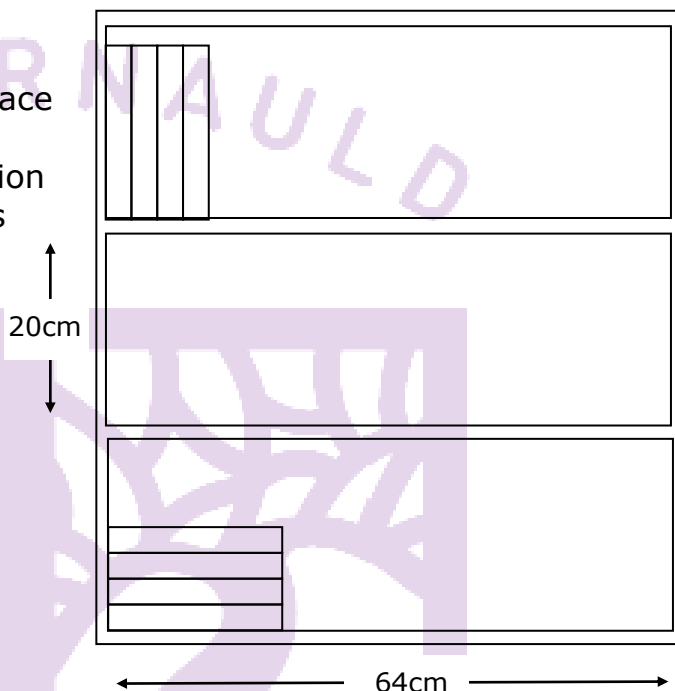
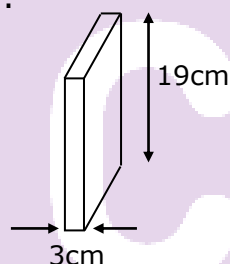



Calculators permitted but working must be shown.**Essential knowledge:**

1. The three shelves on Susan's bookcase are 64cm long. The space between each shelf is 20cm. Susan wants to stack her collection of identical books so as to get as many books onto the shelves as possible.

Each book has dimensions as shown below.

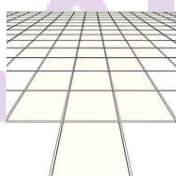


How many more books can she get onto the shelves if she stacks them upright (as seen on top shelf) as opposed to longwise (as seen on bottom shelf)?

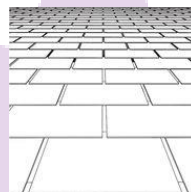
2. A bathroom wall measuring 400cm by 200cm is to be **completely** tiled using a rectangular tile measuring 50cm by 80cm. 

The tiles can be glued to the wall either:

vertically



or horizontally,



as shown

- (a) How many tiles will be needed for the horizontal design?
- (b) How many tiles will be needed for the vertical design?
- (c) Explain which design is better and why?

Unit level:

3. You are making lunch for yourself and decide on this list of things to be done:



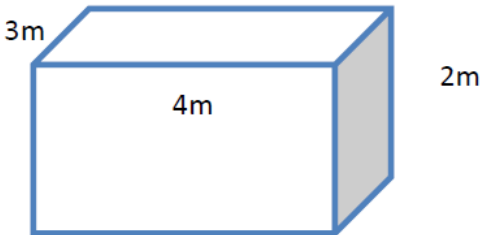
- A. Toast a slice of bread in the toaster.
- B. Butter both slices of toast.
- C. Heat spaghetti in a saucepan.
- D. Put spaghetti onto buttered toast
- E. Pour a glass of milk
- F. Eat lunch



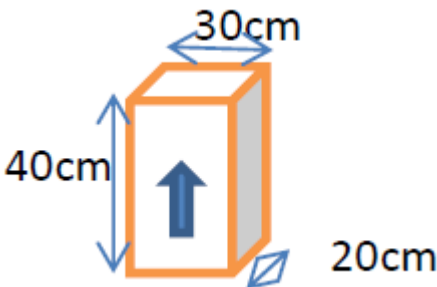
Order of activities	Activities that could be done at the same time

Copy and complete the precedence table above by putting the activities into a logical order and when two activities could be done at the same time, put the second activity in the right-hand column.

4. A supermarket stores cereal boxes in large storage boxes as shown.



The cereal boxes have to be stored upright



What is the maximum amount of these cereal boxes that can be stored in the large storage box?

Assessment level:

5. The seven boxes below have to be stored on three shelves. Each shelf can carry no more than 675 kilograms. Copy and complete the table overleaf to show a way of placing the seven boxes on the three shelves.

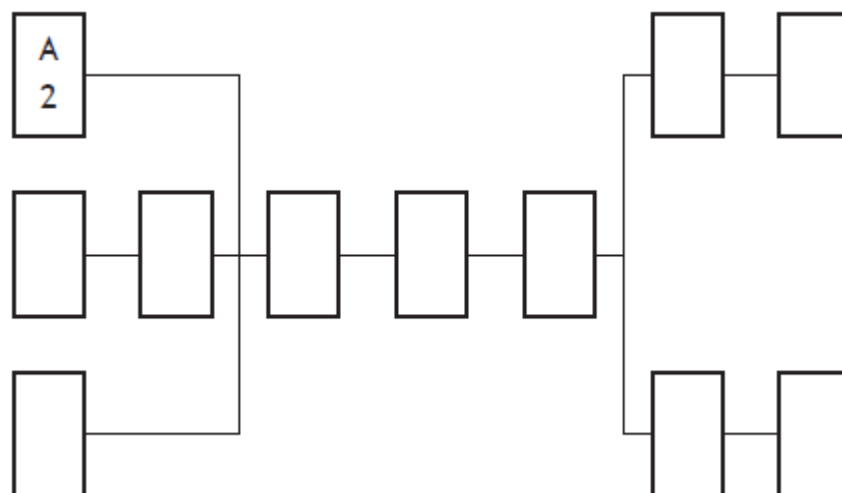


	Boxes (write down their weights)	Total Weight
SHELF 1		
SHELF 2		
SHELF 3		

6. Fence Direct provides a team of workers to build a fence. The table shows the list of tasks and the time taken to complete them:

Task	Detail	Preceding Task	Time (hours)
A	Take down old fence	None	2
B	Measure length of fence needed	None	0.5
C	Mark on the ground where new posts must go	None	0.5
D	Collect materials and tools from yard	B	1
E	Hammer posts into the ground	A, C, D	4
F	Attach metal fencing to posts	E	2
G	Attach barbed wire to top of posts	F	1
H	Gather up rubbish	G	2
I	Gather up tools	G	0.5
J	Take rubbish to recycling centre	H	1
K	Put tools back in yard	I	0.5

Copy and complete the diagram by writing these tasks and times in the boxes.



Fence Direct claims that all of these tasks can be completed in 10 hours. Is this a valid claim? Give a reason for your answer.

CUMBERNAULD



ACADEMY