

Unit 1 Practical Application

How Big?

Most schools have a one size fits all philosophy for desks and chairs. You are to design a desk that best suits you and your class' needs.

Things to consider:

1. What items do you need on your desk at the one time? [2]
2. Arrange the items as you would like them on your desk. Consider how you would change the size and shape of your desk to make it more comfortable to complete your work while having access to everything you need. Design a desk with the shape and dimensions you need to fit all these items easily. [4]
3. Calculate the area of the desk you designed. [2]
4. Calculate the percentage change in the area between your existing desk and the new design. [4]
5. What dimensions could triangular, rectangular, square and composite shaped desks have, while keeping the same area as your design? Verify by showing full calculations for a selection of different desk designs. [10]
6. Comment on the advantages and disadvantages of each of the design types. Support your comments with diagrams as necessary. [10]
7. What is the area of your classroom? [3]
8. How many desks are required in your room? [2]
9. If the desks currently in the class were replaced by your new desk design, what percentage of floor space would there be with and without desks? [4]
10. Verify that your desk can fit in your classroom (both the number needed and through the doorway). [4]
11. Prepare a brief report summarising all your calculations and either recommending or not recommending your desk with reasons. [5]

How Big? Marking Key

/50

1. Answers will vary – should include textbook, workbook or file, calculator, pencil case; or appropriate technology (laptop or own device) and others as appropriate to personal needs. [2]
2. ✓ appropriate (workable) layout of items
✓ all items included
✓ sketch with sense of scale (not required to be precise until Unit 2)
✓ statement of dimensions [4]
3. Answers will vary ✓✓ [2]
4. ✓ Find current desk dimensions
✓ Calculate current desk area
✓ Difference in area calculated
✓ Percentage change calculated [4]
5. Answers will vary: ✓✓ per design up to max of 10 (5 shapes)
One mark for shape dimensions, one mark for area calculation [10]
6. For each of the 5 shapes, ✓ for advantages, ✓ for disadvantages
Should consider practicality of design, ability to reach all objects when seated, can join desks together for group activities, etc [10]
7. ✓ measure dimensions of room
✓✓ calculation of area [3]
8. ✓ count of students in the class
✓ adjustment for other classes that use room [2]
9. ✓ calculate total area of desks
✓ calculate area of room remaining
✓ calculate percentage of floor covered by desks
✓ calculate percentage of floor not covered by desks [4]
10. ✓ Judgement of whether space is sufficient for practical use
✓ Shows consideration of other requirements (chairs, movement, space to access board/screen at front of room, clear of other furniture such as cupboards, desk for the teacher, can open the door, can walk from door to desk without climbing over furniture, etc)
✓ Demonstration of how it will all fit such as a sketch showing furniture arrangement
✓ Assessment of whether or not it will fit in the door [4]
11. ✓✓ summary of calculations
✓ recommendation or not
✓✓ outline of reasons for and against design [5]