Merit Tutoring

WORKSHEET 31

Area (Inside Space)

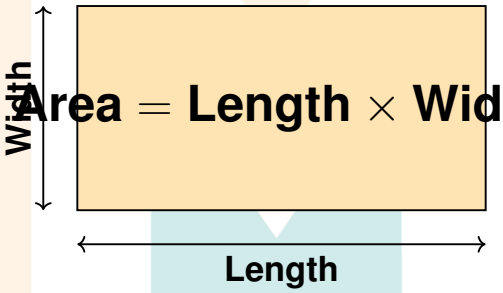
Year 5 Mathematics — Measurement Strand

Australian Curriculum v9.0 — AC9M5M02

Name: _____ **Date:** _____

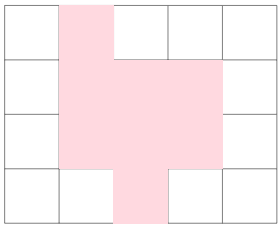
KEY CONCEPT: Area is the amount of space inside a 2D shape. We measure area in **square units** like cm^2 (square centimetres) or m^2 (square metres).

Area Formula for Rectangles:



Section 1: Fluency - Counting Grids

Question 1: Count the square centimetres to find the area of the shaded shape:



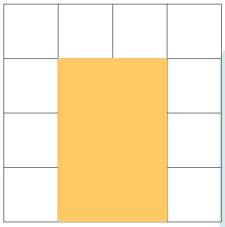
Each square = $1 cm^2$

Answer: _____

Question 2: What is the area of this shaded shape in square centimetres?

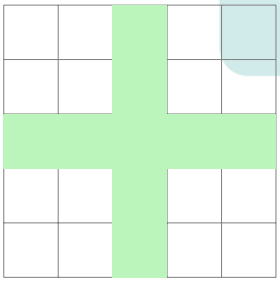
Answer: _____

Question 3: Count the full squares only. What is the area?



Answer: _____

Question 4: How many square units cover this shape?



Answer: _____

Question 5: A square has sides of 4cm. Draw it on a grid and find its area.

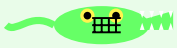
Answer: _____

Question 6: True or False: A shape covering 12 grid squares has an area of 12cm^2.

Answer: _____

Question 7: Which shape has a larger area: A (6 squares) or B (9 squares)?

Answer: _____



Area Alligator Says:

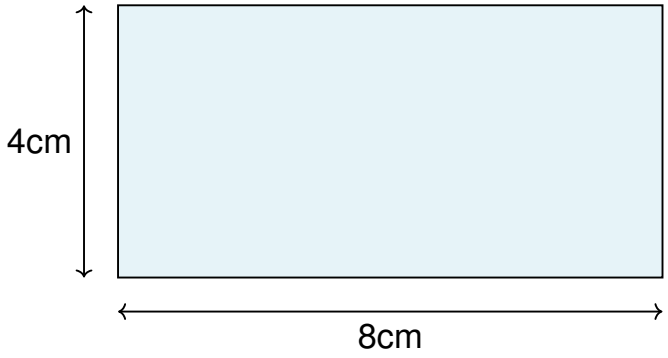
"You're an Area Ace!"

Joke Time: Why was the square so tired?
Because it had too much area to cover!

Section 2: Reasoning - Rectangle Formula

KEY CONCEPT: For rectangles and squares, use the formula:
Area $=$ Length $\times$ Width

Question 8: Use the formula Area $= L \times W$ to find the area of this rectangle:



Answer: _____

Question 9: Calculate the area of a rectangle with length 12cm and width 5cm.

Answer: _____

Question 10: A square has sides of 7cm. What is its area?

Answer: _____

Question 11: Find the area:

Length = 9m
Width = 6m

Answer: _____

Question 12: A rectangle has an area of 24cm^2 and a width of 4cm. What is its length?

Answer: _____

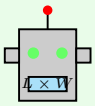
Question 13: Which rectangle has a larger area?
Rectangle A: 8cm $\times$ 3cm
Rectangle B: 5cm $\times$ 5cm

Answer: _____

Question 14: A classroom floor is 10m long and 8m wide. What is the area of the floor?

Answer: _____

Question 15: Calculate: $15\text{cm} \times 4\text{cm} =$ _____



Rectangle Robot Says:

"You're a Formula Master!"

Joke Time: Why did the rectangle go to the gym?
To work on its length and width!

Section 3: Challenge - Comparing Areas

Question 16: Shape A is a 5cm $\times$ 5cm square. Shape B is a 6cm $\times$ 4cm rectangle. Which shape has the larger area?

Answer: _____

Question 17: A garden bed is 12m long and 8m wide. What is its area in

m^2?

Answer: _____

Question 18: Two squares each have an area of $16 cm^2$. What is the length of each side?

Answer: _____

Question 19: Compare these areas:
Shape X: 7cm $\times$ 8cm
Shape Y: 9cm $\times$ 6cm
Which has the greater area, or are they equal?

Answer: _____

Question 20: A poster is 50cm wide and 70cm long. What is its area in cm^2?

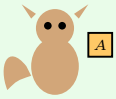
Answer: _____

Question 21: A square playground has sides of 15m. What is the total area of the playground?

Answer: _____

Question 22: If a rectangle's length is doubled but the width stays the same, what happens to the area?

Answer: _____



Square-Space Squirrel Says:

"You're a Space Explorer!"

Joke Time: What did the square say to the circle?
You're so well-rounded, but I've got more corners!

Excellent work! Check your answers on the next page.

WORKSHEET 31
ANSWER KEY

Section 1: Fluency - Counting Grids

1. 10cm^2 (Count: 6 squares in middle section + 1 square below + 1 square above = 8 full squares. Accept 7-10 depending on partial counting)
2. 12cm^2 (10 squares in bottom + 2 squares in top = 12)
3. 6cm^2 ($3 \times 2 = 6$ full squares)
4. 9cm^2 (5 vertical squares + 4 horizontal squares, with 1 overlapping = 9)
5. 16cm^2 ($4 \times 4 = 16$)
6. True
7. Shape B (9 squares $>$ 6 squares)

Section 2: Reasoning - Rectangle Formula

8. 32cm^2 ($8 \times 4 = 32$)
9. 60cm^2 ($12 \times 5 = 60$)
10. 49cm^2 ($7 \times 7 = 49$)
11. 54m^2 ($9 \times 6 = 54$)
12. 6cm ($24 \div 4 = 6$)
13. Rectangle B ($8 \times 3 = 24\text{cm}^2$ vs $5 \times 5 = 25\text{cm}^2$)
14. 80m^2 ($10 \times 8 = 80$)
15. 60cm^2

Section 3: Challenge - Comparing Areas

16. Shape A has the larger area
Shape A: $5 \times 5 = 25\text{cm}^2$
Shape B: $6 \times 4 = 24\text{cm}^2$
17. 96m^2 ($12 \times 8 = 96$)
18. 4cm (since $4 \times 4 = 16$)
19. Equal
Shape X: $7 \times 8 = 56\text{cm}^2$
Shape Y: $9 \times 6 = 54\text{cm}^2$
Actually Shape X is greater (correction: $56 > 54$)
20. 3500cm^2 ($50 \times 70 = 3500$)
21. 225m^2 ($15 \times 15 = 225$)
22. The area doubles (if length doubles, area = $2L \times W = 2(L \times W)$)

Merit Tutoring

WORKSHEET 32

Composite Shapes & Practical Problems

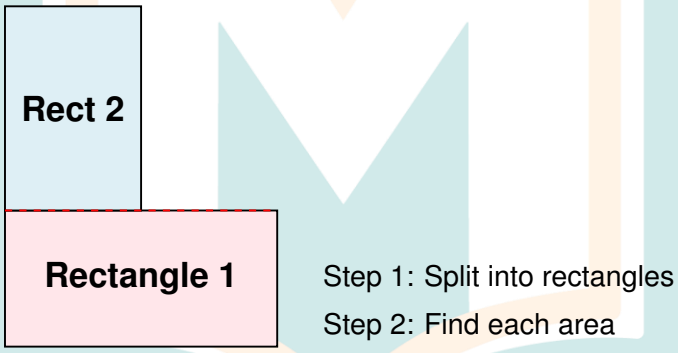
Year 5 Mathematics — Measurement Strand

Australian Curriculum v9.0 — AC9M5M02

Name: _____ **Date:** _____

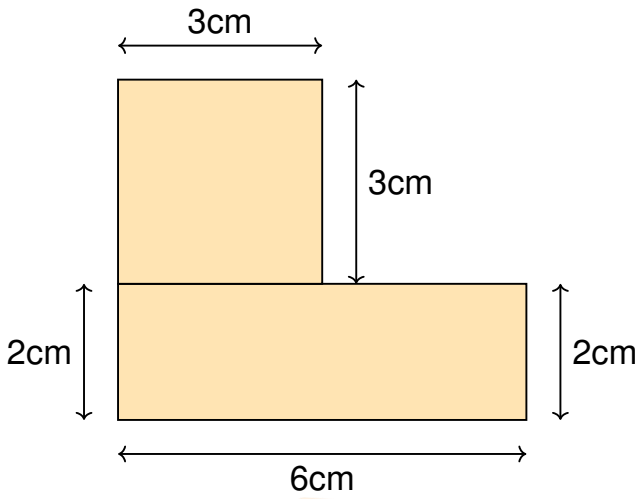
KEY CONCEPT: Composite shapes are made of two or more simple shapes joined together. To find the total area, break the shape into rectangles, calculate each area, then add them together!

Strategy for Composite Shapes:



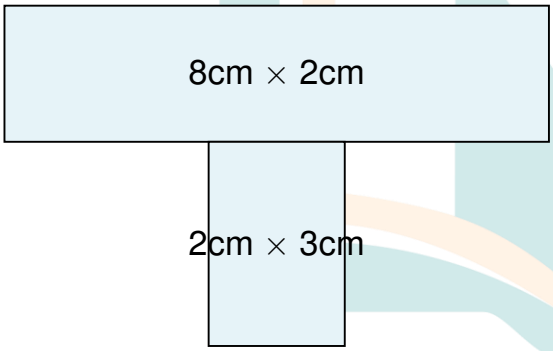
Section 1: Fluency - Simple Composite Shapes

Question 1: Split this shape into two rectangles to find the total area:



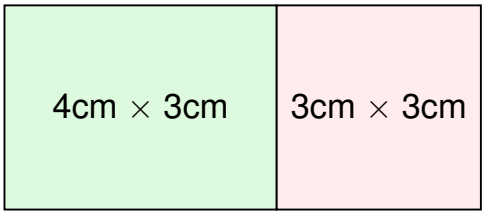
Answer: _____

Question 2: Find the total area of this T-shape:



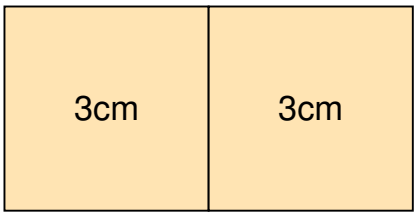
Answer: _____

Question 3: Calculate the area of this composite shape:



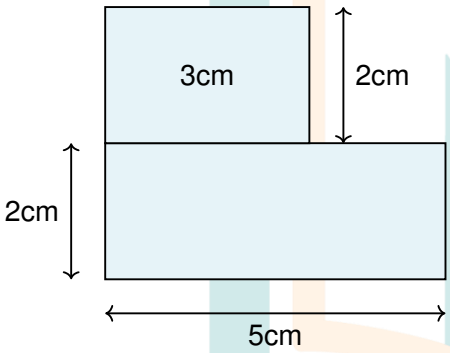
Answer: _____

Question 4: This shape is made of two squares. Find the total area:



Answer: _____

Question 5: Find the area of this stepped shape:



Answer: _____

Question 6: A shape is made from a 7cm $\times$ 4cm rectangle and a 5cm $\times$ 3cm rectangle. What is the total area?

Answer: _____

Question 7: True or False: To find the area of a composite shape, you multiply all the dimensions together.

Answer: _____

Composite Chameleon Says:

"You're a Shape Splitter Supreme!"

Joke Time: Why did the L-shape go to school?
To learn how to split its personality!

Section 2: Reasoning - Estimating Area

Question 8: If a floor tile is 1m^2, how many tiles are needed for a room that is 5m long and 6m wide?

Answer: _____

Question 9: A rectangular carpet is 4m by 3m. What is its area in square metres?

Answer: _____

Question 10: A wall is 8m long and 3m high. What is the area to be painted?

Answer: _____

Question 11: Square tiles measuring 1m $\times$ 1m are used to cover a floor measuring 7m $\times$ 9m. How many tiles are needed?

Answer: _____

Question 12: A desktop is 120cm long and 60cm wide. What is its area in cm^2?

Answer: _____

Question 13: A rectangular pool is 10m $\times$ 4m. How many 1m^2 tiles are needed to surround it if the border is 1m wide on all sides?
Hint: The total area including the pool is 12m $\times$ 6m.

Answer: _____

Question 14: A book cover has an area of 600cm^2. If it is 30cm long, what is its width?

Answer: _____

Tile Turtle Says:

"You're a Practical Problem Pro!"

Joke Time: Why did the floor tiles break up?
They couldn't find common ground!

Section 3: Challenge - Real-World Modelling

Question 15: A farmer has a rectangular field 50m long and 20m wide. What is the total area of the field?

Answer: _____

Question 16: If half the field from Question 15 is planted with corn, what is the area of the corn patch?

Answer: _____

Question 17: A rectangular playground is 35m by 25m. What is its area? If 20% of it is covered by equipment, what area remains for playing?

Answer: _____

Question 18: A school hall measures 20m $\times$ 15m. The floor needs new tiles costing \$5 per square metre. What is the total cost?

Answer: _____

Question 19: Two rectangular gardens have the same perimeter of 24m. Garden A is 8m $\times$ 4m. Garden B is 7m $\times$ 5m. Which has the larger area?

Answer: _____

Question 20: A rectangular swimming pool is 12m long and 6m wide. A path 2m wide surrounds the pool. What is the total area of the pool and path combined?

Answer: _____

Question 21: A farmer wants to fence a rectangular paddock with an area of 500m^2. If the width is 20m, what is the length?

Answer: _____

Question 22: A rectangular poster measures 80cm by 60cm. What is its area in m^2?
Hint: Convert to metres first! (100cm = 1m)

Answer: _____

Question 23: A basketball court is 28m long and 15m wide. A volleyball court is 18m long and 9m wide. How much more area does the basketball court have?

Answer: _____

Farmer Fox Says:

"You're a Real-World Wizard!"

Joke Time: Why did the farmer measure his field?
He wanted to know if it was outstanding in its field!

Outstanding work! Check your answers on the next page.

WORKSHEET 32
ANSWER KEY

Section 1: Fluency - Simple Composite Shapes

1. 21cm^2
Working: Rectangle 1 (bottom): $6 \times 2 = 12\text{cm}^2$
Rectangle 2 (top): $3 \times 3 = 9\text{cm}^2$
Total: $12 + 9 = 21\text{cm}^2$
2. 22cm^2
Working: Top: $8 \times 2 = 16\text{cm}^2$. Middle: $2 \times 3 = 6\text{cm}^2$. Total: $16 + 6 = 22\text{cm}^2$
3. 21cm^2
Working: Left: $4 \times 3 = 12\text{cm}^2$. Right: $3 \times 3 = 9\text{cm}^2$. Total: $12 + 9 = 21\text{cm}^2$
4. 18cm^2
Working: $2 \times (3 \times 3) = 2 \times 9 = 18\text{cm}^2$
5. 16cm^2
Working: Bottom: $5 \times 2 = 10\text{cm}^2$. Top: $3 \times 2 = 6\text{cm}^2$. Total: $10 + 6 = 16\text{cm}^2$
6. 43cm^2
Working: $7 \times 4 = 28$ and $5 \times 3 = 15$. Total: $28 + 15 = 43\text{cm}^2$
7. False (you need to find each area separately and add them)

Section 2: Reasoning - Estimating Area

8. 30 tiles ($5 \times 6 = 30\text{m}^2$, and each tile is 1m^2)
9. 12m^2 ($4 \times 3 = 12$)
10. 24m^2 ($8 \times 3 = 24$)
11. 63 tiles ($7 \times 9 = 63$)
12. 7200cm^2 ($120 \times 60 = 7200$)
13. 32 tiles
Working: Total area with border: $12 \times 6 = 72\text{m}^2$
Pool area: $10 \times 4 = 40\text{m}^2$
Border tiles: $72 - 40 = 32\text{m}^2$
14. 20cm ($600 \div 30 = 20$)

Section 3: Challenge - Real-World Modelling

15. 1000m^2 ($50 \times 20 = 1000$)
16. 500m^2 ($1000 \div 2 = 500$)
17. Total area: 875m^2 ($35 \times 25 = 875$)

Playing area: 700m^2 (80% of $875 = 0.8 \times 875 = 700$)

18. $1500

Working: Area = $20 \times 15 = 300\text{m}^2$. Cost: $300 \times \$5 = \$1500$

19. Garden B has larger area

Garden A: $8 \times 4 = 32\text{m}^2$

Garden B: $7 \times 5 = 35\text{m}^2$

20. 160m^2

Working: Total dimensions including path:

$(12 + 4) \times (6 + 4) = 16 \times 10 = 160\text{m}^2$

21. 25m ($500 \div 20 = 25$)

22. 0.48m^2

Working: 80cm = 0.8m, 60cm = 0.6m. Area: $0.8 \times 0.6 = 0.48\text{m}^2$

23. 258m^2

Working: Basketball: $28 \times 15 = 420\text{m}^2$

Volleyball: $18 \times 9 = 162\text{m}^2$

Difference: $420 - 162 = 258\text{m}^2$

Amazing Achievement!

You've mastered Area!
You're now an expert at measuring inside space!