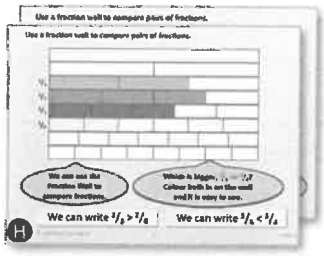
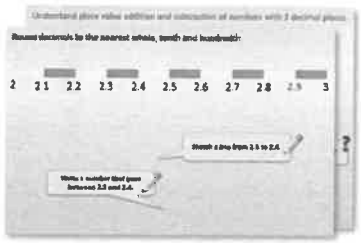
Year 6: Week 3, Day 1
Calculating area

Each day covers one maths topic. It should take you about 1 hour or just a little more.

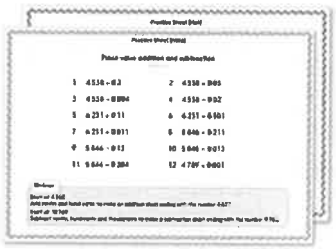
1. If possible, watch the **PowerPoint presentation** with a teacher or another grown-up.



OR start by reading through the **Learning Reminders**.
They come from our *PowerPoint* slides.

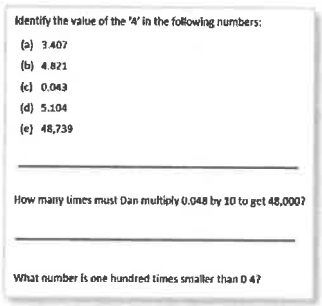


2. Tackle the questions on the **Practice Sheet**.
There might be a choice of either Mild (easier) or Hot (harder)!
Check the answers.



3. Finding it tricky? That's OK... have a go with a grown-up at **A Bit Stuck?**

4. Have I mastered the topic? A few questions to **Check your understanding.**
Fold the page to hide the answers!

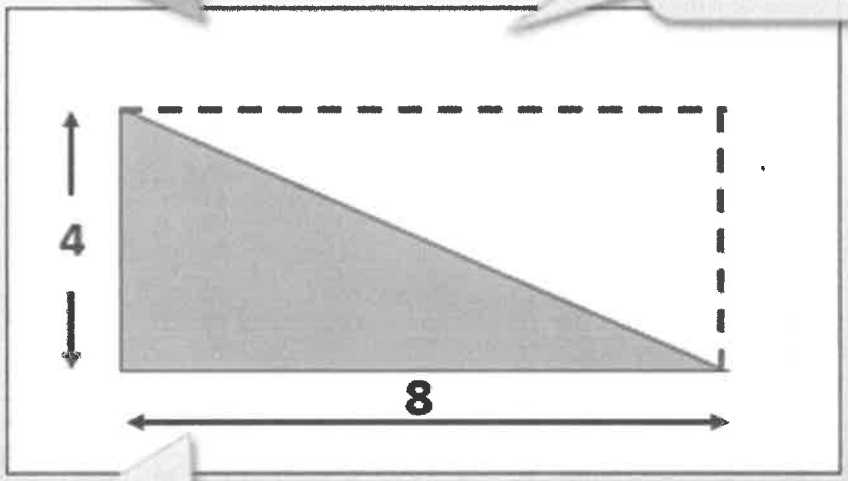


Learning Reminders

Find the area of triangles.

How can we find the area of this triangle?

We can use the fact that this triangle has ½ the area of a 4 by 8 rectangle.



What is the area of this rectangle?

So, what is the triangle's area?

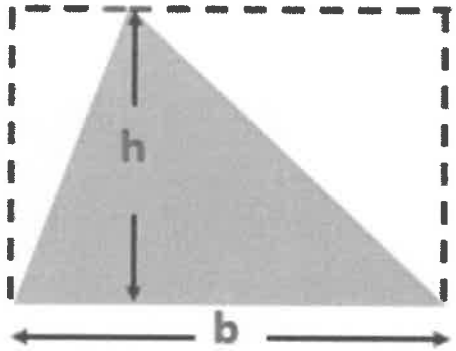
The area of the rectangle is 32 square units (8 x 4).
The area of the triangle is 16 square units (half of 8 x 4).

Learning Reminders

Find the area of triangles.

This triangle doesn't have a right angle, but the perpendicular height splits it into two right-angled triangles.

And we can draw a rectangle round each of the two smaller triangles to help find the area of each triangle; then add them together.



But we don't need to!
The 'big' triangle has half the area of the rectangle around the whole triangle!

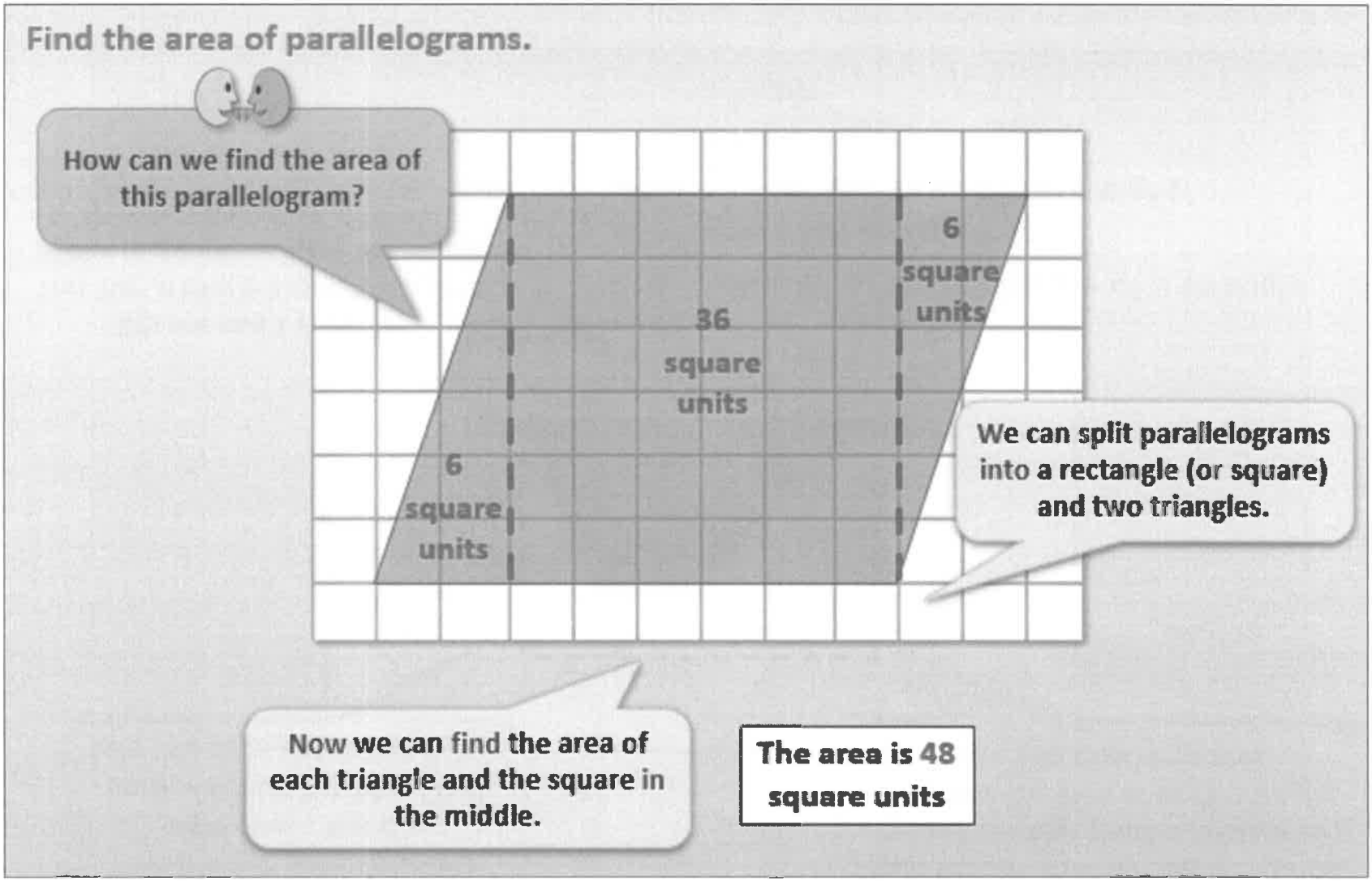
The 'formula' to find the area of a triangle can be written as follows:

Area = $^1/_2$ of the base times height

$= {}^1/_2 \times b \times h$

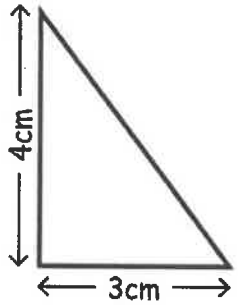
$= {}^1/_2 bh$

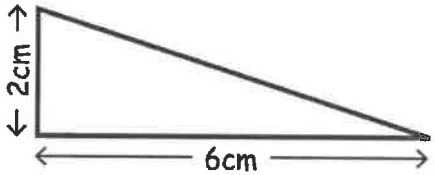
Learning Reminders

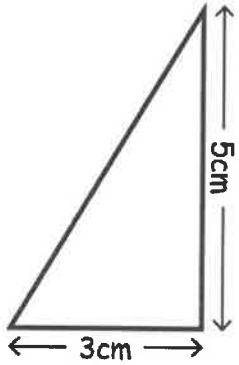


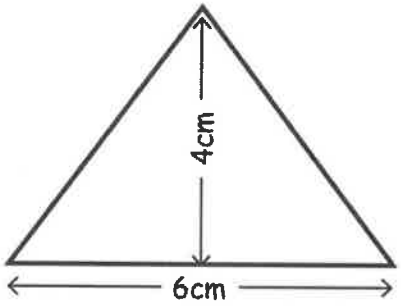
Practice Sheet Mild
Area of triangles

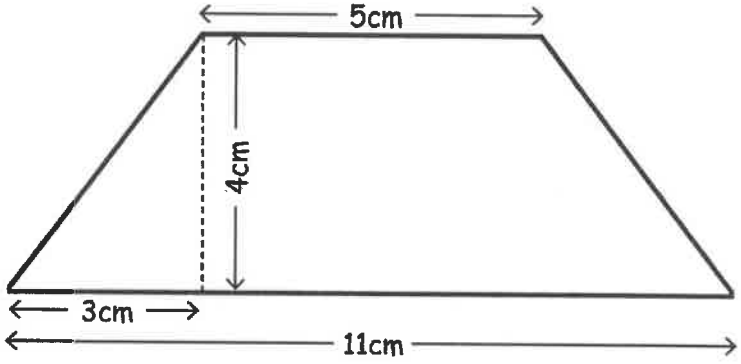
Find the area of each of these shapes. You may find it useful to annotate them.









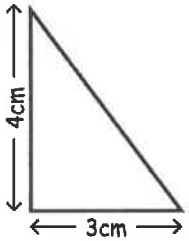


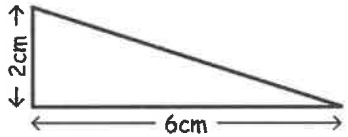
Challenge

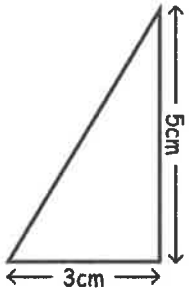
Now create your own compound shapes with an area of 40cm².

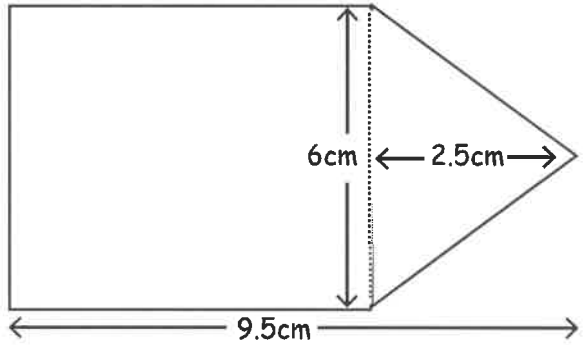
Practice Sheet Mild
Area of triangles

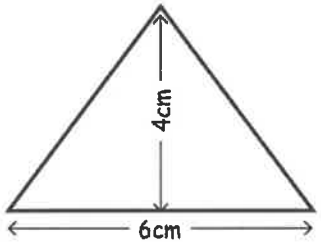
Find the area of each of these shapes. You may find it useful to annotate some of them.

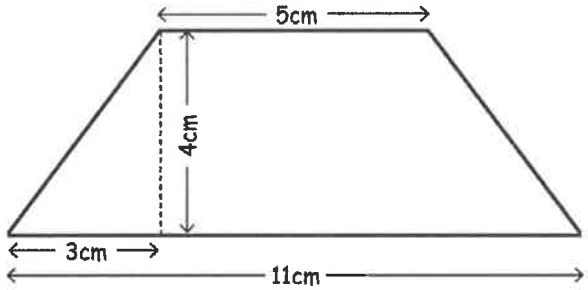






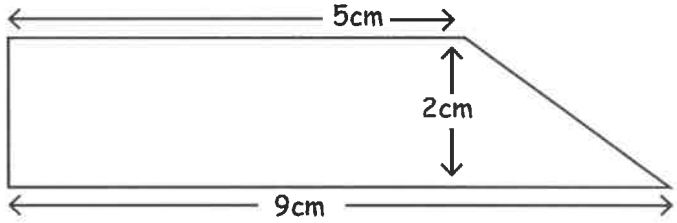






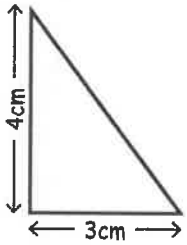
Challenge

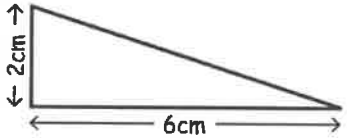
Now create your own compound shapes with an area of 44cm²

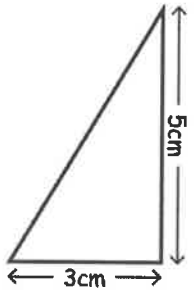


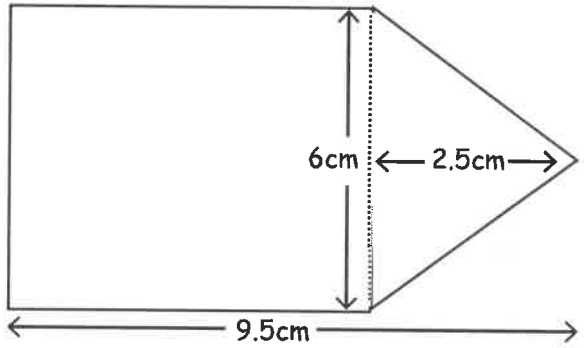
Practice Sheet Hot
Area of triangles

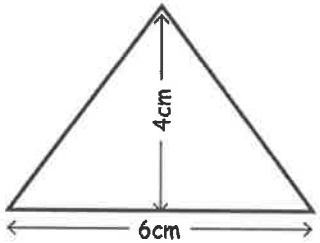
Find the area of each of these shapes. You may find it useful to annotate some of them.

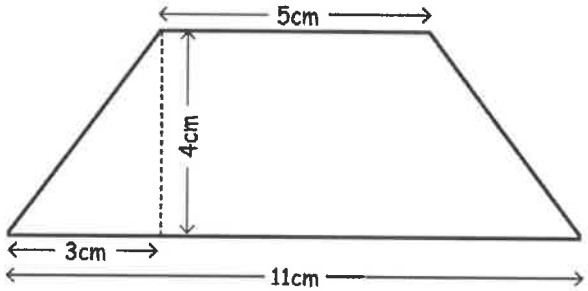






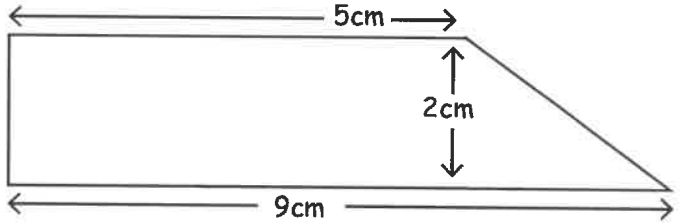






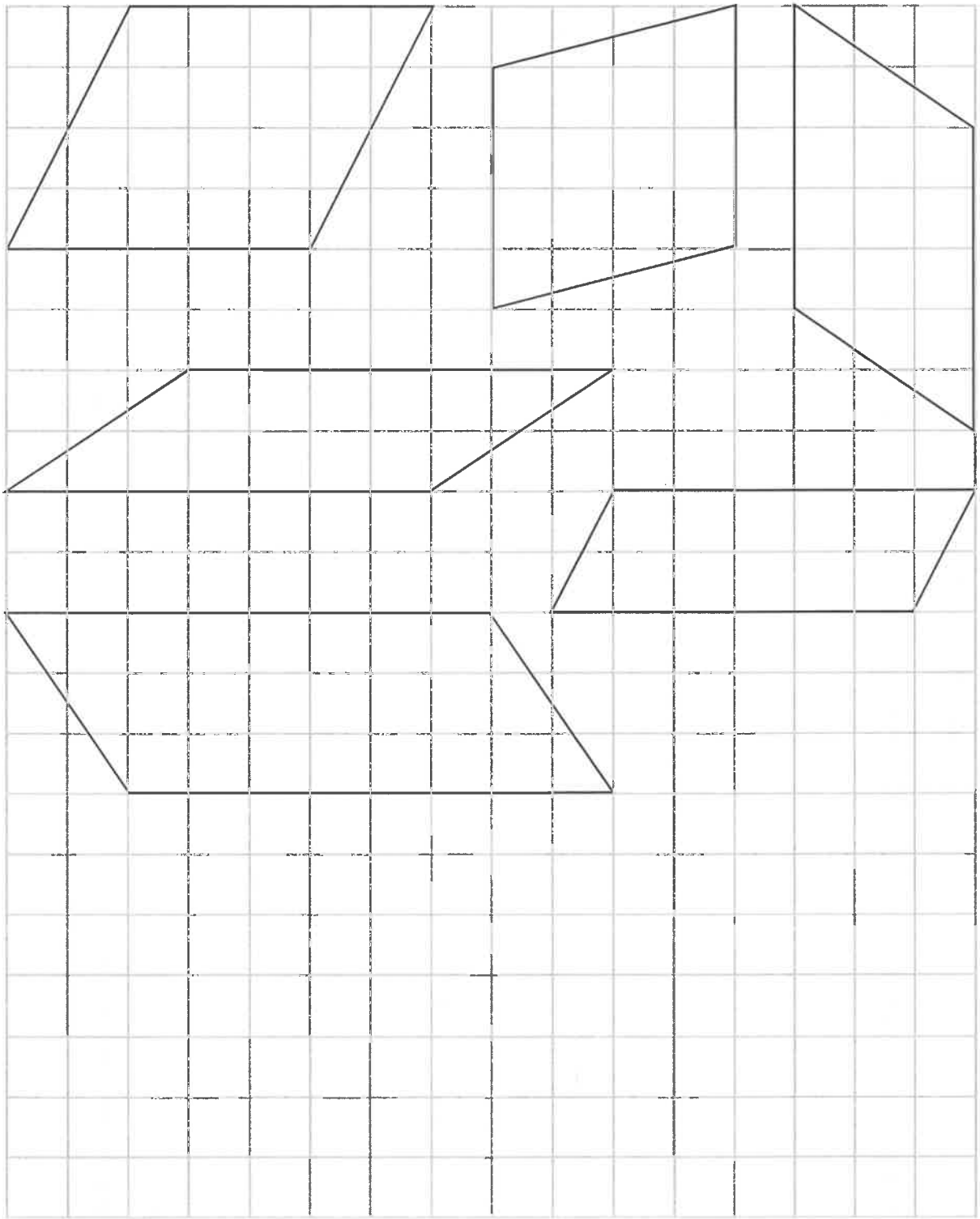
Challenge

Now create your own compound shapes with an area of 44cm²



Practice Sheet Hot
Area of parallelograms

Write the area of each parallelogram inside the shape.



Challenge

In the space available, draw a parallelogram with an area of 18 cm².

Practice Sheets Answers

Area of triangles (mild)

Triangles with height and base lengths of:
4cm and 3cm, area = 6cm^2
2cm and 6cm, area = 6cm^2
5cm and 3cm. area = 7.5cm^2
4cm and 6cm, area = 12cm^2

Parallelogram area (straight sides 5 and 11cm) = 32cm^2

Area of triangles (mild)

Triangles with height and base lengths of:
4cm and 3cm, area = 6cm^2
2cm and 6cm, area = 6cm^2
5cm and 3cm. area = 7.5cm^2
4cm and 6cm, area = 12cm^2
Isoceles trapezium area (straight sides 5 and 11cm) = 32cm^2
Pentagon = 49.5cm^2
Trapezium area (straight sides 5 and 9cm) = 14cm^2

Area of triangles (hot)

Triangles with height and base lengths of:
4cm and 3cm, area = 6cm^2
2cm and 6cm, area = 6cm^2
5cm and 3cm. area = 7.5cm^2
4cm and 6cm, area = 12cm^2
Isoceles trapezium area (straight sides 5 and 11cm) = 32cm^2
Pentagon = 49.5cm^2
Trapezium area (straight sides 5 and 9cm) = 14cm^2

Area of parallelograms (hot)

Areas are:

20cm^2 16cm^2 15cm^2
14cm^2 12cm^2
24cm^2

A Bit Stuck?
Folding areas

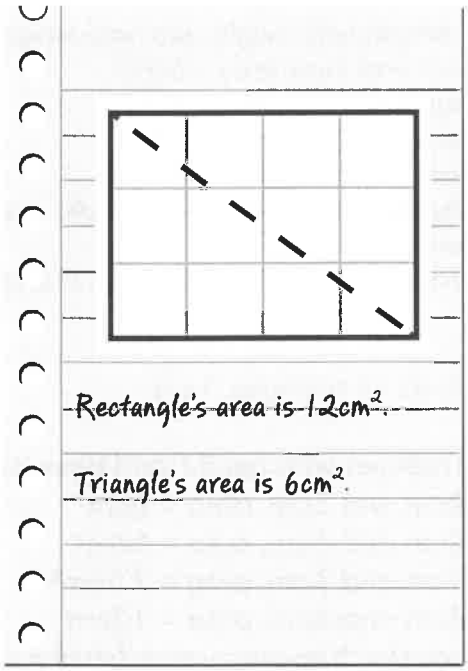
Work in pairs, but record your work on your own paper/in your own book.

Things you will need:

- cm² paper
- Scissors
- A glue stick
- A pencil

What to do:

- Draw a rectangle on cm² paper.
  One or both sides should measure an even number of centimetres.
- Work out the area.
- Fold it diagonally in half to form a pair of triangles. Calculate the area of each triangle.
- Unfold the rectangle and stick it on paper/in your book. Write the area of the rectangle and triangle.
- Repeat with at least 5 different rectangles.



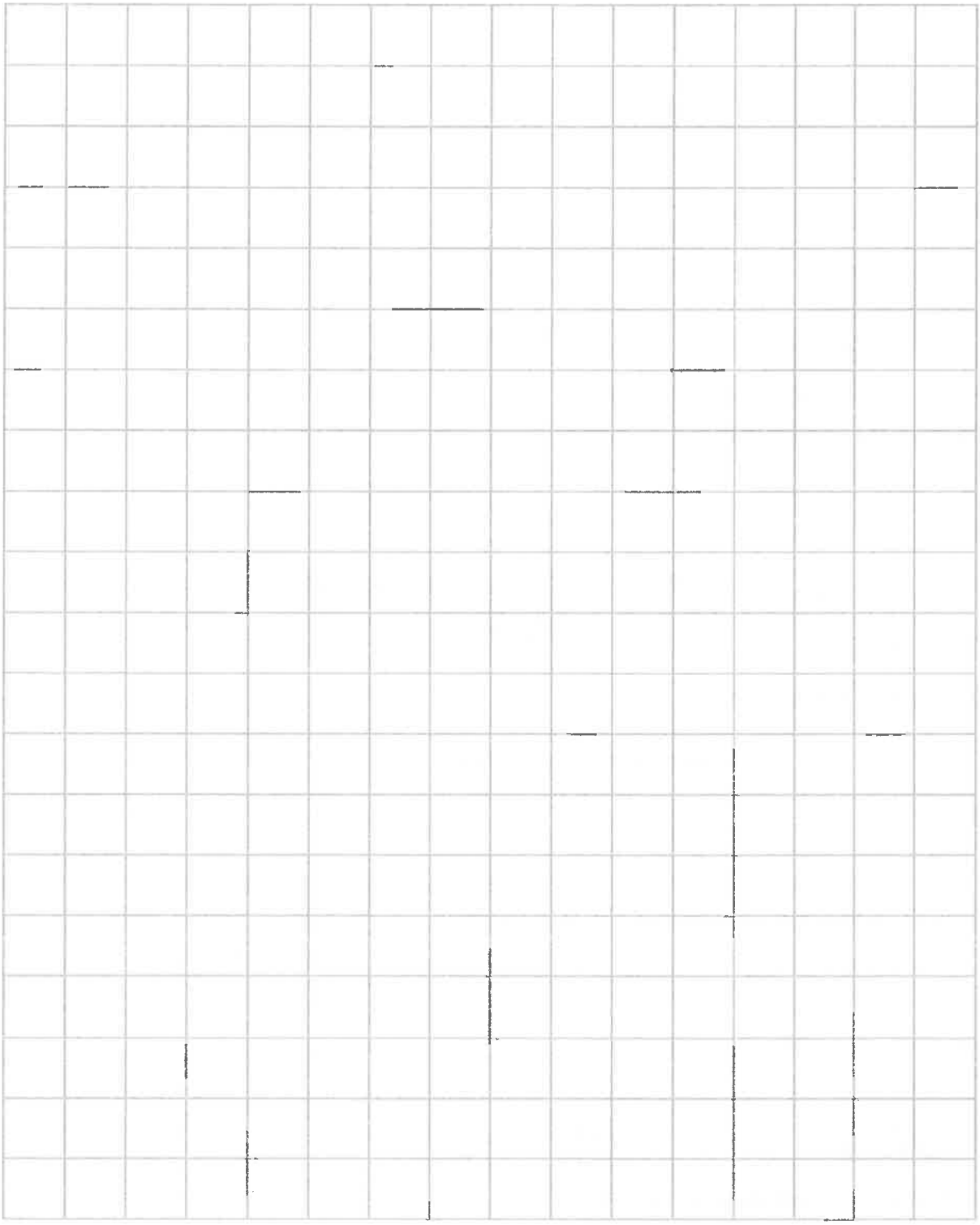
S-t-r-e-t-c-h:

Draw a right-angled triangle. Draw the other half of the rectangle.
Write the area of both the rectangle and the triangle.

Learning outcomes:

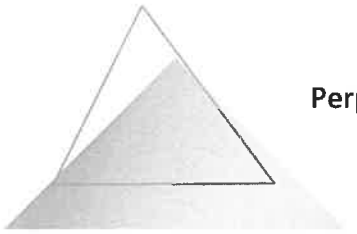
- I can find the area of rectangles and halve to find the area of right-angled triangles.
- I am beginning to draw rectangles around right-angled triangles in order to find the area of the triangle.

A Bit Stuck?
Folding areas



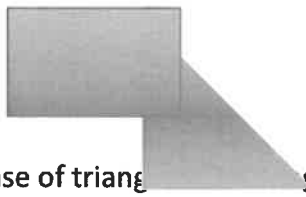
Check your understanding
Questions

Find the area of this triangle.



Perpendicular height = 6 cm

What is the area of this shape?



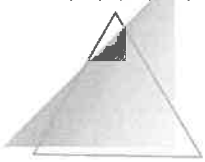
Total length = 12cm

Base of triang gth of rectangle.
Triangle has two equal sides.

Fold here to hide answers

Check your understanding
Answers

Find the are of this triangle.



Perpendicular height = 6 cm

base = 5cm

15cm^2. Watch out for the error of multiplying the height and base but neglecting to find half of that (resulting in area = 30cm^2).

What is the area of this shape? 40cm^2

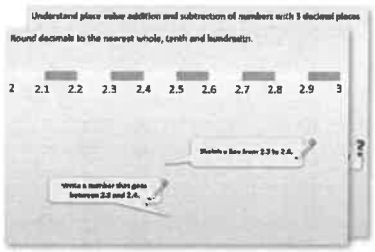
Total length = 12cm

Base of triangle is half length of rectangle.
Triangle has two equal sides.
The length of rectangle and triangle must be 8cm and 4cm respectively.
The height must also be 4cm as the triangle has two equal sides (the third slanted side will be the longer of the 3 sides).
Area of the rectangle is 8 x 4 = 32cm^2. Area of the triangle is ½ x 4 x 4 = 8cm^2.

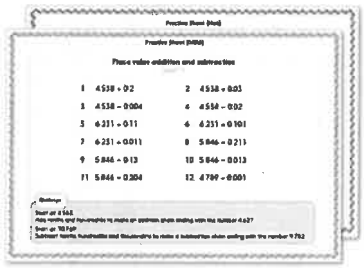
Year 6: Week 3, Day 2
Scale factor problems

Each day covers one maths topic. It should take you about 1 hour or just a little more.

1. Start by carefully reading through the **Learning Reminders**.



2. Tackle the questions on the **Practice Sheet**.
   There might be a choice of either Mild (easier) or Hot (harder)!
   Check the answers.



3. Finding it tricky? That's OK... have a go with a grown-up at **A Bit Stuck?**

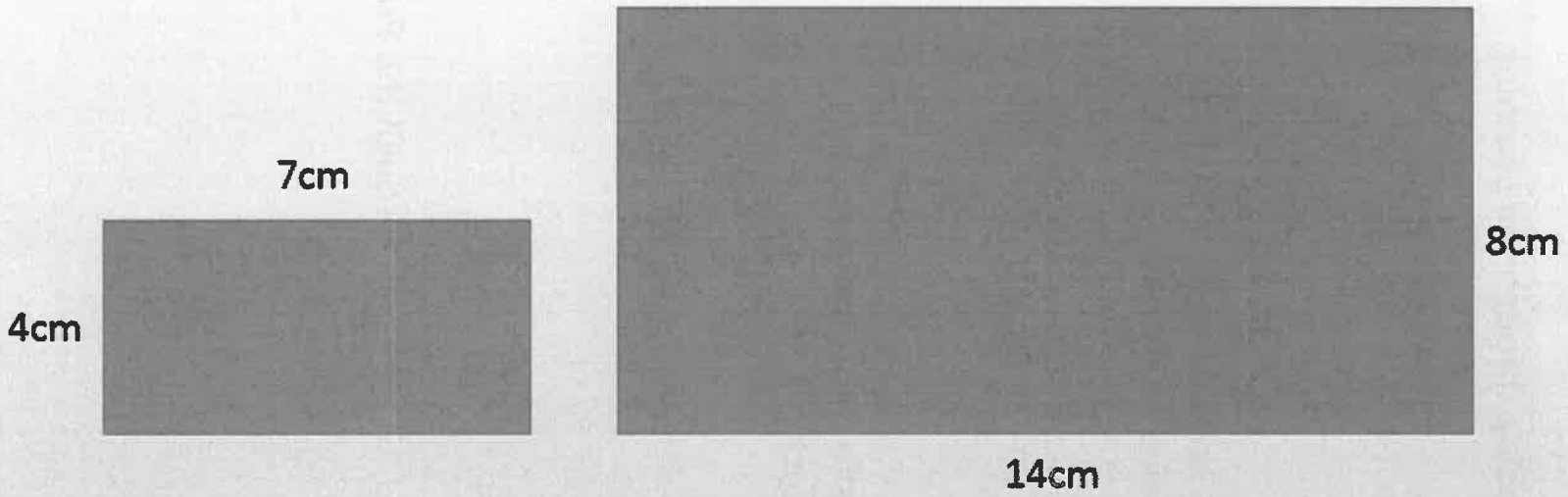
4. Think you've cracked it? Whizzed through the Practice Sheets? Have a go at the **Investigation**...

Learning Reminders

Solve problems involving scale factors.

Accurately sketch a rectangle with sides of lengths 4cm and 7cm.

If we double the lengths of the sides of this rectangle, what will its new dimensions be?

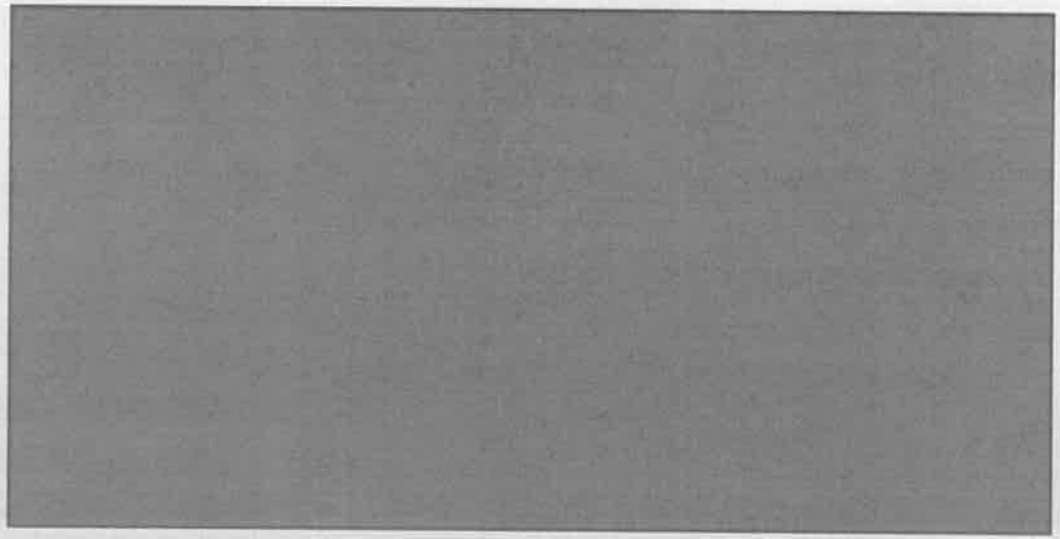


We multiplied both the length and the width by 2.
We say that we have enlarged the rectangle by a scale factor of 2.

Learning Reminders

Solve problems involving scale factors.

If we enlarge the smaller rectangle by a scale factor of 4, what will be its new dimensions?



See answer below

Answer
10cm by 32cm

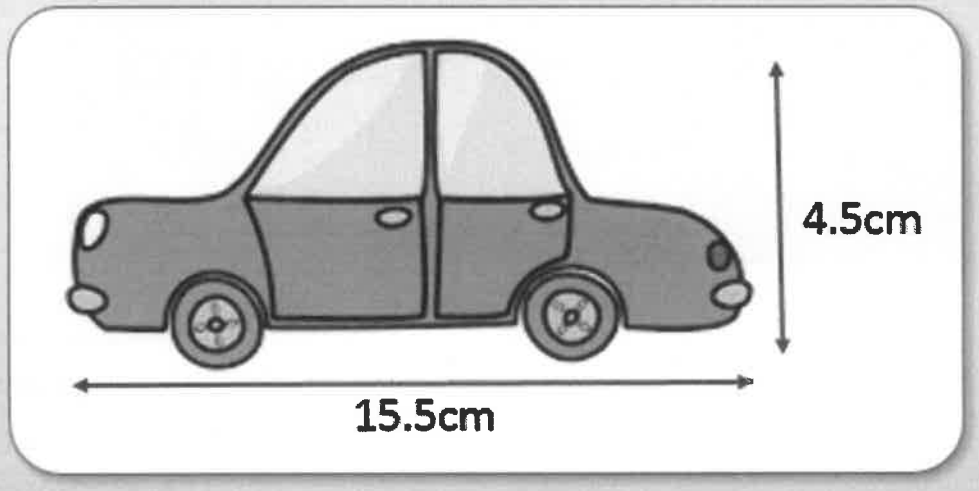
Learning Reminders

Solve problems involving scale factors.

This toy has been *sketched* with the dimensions shown.

In real life, it is enlarged by a scale factor of x5.

What are its *actual* width and height?

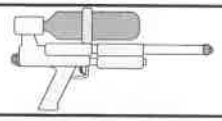


See answer below

Answer
77.5cm by 22.5cm

Practice Sheet Mild
Toy designs

A toy designer has drawn sketches to scale. Use the scale factor to calculate the length and height of the actual toy or drawing.

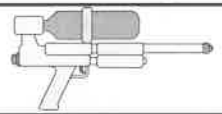
Toy	Drawn width and height	Scale factor	Actual width and height
	7cm by 4.5cm	× 4	
	5cm by 8cm	× 3	
	16cm by 24cm	× 1.5	
	10cm by 6cm	× 2.5	
		× 2	32cm by 12cm
		× 4	18cm by 24cm

Challenge

An ant measures 8mm by 6mm. Work out a scale factor so that a drawing of it would almost fill a page in your book!

Practice Sheet Hot
Toy designs

A toy designer has drawn sketches to scale. Use the scale factor to calculate the length and height of the actual toy or drawing.

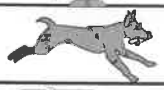
Toy	Drawn width and height	Scale factor	Actual width and height
	13cm by 4.5cm	× 4	
	5cm by 8cm	× 2.5	
	15cm by 23cm	× 1.5	
	12cm by 7cm	× 3.5	
		× 5	95cm by 13.5cm
		× 20	110cm by 25cm

Challenge

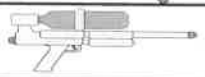
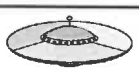
An ant measures 8mm by 6mm. Work out a scale factor so that a drawing of it would almost fill a page in your book!

Practice Sheets Answers

Toy designs (mild)

Toy	Drawn width and height	Scale factor	Actual width and height
	7cm by 4.5cm	× 4	28cm by 18cm
	5cm by 8cm	× 3	15cm by 24cm
	16cm by 24cm	× 1.5	24cm by 36cm
	10cm by 6cm	× 2.5	25cm by 15cm
	16cm by 6cm	× 2	32cm by 12cm
	4.5cm by 6cm	× 4	18cm by 24cm

Toy designs (hot)

Toy	Drawn width and height	Scale factor	Actual width and height
	13cm by 4.5cm	× 4	52cm by 18cm
	5cm by 8cm	× 2.5	12.5cm by 20cm
	15cm by 23cm	× 1.5	22.5cm by 34.5cm
	12cm by 7cm	× 3.5	42cm by 24.5cm
	19cm by 3.4cm	× 5	95cm by 13.5cm
	5.5cm by 1.25cm	× 20	110cm by 25cm

A Bit Stuck?
Factors and Multiples Game

Things you will need:
- 1-50 grids

What to do:

Print several copies of the 1-50 game grid.

1. This is a game for two players. The first player chooses an even number <30, and crosses it out on the 1-100 grid, e.g. 18.

2. The second player must then cross out a number which is a *factor or multiple* of the first number, e.g. 1, 2, 3, 6 or 9 (factors of 18), or 36 (the only multiple of 18 that is <50).

3. Players continue to take it in turns to cross out numbers, at each stage choosing a number that is a factor or multiple of the number just crossed out by the other player.

4. The first person who is unable to cross out a number loses that round.

S-t-r-e-t-c-h:

Switch the challenge from winning the game to covering as many numbers as possible.
- What is the longest sequence of numbers that can be crossed out?
- Can more than half the numbers be crossed out?

Learning outcomes:

- I can recall factors of 2-digit numbers.
- I can use mental strategies to calculate multiples of 2-digit numbers, up to 50.

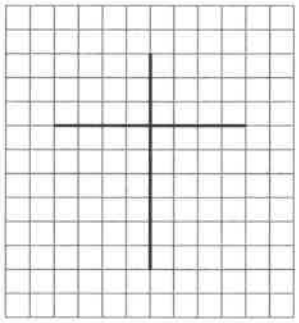
A Bit Stuck?
Factors and Multiples Game

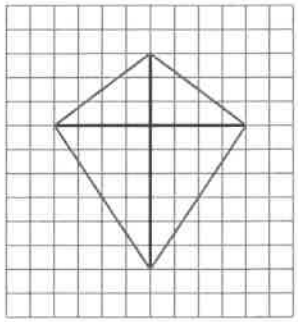
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

Investigation
Geometry genius

1. Draw a vertical line 9cm long on cm² squared paper. 3cm down this line, draw a perpendicular line 8cm long so that the first line bisects the second, as below:
2. Join the ends with straight lines to form a kite.



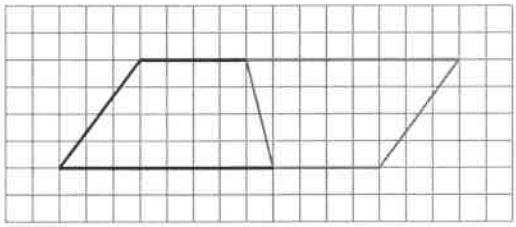


3. Use what you know about the finding the area of triangles to find the area of this kite.
4. Now draw your own kite, by first drawing the lines as above, but choosing your own whole number of centimetres for each one. Find the area of this new kite.

Can you see a relationship between the lengths of the diagonals and the area of the kite? Use this to write your own formulae for finding the area of a kite!

5. A rhombus is a special kite. All four sides are equal in length, and the diagonals are also equal in length. Draw a rhombus, beginning by drawing diagonals as above and find its area.
6. Repeat until you have enough information to write a formula for finding the area of any rhombus.

7. Draw a trapezium making sure that the pair of parallel sides are each a whole number of centimetres. Draw an identical one upside down alongside it like this:

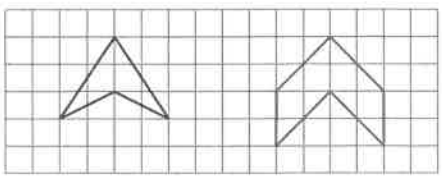


8. What is this new shape? Find the area of the new shape.
9. Use what you have found to write a formula for finding the area of trapezium.

It's amazing how much new maths you can work out now that you are in Year 6!
You are a geometry genius!

Challenge

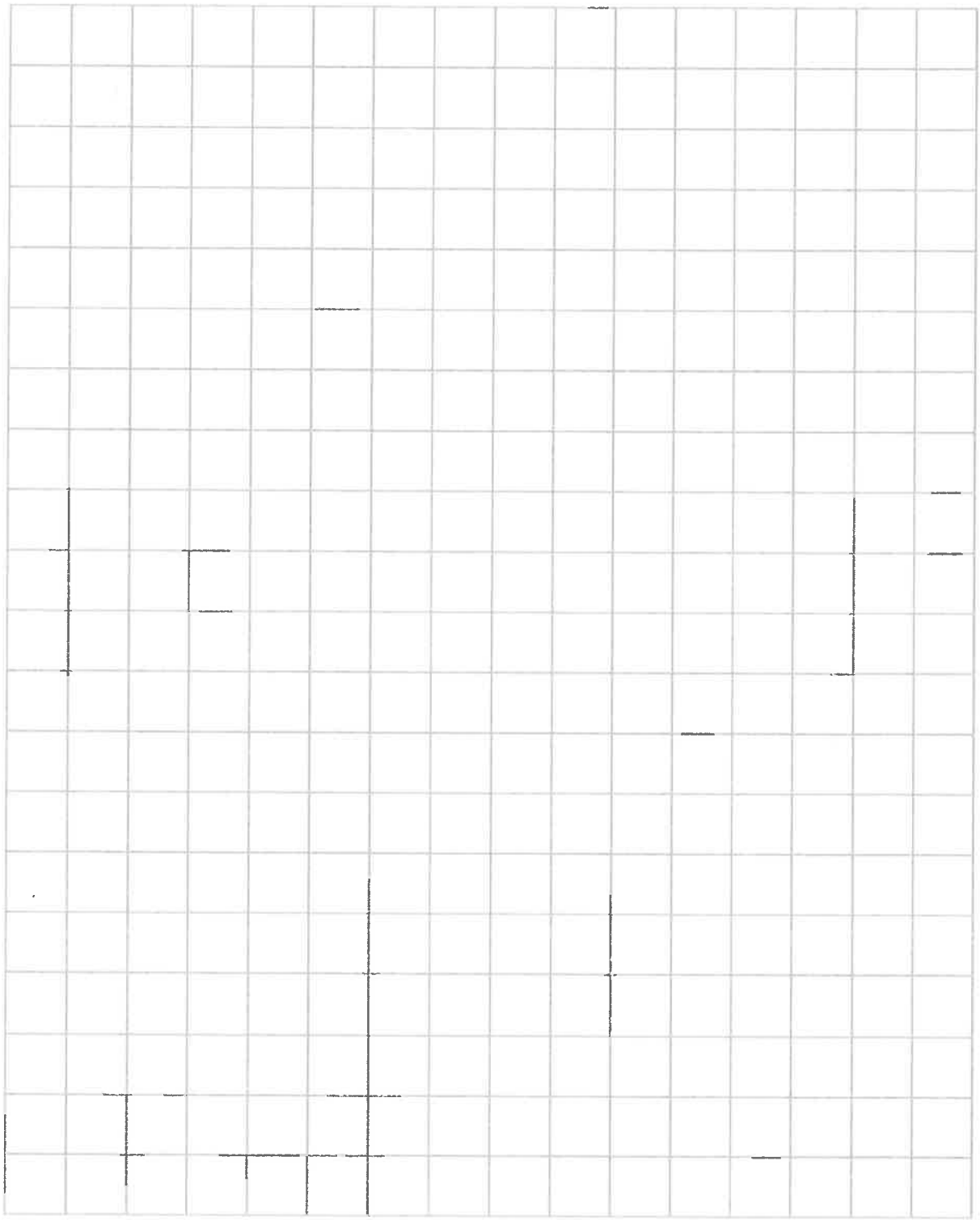
Write a formula for finding the area of an inverted kite or a regular hexagon, or even a symmetrical but irregular one like this!



Inverted kite

Symmetrical irregular inverted hexagon

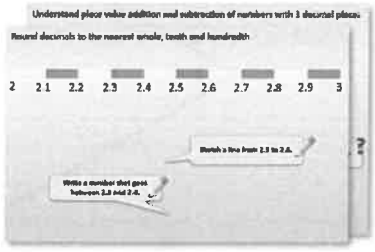
Investigation
Geometry genius



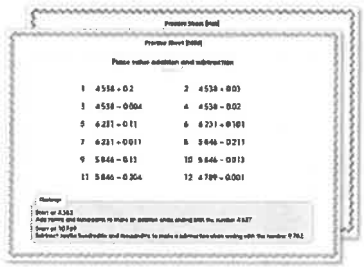
Year 6: Week 3, Day 3
Scaling: 'similar' shapes

Each day covers one maths topic. It should take you about 1 hour or just a little more.

1. Start by carefully reading through the **Learning Reminders.**
   Print a copy of the 'Similar shapes' resource sheet first (*see next page*).

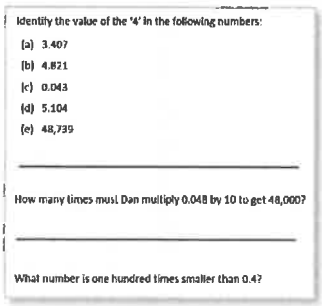


2. Tackle the questions on the **Practice Sheet.**
   There might be a choice of either Mild (easier) or Hot (harder)!
   Check the answers.



3. Finding it tricky? That's OK... have a go with a grown-up at **A Bit Stuck?**

4. Have I mastered the topic? A few questions to **Check your understanding.**
   Fold the page to hide the answers!

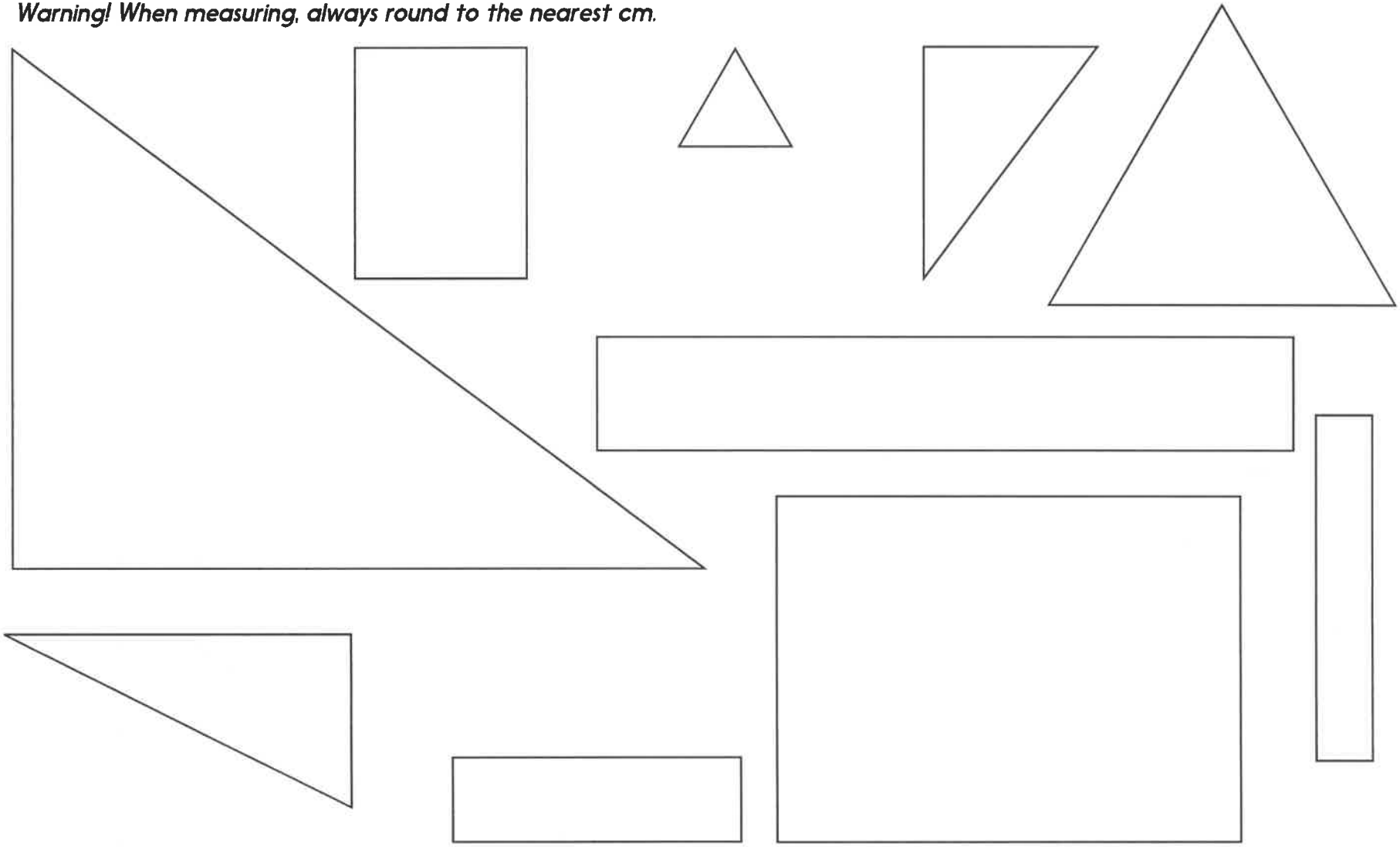

Identify the value of the '4' in the following numbers:
(a) 3.407
(b) 4.821
(c) 0.043
(d) 5.104
(e) 48,739

How many times must Dan multiply 0.048 by 10 to get 48,000?

What number is one hundred times smaller than 0.4?

Resource
Similar shapes

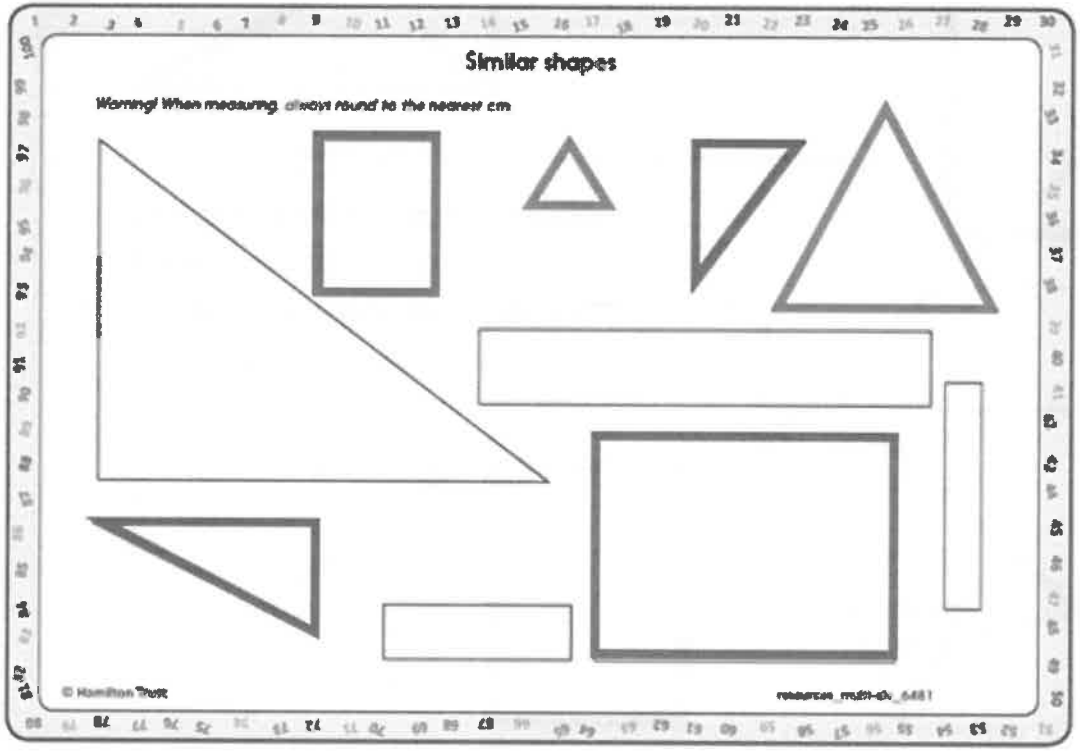
Warning! When measuring, always round to the nearest cm.



Learning Reminders

Scaling: similar shapes.

Similar shapes are identical in shape, but not in size.



So, all circles, squares and other *regular* shapes are similar, but rectangles might not be.

Step 1

On your resource sheet, find the two rectangles shown here in red. Measure the sides of each.

Calculate the scale factor, i.e. the number we need to multiply the side length of the first shape by to get the larger shape.

Step 2

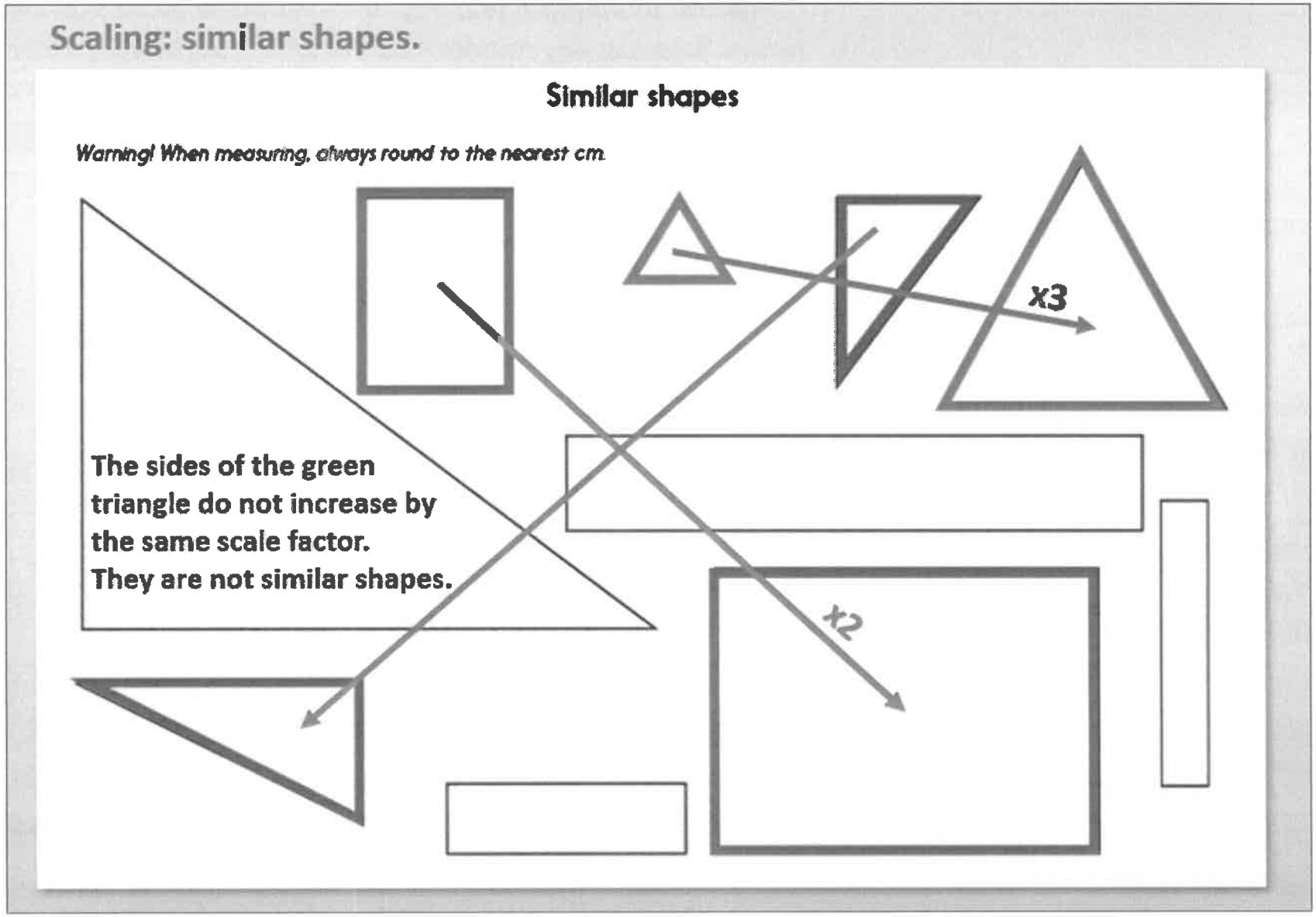
Repeat for the blue triangles.

Step 3

Repeat for the green triangles.

It is useful to use a scale factor when producing a scale drawing of plans for a building or a model. The drawing would have the same *proportions* as the real building or model.

Learning Reminders



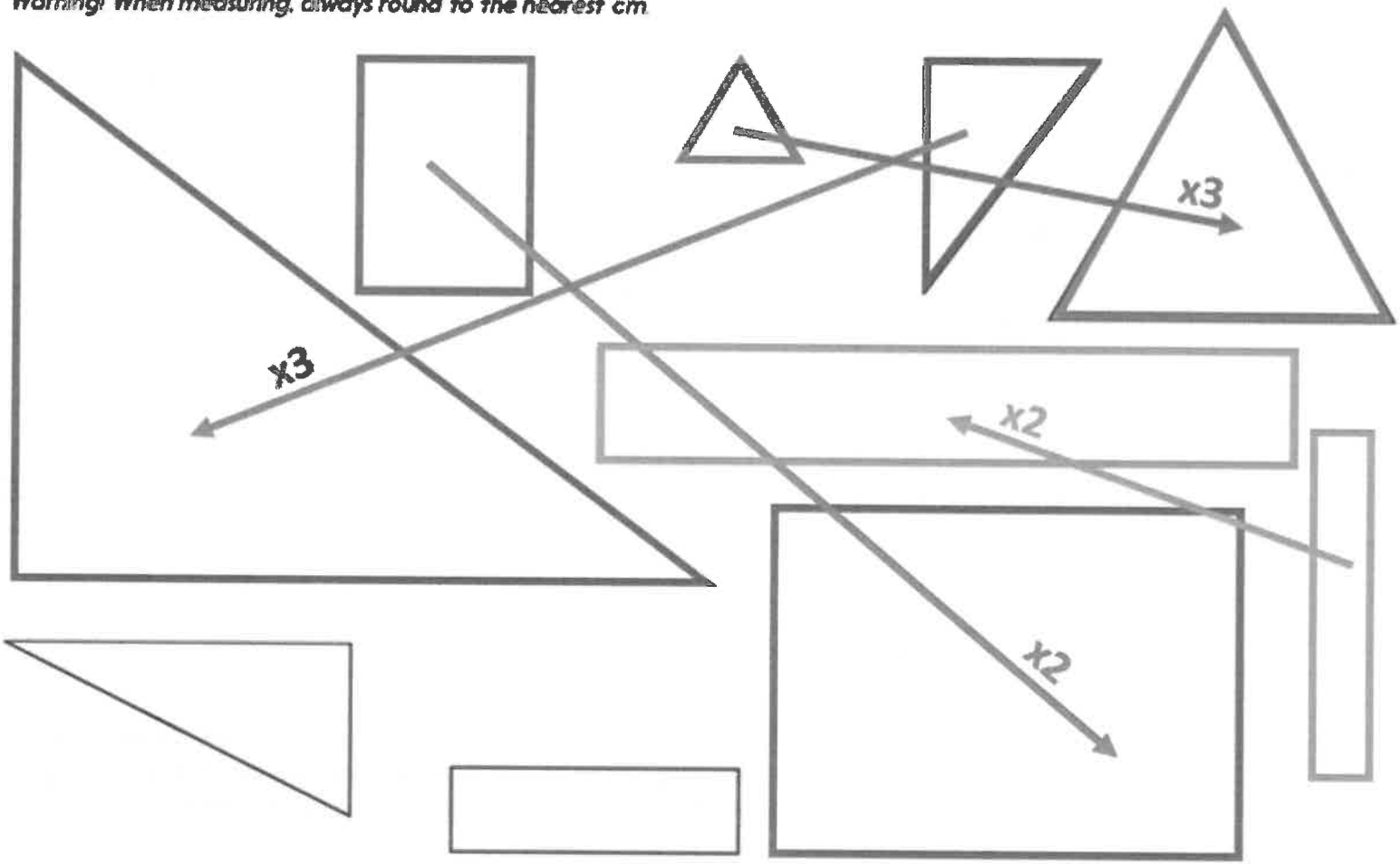
So, can you identify all pairs of similar shapes on the sheet before checking the final Learning Reminder?

Learning Reminders

Scaling: similar shapes.

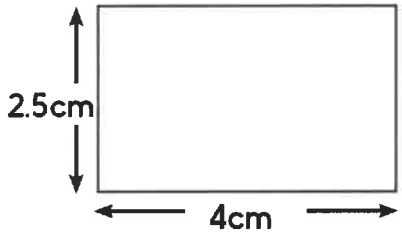
Similar shapes

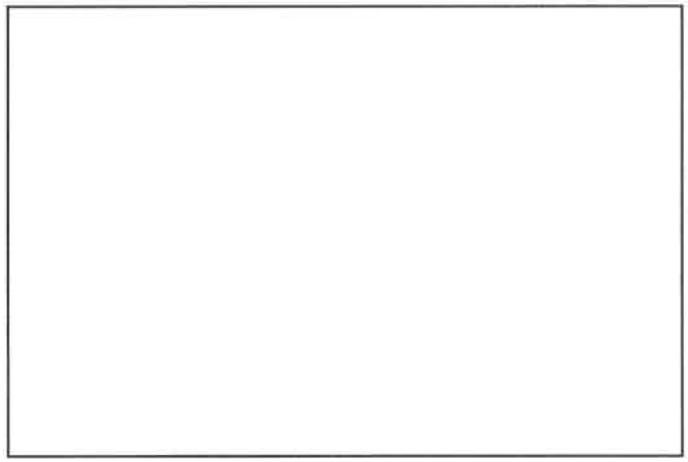
Warning! When measuring, always round to the nearest cm

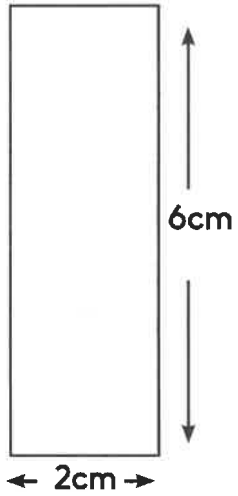


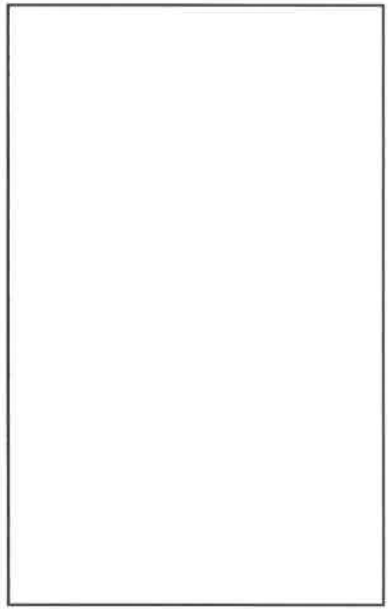
Practice Sheet Mild
Similar shapes – rectangles

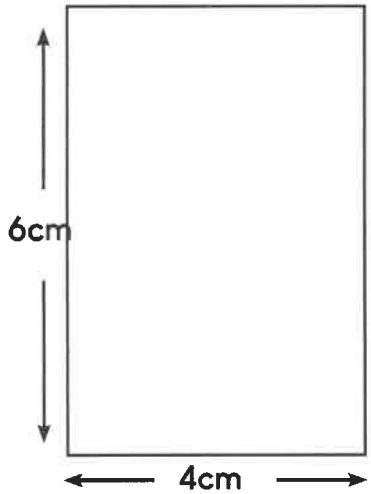
Look for pairs of similar shapes. Measure one side of the similar shape without any measurements. Find the scale factor between the two shapes. Now work out the lengths of the other sides of the larger shape. Measure to check.

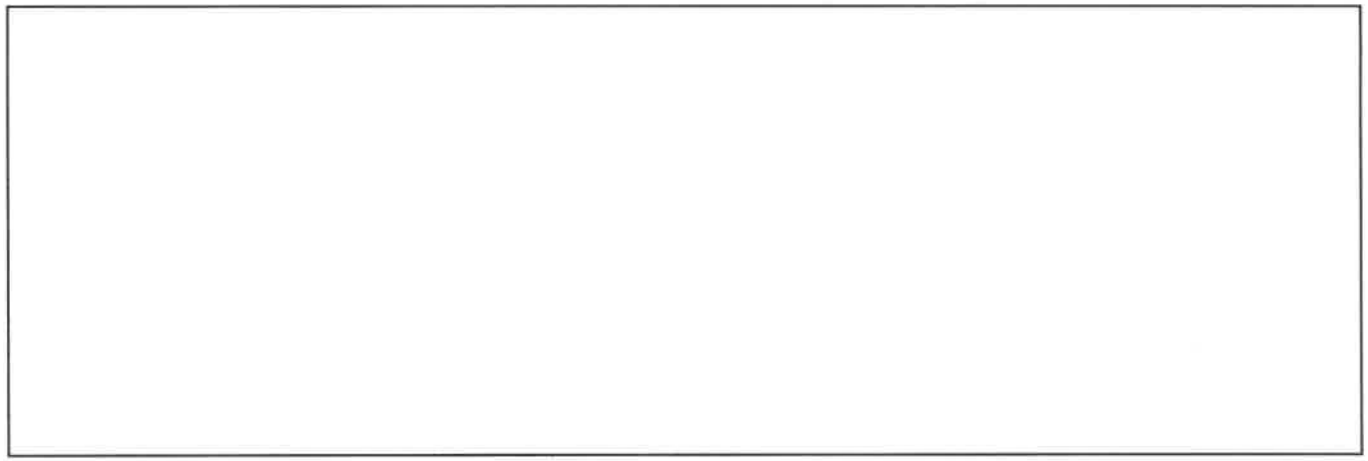








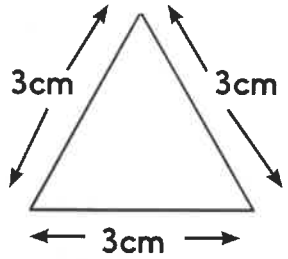


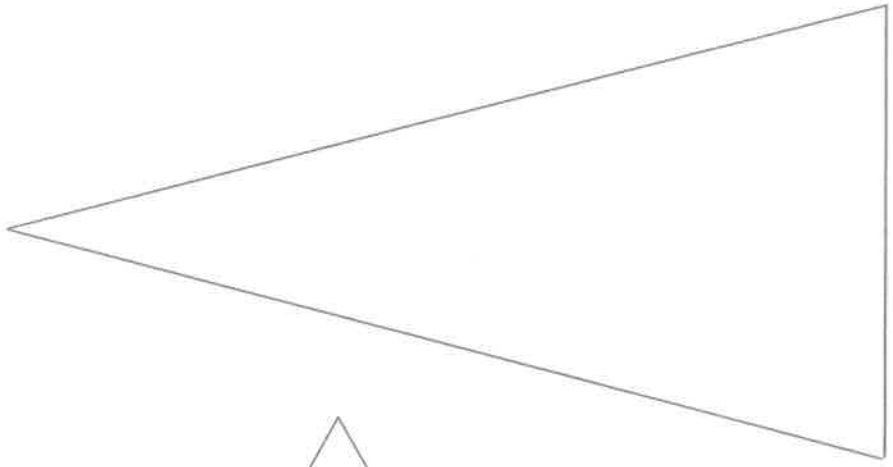


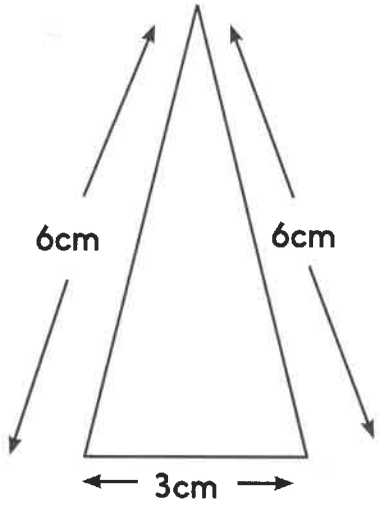
Practice Sheet Hot

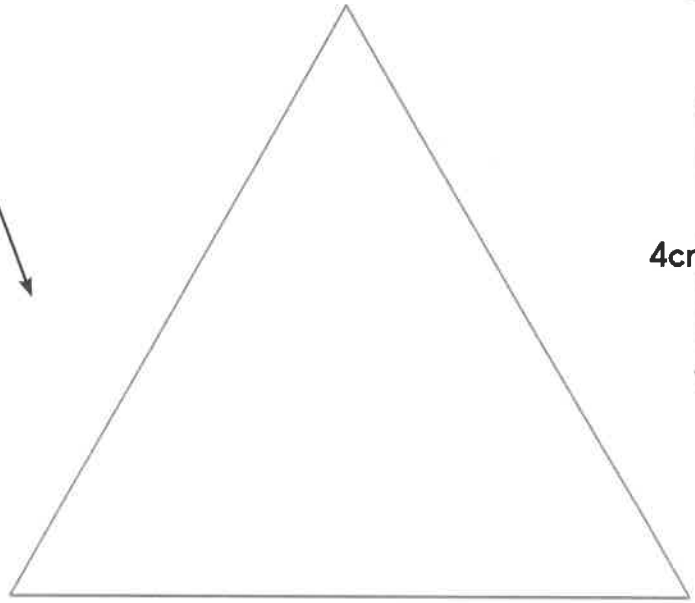
Similar shapes – triangles

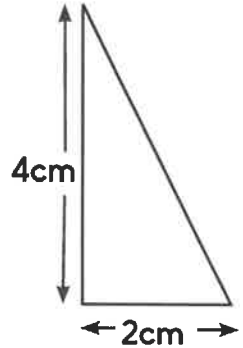
Look for pairs of similar shapes. Measure one side of the similar shape without any measurements. Find the scale factor between the two shapes. Now work out the lengths of the other sides of the larger shape. Measure to check.





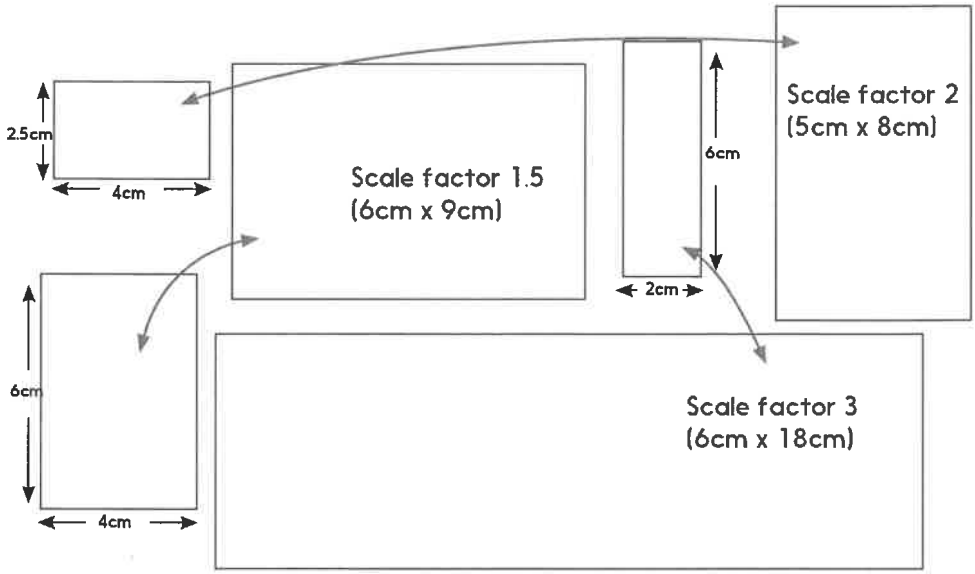




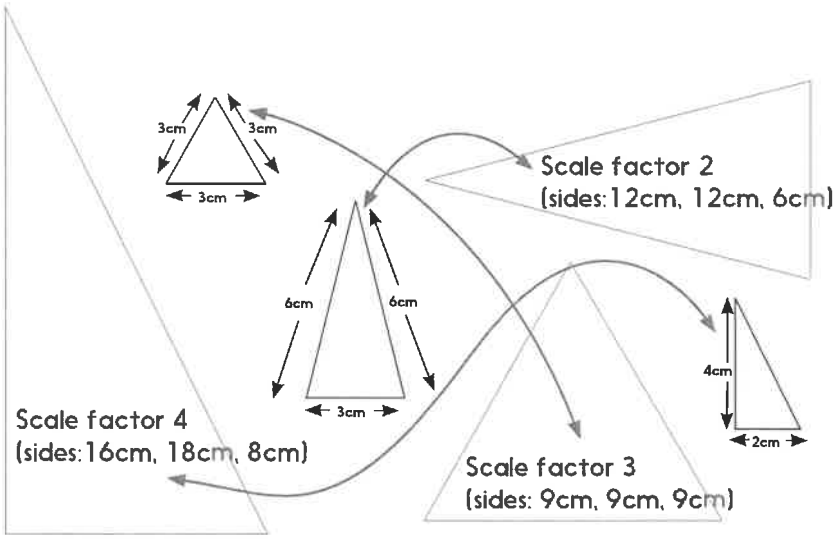


Practice Sheets Answers

Similar shapes – rectangles (mild)



Similar shapes – triangles (hot)



A Bit Stuck?
Factors and Multiples Game 2

Things you will need:
- 1-100 grids

What to do:

Print several copies of the 1-100 game grid.

1. This is a game for two players. The first player chooses an even number <50, and crosses it out on the 1-100 grid, e.g. 22.
2. The second player must then cross out a number which is a factor or multiple of the first number, e.g. 1, 2 or 11 (factors of 22), or 44, 66 or 88 (multiples of 22).
3. Players continue to take it in turns to cross out numbers, at each stage choosing a number that is a factor or multiple of the number just crossed out by the other player.
4. The first person who is unable to cross out a number loses that round.

S-t-r-e-t-c-h:

Switch the challenge from winning the game to covering as many numbers as possible.
- What is the longest sequence of numbers that can be crossed out?
- Can more than half the numbers be crossed out?

Learning outcomes:
- I can recall factors of 2-digit numbers.
- I can use mental strategies to calculate multiples of 2-digit numbers, up to 100.

A Bit Stuck?
Factors and Multiples Game

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

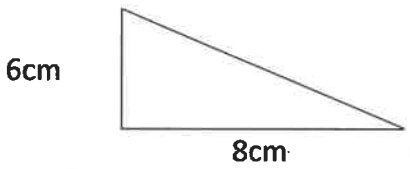
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Check your understanding
Questions

True or false?

- **If one triangle is scaled up to have sides 3 times as long as another, the area is also 3 times as large.**
- **If two rectangles are similar and the scale factor is 4, then the area of the larger rectangle is 16 times that of the smaller rectangle.**

Calculate the area of the triangle whose sides are half the length of this one.
Compare the two areas. What do you notice?



Explain why the area of the smaller has this relation to the area of the larger.

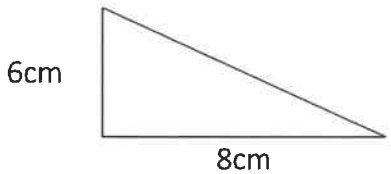
Fold here to hide answers

Check your understanding
Answers

True or false

- If one triangle is scaled up to have sides 3 times as long as another, the area is also 3 times as large. False – it will be 9x as large.
  This can best be modelled with a right-angled triangle. If the base and height are 3cm and 4cm, the area will be 6cm^2 (half base x height). If the sides were 3 times longer, i.e. 9cm and 12cm, the area will be 54cm^2.
- If two rectangles are similar and the scale factor is 4, then the area of the larger is 16 times that of the smaller. True – since the length and height are both 4 times larger, the area increases 16 times (4 x 4).

Calculate the area of the triangle whose sides are half the length of this one. Compare the two areas. What do you notice?

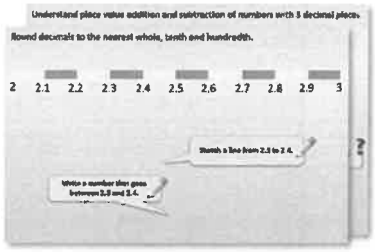


Explain why the area of the smaller has this relation to the area of the larger.
The area of this triangle is 24cm^2. (Half of 6 x 8).
If the sides are halved, the area will be 6cm^2. (Half of 3 x 4).
As the lengths have been halved, the area of the smaller triangle is a quarter of the original (half x half).

Year 6: Week 3, Day 4
Volume of cubes and cuboids

Each day covers one maths topic. It should take you about 1 hour or just a little more.

1. Start by reading through the **Learning Reminders**. They come from our *PowerPoint* slides.



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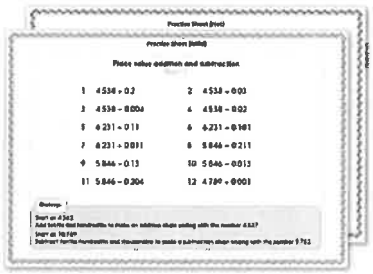
2. Tackle the questions on the **Practice Sheet**. There might be a choice of either Mild (easier) or Hot (harder)! Check the answers.



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3. Finding it tricky? That's OK... have a go with a grown-up at **A Bit Stuck?**

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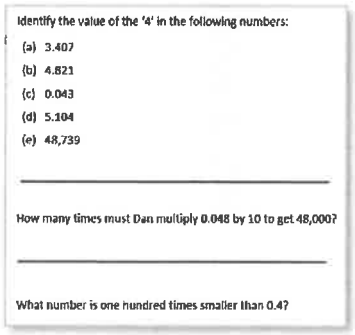
4. Have I mastered the topic? A few questions to **Check your understanding**. Fold the page to hide the answers!



Learning Reminders

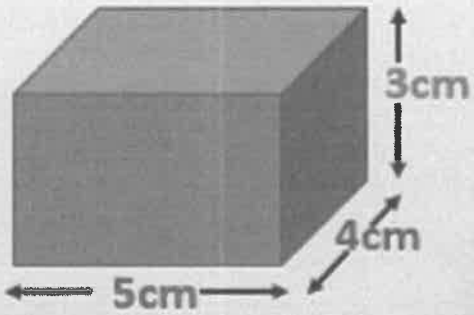
Find volumes of cubes and cuboids.

Look at the cuboid made of $1cm^3$ cubes. How many cubes are in the cuboid?

How many are in the bottom layer?

How many layers are there?

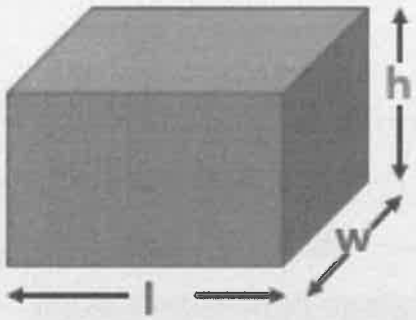
So how many cubes altogether?



Each of the cubes in our cuboid measures $1cm^3$, so the volume – *the amount of space taken up by the shape* – is $60cm^3$ (5cm x 4cm x 3cm).

Learning Reminders

Find volumes of cubes and cuboids.



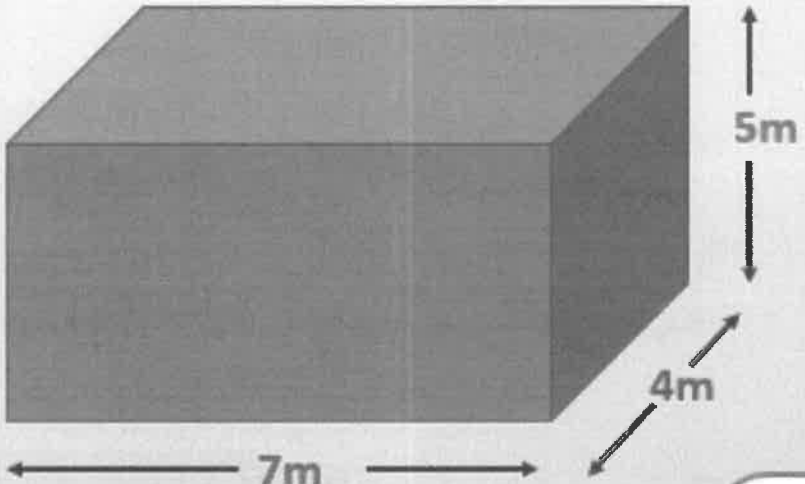
We can use a formula to describe this efficiently:
length × width × height, or l × w × h for short

We measure volume in centimetres cubed (cm^3) or metres cubed (m^3) or millimetres cubed (mm^3) or even kilometres cubed (km^3).

The small '3' after cm, stands for cubed, or 3 dimensions.

Learning Reminders

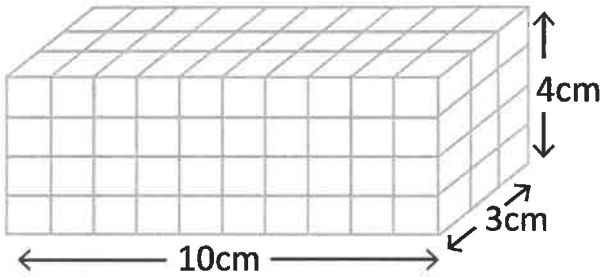
Find volumes of cubes and cuboids.

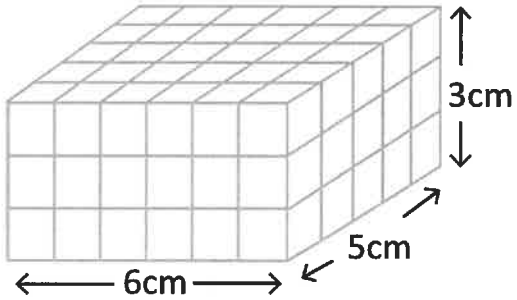


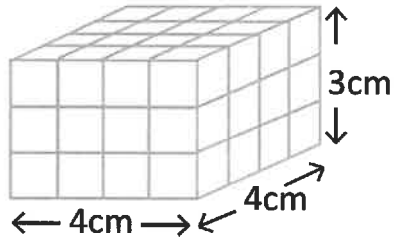
Calculate the volume in m^3.

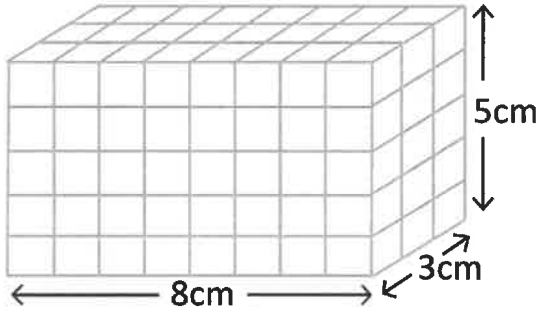
5m x 4m x 7m = 140m^3

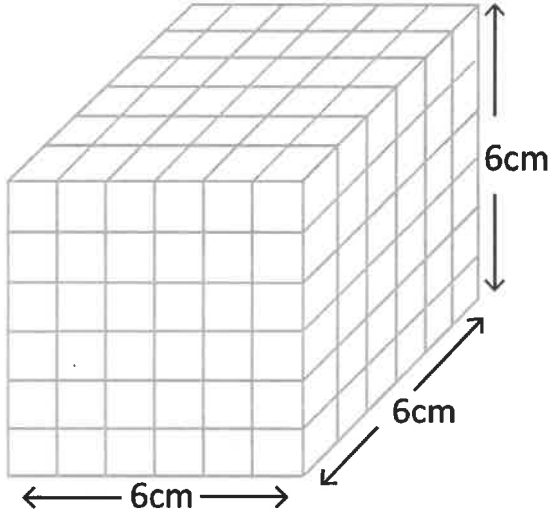
Practice Sheet Mild
Finding volumes of cuboids

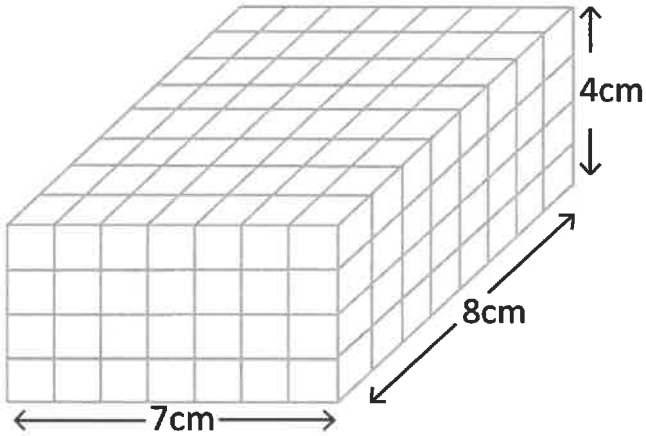












Challenge

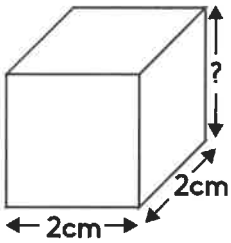
Make a set of cuboids with a volume of 36cm³.

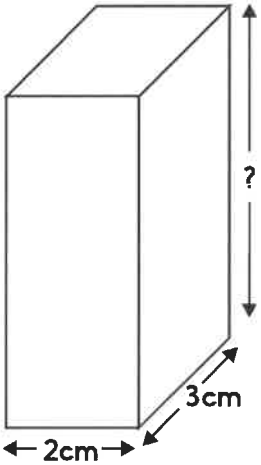
HINT: Don't forget that one of the edges could be just 1cm long...

Practice Sheet Mild
Missing edges

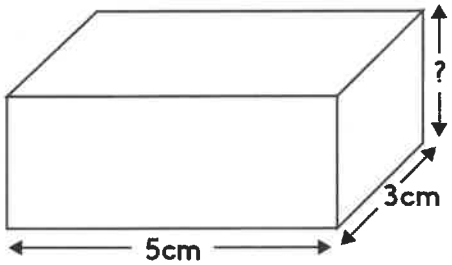
Calculate the length of the missing edges of these cuboids.

Volume 8 cm³

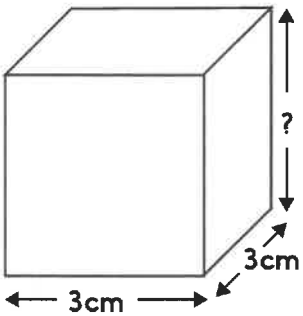




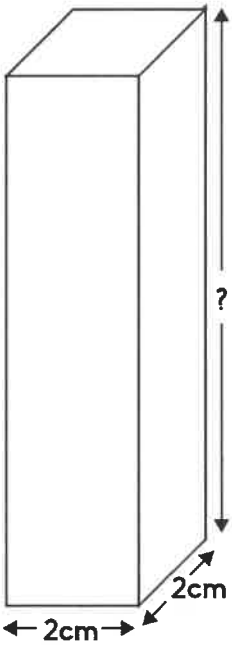
Volume 30 cm³



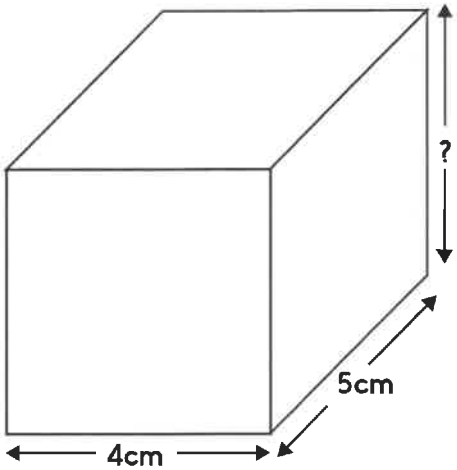
Volume 30 cm³



Volume 27 cm³



Volume 36 cm³

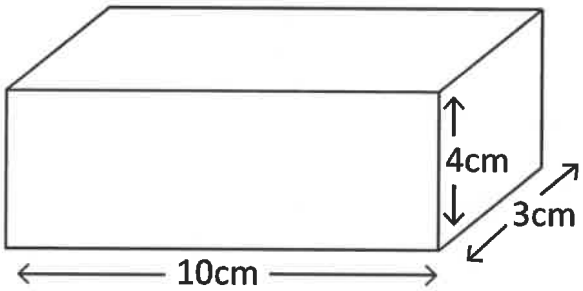


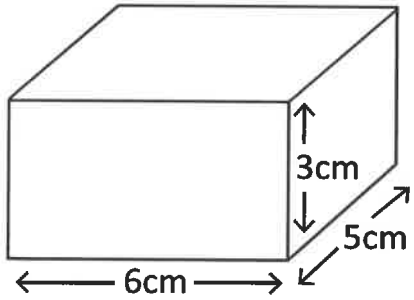
Volume 80 cm³

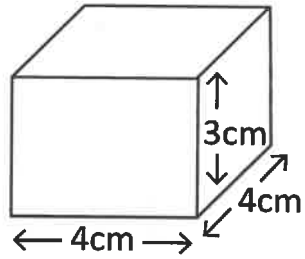
Challenge

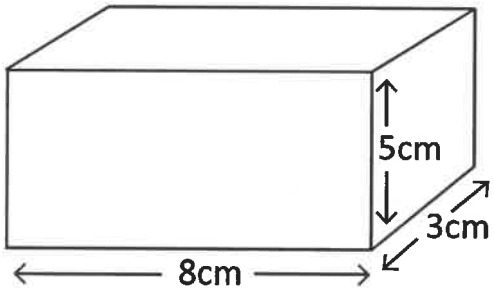
Draw two or more 'missing edge' cuboids. Ask a friend to calculate the missing lengths.

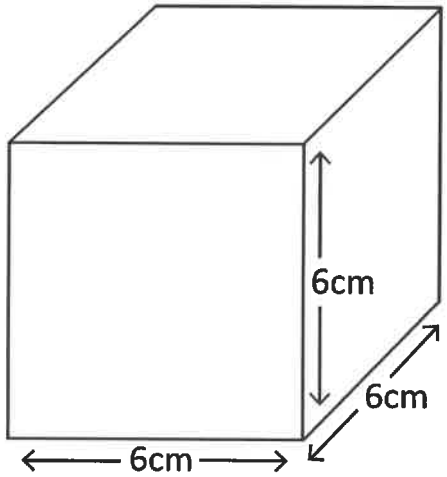
Practice Sheet Hot
Finding volumes of cuboids

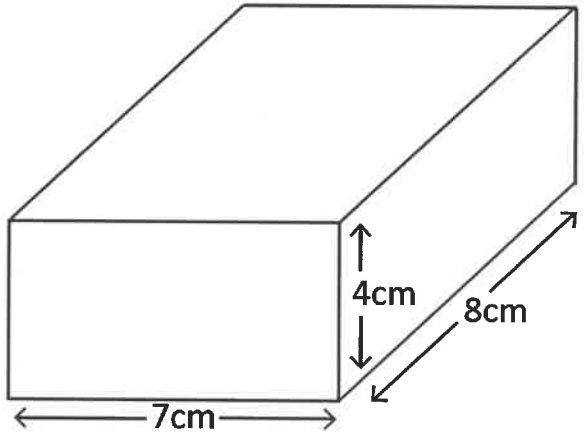










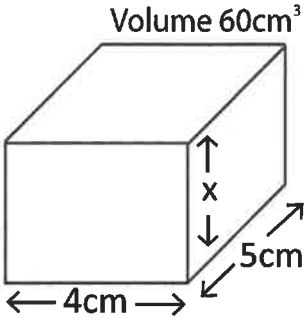


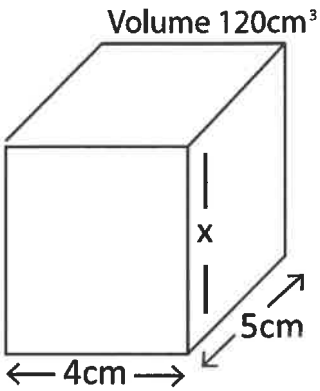
Challenge

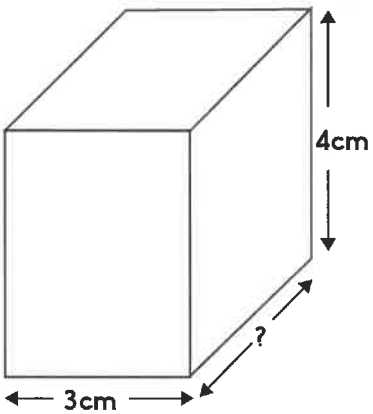
Sketch your own cuboids with a volume of 36 cm^3, note the dimensions of each.

Practice Sheet Hot
Missing edges

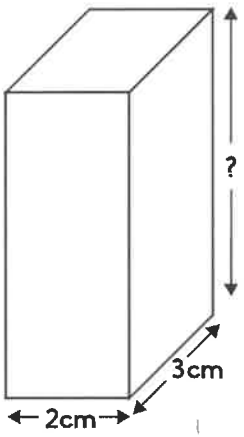
Calculate the length of the missing edges of these cuboids.



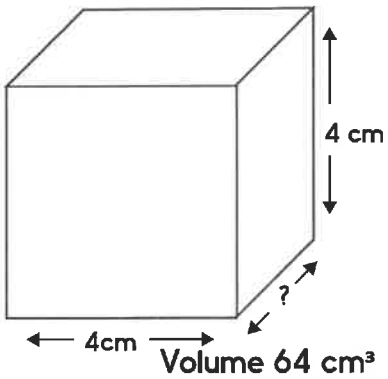




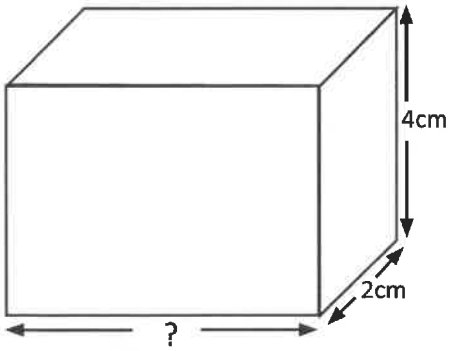
Volume 48 cm³



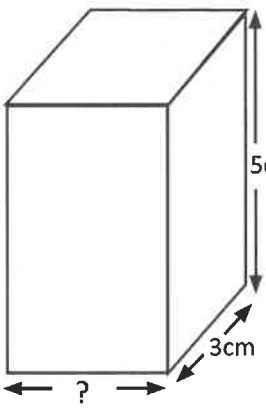
Volume 30 cm³



Volume 64 cm³



Volume 48 cm³



Volume 45 cm³

Practice Sheet Answers

Finding volumes of cuboids (mild)

10cm x 3cm x 4cm = 120cm²
6cm x 5cm x 3cm = 90cm²
4cm x 4cm x 3cm = 48cm²
8cm x 3cm x 5cm = 120cm²
6cm x 6cm x 6cm = 216cm²
7cm x 8cm x 4cm = 224cm²

Challenge

Cuboids could have dimensions as follows:
1 x 1 x 36cm 2 x 2 x 9cm 3 x 3 x 4cm
1 x 2 x 18cm 2 x 3 x 6cm
1 x 3 x 12cm
1 x 4 x 9cm
1 x 6 x 6cm

Missing edges (mild)

Volume 8cm²	Edges are: 2 x 2 x 2cm
Volume 30cm²	Edges are: 2 x 3 x 5cm
Volume 30cm²	Edges are: 5 x 3 x 2cm
Volume 27cm²	Edges are: 3 x 3 x 3cm
Volume 36cm²	Edges are: 2 x 2 x 9cm
Volume 80cm²	Edges are: 4 x 5 x 4cm

Finding volumes of cuboids (hot)

10cm x 3cm x 4cm = 120cm²
6cm x 5cm x 3cm = 90cm²
4cm x 4cm x 3cm = 48cm²
8cm x 3cm x 5cm = 120cm²
6cm x 6cm x 6cm = 216cm²
7cm x 8cm x 4cm = 224cm²

Challenge

Cuboids could have dimensions as follows:
1 x 1 x 36cm 2 x 2 x 9cm 3 x 3 x 4cm
1 x 2 x 18cm 2 x 3 x 6cm
1 x 3 x 12cm
1 x 4 x 9cm
1 x 6 x 6cm

Missing edges (hot)

Volume 60cm²	Edges are: 4 x 5 x 3cm
Volume 120cm²	Edges are: 4 x 5 x 6cm
Volume 48cm²	Edges are: 3 x 4 x 4cm
Volume 30cm²	Edges are: 2 x 3 x 5cm
Volume 64cm²	Edges are: 4 x 4 x 4cm
Volume 48cm²	Edges are: 2 x 4 x 6cm
Volume 45cm²	Edges are: 3 x 5 x 3cm

A Bit Stuck?
Hidden volumes

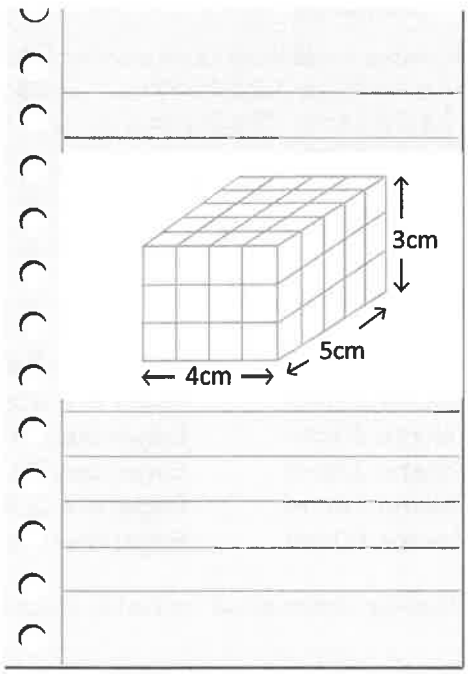
Work in pairs, but record your work on your own paper/in your own book.

Things you will need:

- A pencil

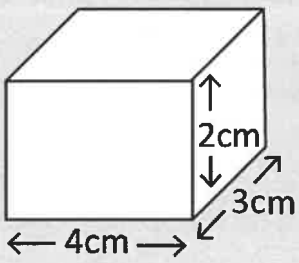
What to do:

- Draw a cuboid made out of centimetre cubes. Label its dimensions.
- Find the number of cubes in one layer.
- Multiply the number of cubes in one layer by the number of layers to find the total number of cubes in the cuboid.
- Write the volume by the side.
- Repeat at least three more times.



S-t-r-e-t-c-h:

Work out the volume of this cuboid:



Learning outcomes:

- I can find the volume of cubes built from cm^3 cubes.
- I am beginning to calculate the volume of cuboids.

Check your understanding
Questions

A 6cm x 6cm x 6cm cube is chopped in half three times.
Find the volume of each cuboid **after each of the three cuts** and write the lengths of their edges.

(i) 1st cut

(ii) 2nd cut

(iii) 3rd cut

Fold here to hide answers

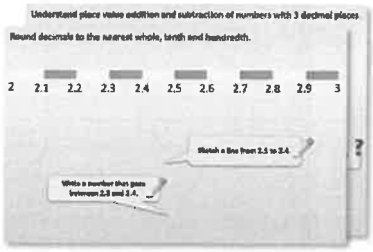
Check your understanding
Answers

	number of cuboids	dimensions (cm)	volume of each (cm^3)
after 1st **cut**	2	6 x 6 x 3	108
after 2nd cut	4	6 x 3 x 3	54
after 3rd cut	8	3 x 3 x 3	27

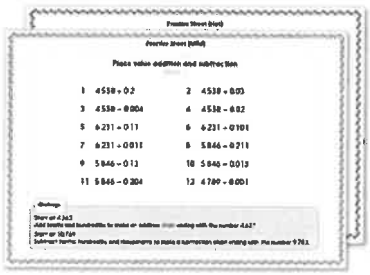
Year 6: Week 3, Day 5
Find percentages of amounts

Each day covers one maths topic. It should take you about 1 hour or just a little more.

1. Start by reading through the **Learning Reminders**. They come from our *PowerPoint* slides.

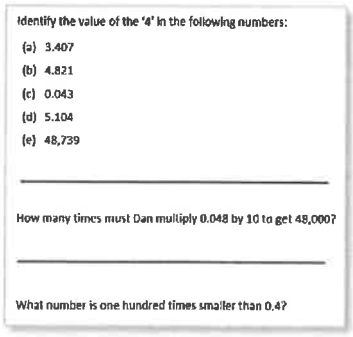


2. Tackle the questions on the **Practice Sheet**. There might be a choice of either Mild (easier) or Hot (harder)! Check the answers.

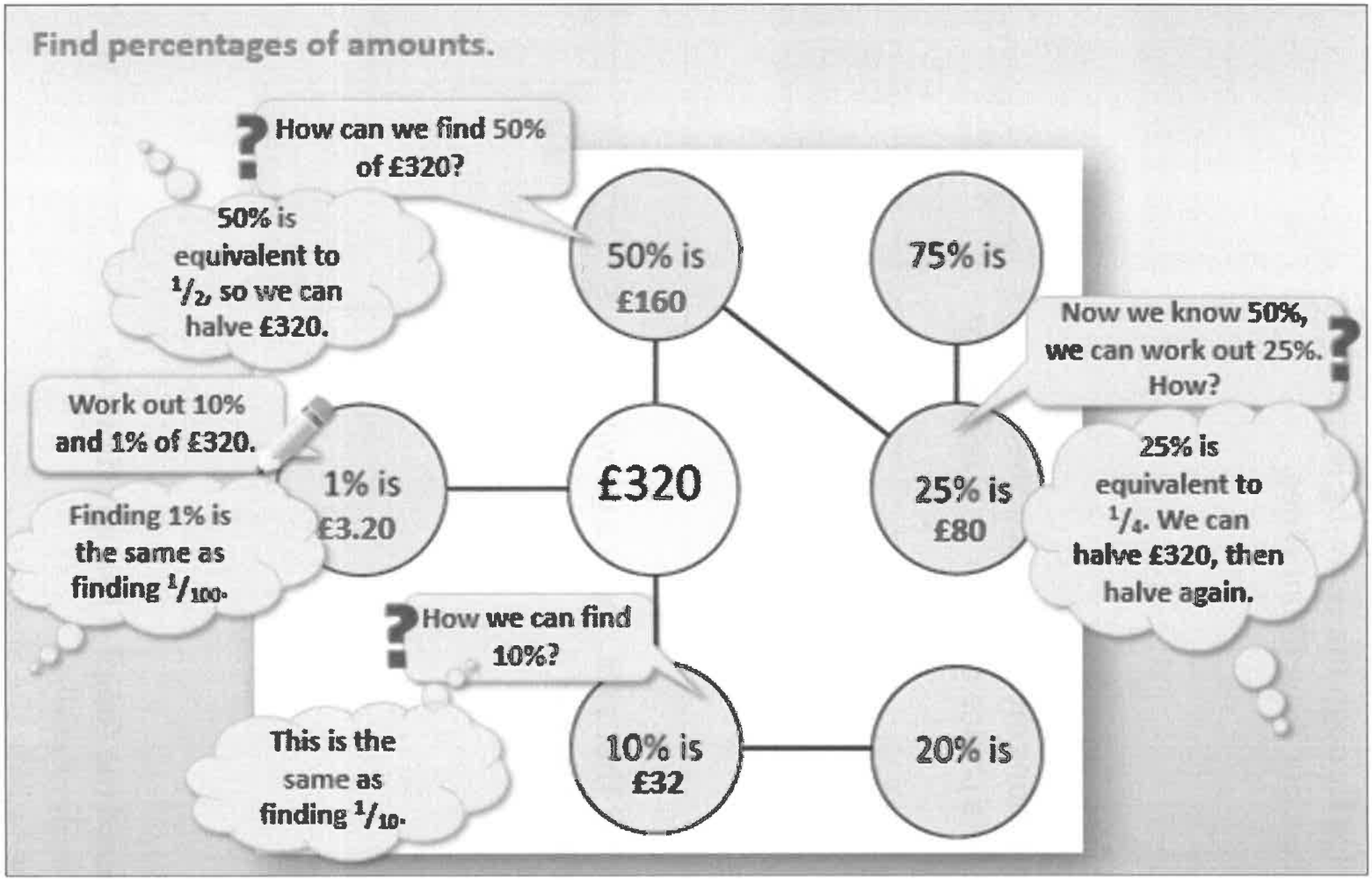


3. Finding it tricky? That's OK... have a go with a grown-up at **A Bit Stuck?**

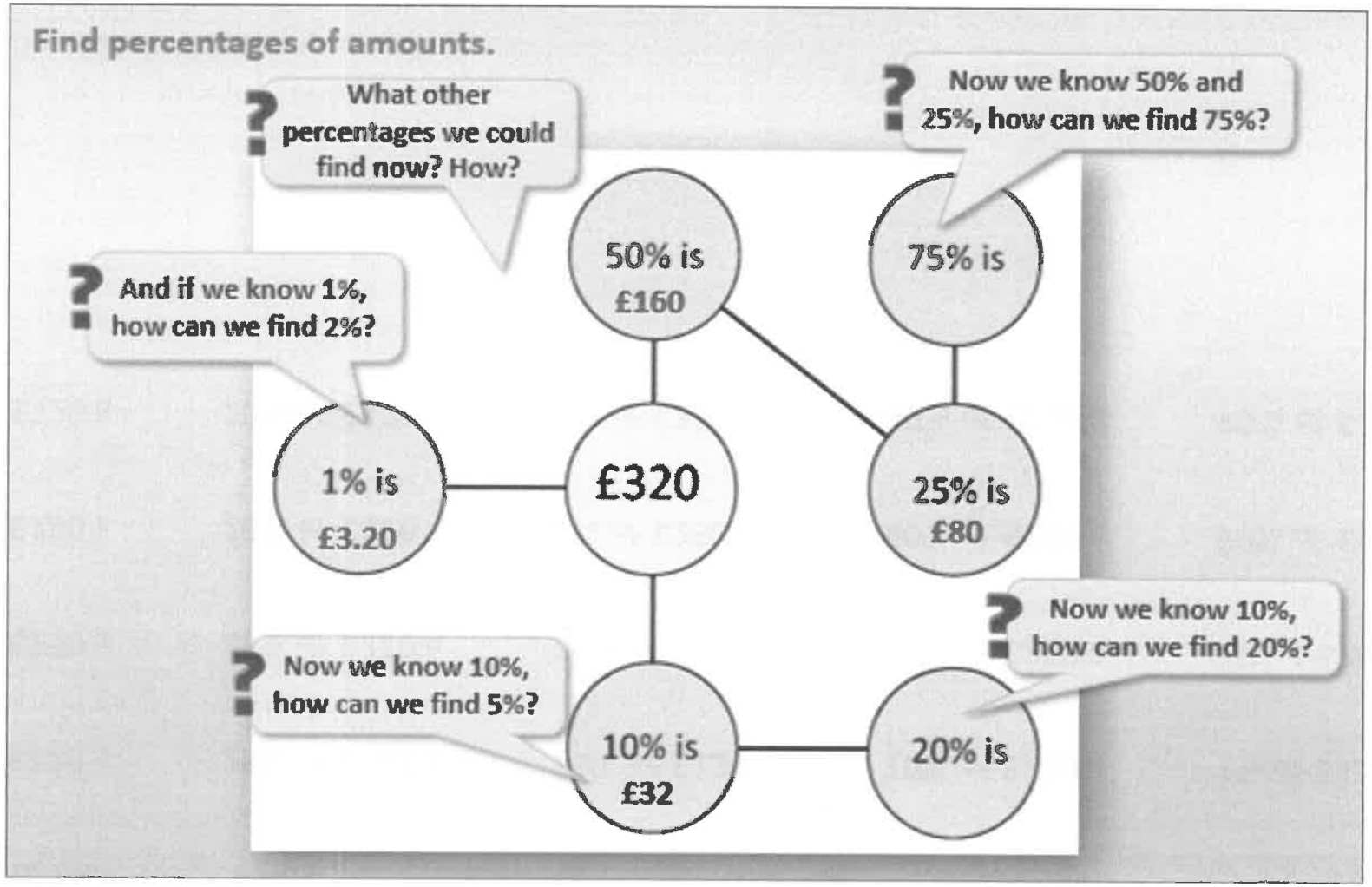
4. Have I mastered the topic? A few questions to **Check your understanding**. Fold the page to hide the answers!



Learning Reminders



Learning Reminders



Practice Sheet Mild

Find percentages of amounts of money

Remember that: 50% = $\frac{1}{2}$ 25% = $\frac{1}{4}$ 10% = $\frac{1}{10}$ 1% = $\frac{1}{100}$

50% of £120 is	25% of £120 is	75% of £120 is	10% of £120 is	1% of £120 is
50% of £250 is	25% of £250 is	75% of £250 is	10% of £250 is	1% of £250 is
10% of £280 is	20% of £280 is	5% of £280 is	40% of £280 is	90% of £280 is
10% of £320 is	20% of £320 is	5% of £320 is	40% of £320 is	90% of £320 is

Practice Sheet Hot

Find percentages of amounts of money

Find the following percentages of £360.

50% 10% 25% 75% 20% 60% 90% 5% 1% 6% 11%

Find the following percentages of £248.

50% 10% 25% 75% 30% 60% 90% 5% 1% 16% 99%

Challenge

Find three different ways to calculate 96% of £360.

Practice Sheet Answers

Find percentages of amounts of money (mild)

50% of £120 is £60
10% of £120 is £12
25% of £120 is £30
1% of £120 is £1.20
75% of £120 is £90

50% of £250 is £125
10% of £250 is £25
25% of £250 is £62.50
1% of £250 is £2.50
75% of £250 is £187.50

10% of £280 is £28
40% of £280 is £112
20% of £280 is £56
90% of £280 is £252
5% of £280 is £14

10% of £320 is £32
40% of £320 is £128
20% of £320 is £64
90% of £320 is £288
5% of £320 is £16

Find percentages of amounts of money (hot)

50% of £360 is £180
75% of £360 is £270
90% of £360 is £324
6% of £360 is £21.60
10% of £360 is £36
20% of £360 is £72
5% of £360 is £18
11% of £360 is £39.60
25% of £360 is £90
60% of £360 is £216
1% of £360 is £3.60

50% of £248 is £124
75% of £248 is £186
90% of £248 is £223.20
16% of £248 is £39.68
10% of £248 is £24.80
30% of £248 is £74.40
5% of £248 is £12.40
11% of £248 is £27.28
25% of £248 is £62
60% of £248 is £148.80
1% of £248 is £2.48

A Bit Stuck?
Special people

Work in pairs, but write your answers on your own sheet

Things you will need:
- A picture of 300 people

What to do:

2% of people around the world have green eyes. This means 2 out of every 100 people are likely to have green eyes. Ring 2 people out of 100 on the picture.
How many people out of 200 people are likely to have green eyes? ____
How many people out of 300 people are likely to have green eyes? ____
So how many people out of 400 people do you think will have green eyes? ____
How many people out of 500 people do you think will have green eyes? ____

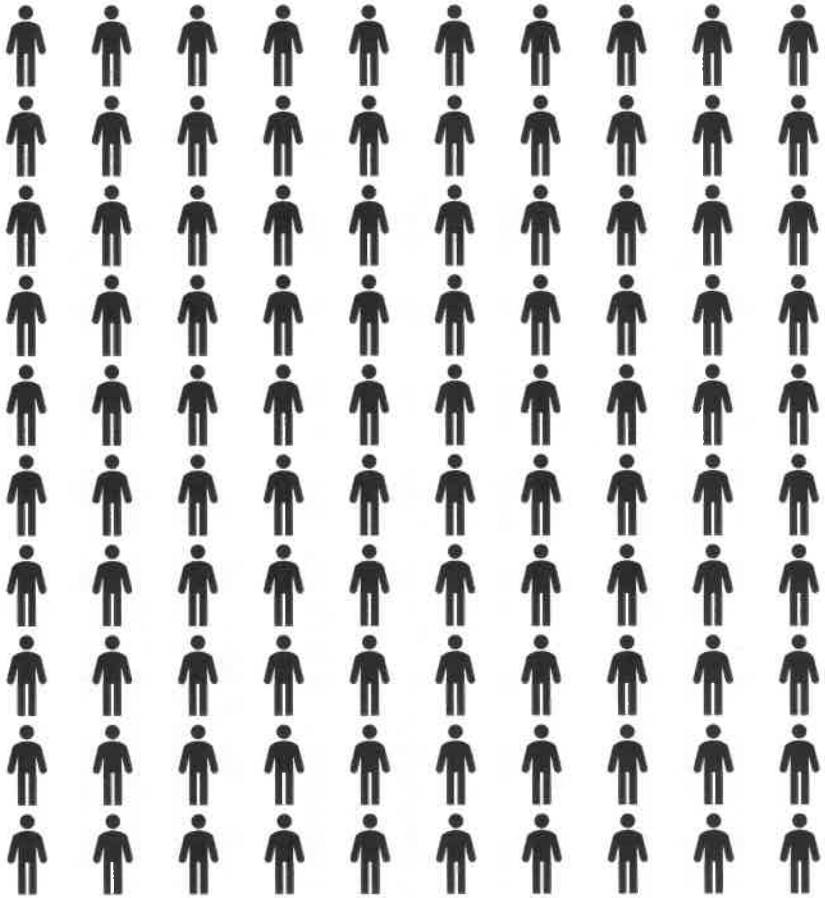
12% of people around the world are left-handed.
How many people out of 100 are likely to be left-handed? _____
How many people out of 200 are likely to be left-handed? ____
How many people out of 300 are likely to be left-handed? ____
How many people out of 400 do you think will be left-handed? ____
How many people out of 500 do you think will be left-handed? ____

6% of people in the UK have red hair.
How many people out of 100 are likely to have red hair? _____
How many people out of 200 are likely to have red hair? ____
How many people out of 300 are likely to have red hair? ____
How many people out of 400 do you think will have red hair? ____
How many people out of 500 do you think will have red hair? ____

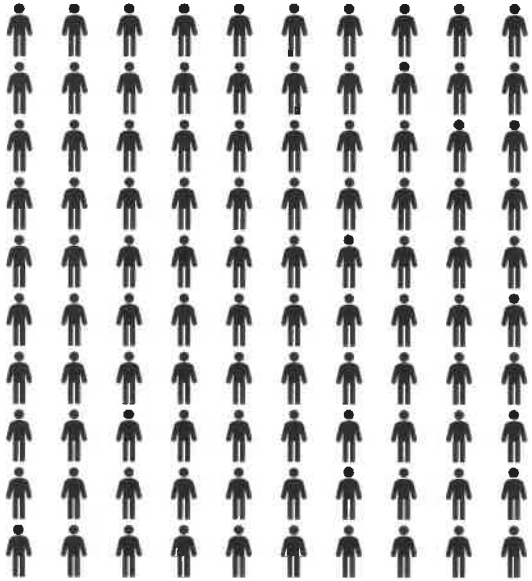
S-t-r-e-t-c-h:
How many people out of 100 people do NOT have green eyes?
How many people out of 100 are right-handed?
How many people out of 100 do not have red hair in the UK?

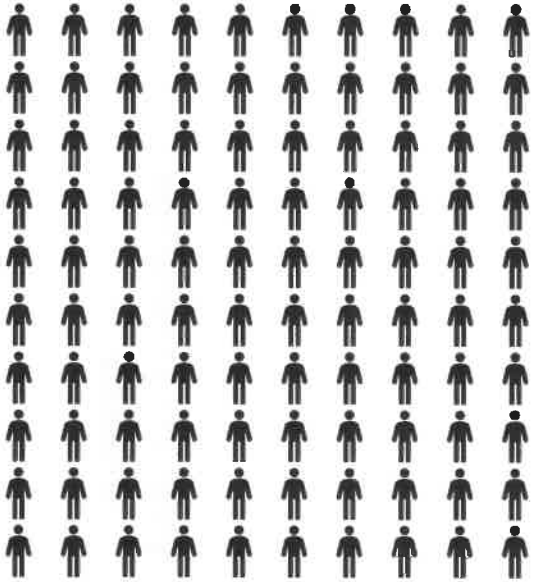
Learning outcomes:
- I understand what a percentage is.
- I can find percentages of multiples of 100.
- I am beginning to solve simple percentage problems.

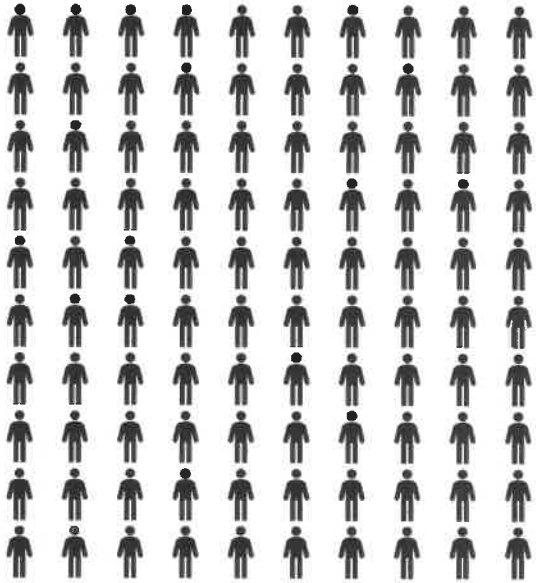
A Bit Stuck?
Special people



A Bit Stuck?
Special people







Check your understanding
Questions

True or false?

- $^2/_5$ is the same as 20%
- 0.4 is the same as 4%
- 10% is the same as 0.1
- 30% is the same as $^1/_3$

Find 10% of these prices. Use that to find 20%.

a) £14.20

b) £1.50

c) £99

Fold here to hide answers

Check your understanding
Answers

True or false?

- $^2/_5$ is the same as 20% — False, it is equivalent to 40%.
- 0.4 is the same as 4% — False, it is also equivalent to 40%.
- 10% is the same as 0.1 — True.
- 30% is the same as $^1/_3$ — False, 30% is equivalent to $^3/_{10}$.

These can be checked on a 0-1 (100%) number line showing fraction, decimal and percentage equivalents.

Find 10% of these prices. Use that to find 20%.

a) £14.20 — 10% is £1.42, 20% is £2.84.

b) £1.50 — 10% is £0.15, 20% is £0.30 (or 15p and 30p).

c) £99 — 10% is £9.90, 20% is £19.80.

Divide by 10 to find 10%. Double 10% to find 20%.

What to do today

IMPORTANT Parent or Carer – Read this page with your child and check that you are happy with what they have to do and any weblinks or use of internet.

1. Read the first verse of The Highwayman

- Read the *Highwayman First Verse*. Read it in your head first and then try reading it out loud. What patterns do you notice? What mood would you say this verse has? What do you think might happen?

2. Watch the PowerPoint of The Highwayman

- Watch the *PowerPoint of The Highwayman* or watch the video animation and follow the words as you do. https://www.youtube.com/watch?v=ryu1JZiSbHo
- When you have finished try to tell the story out loud. What happens in this narrative poem?

3. Put the events in order

- Cut out the *Highwayman Events* and try to put them in order.
- Watch the PowerPoint or the video again to help.
- When you have finished, check your answers with a grown-up. Tell them the story of what happens. They can look at the end of this pack for the answers.

4. Write five questions

- The poem is a bit mysterious. Write five questions or puzzles that the poem raises.

Try the Fun Time Extra

Read the *Tips for Learning a Poem By heart* and try learning the first verse and some other verses of the poem by heart. Could you perform this to someone else? Your older relatives may know the poem from school.

Highwayman – First Verse

The wind was a torrent of darkness among the gusty trees,

The moon was a ghostly galleon tossed upon cloudy seas,

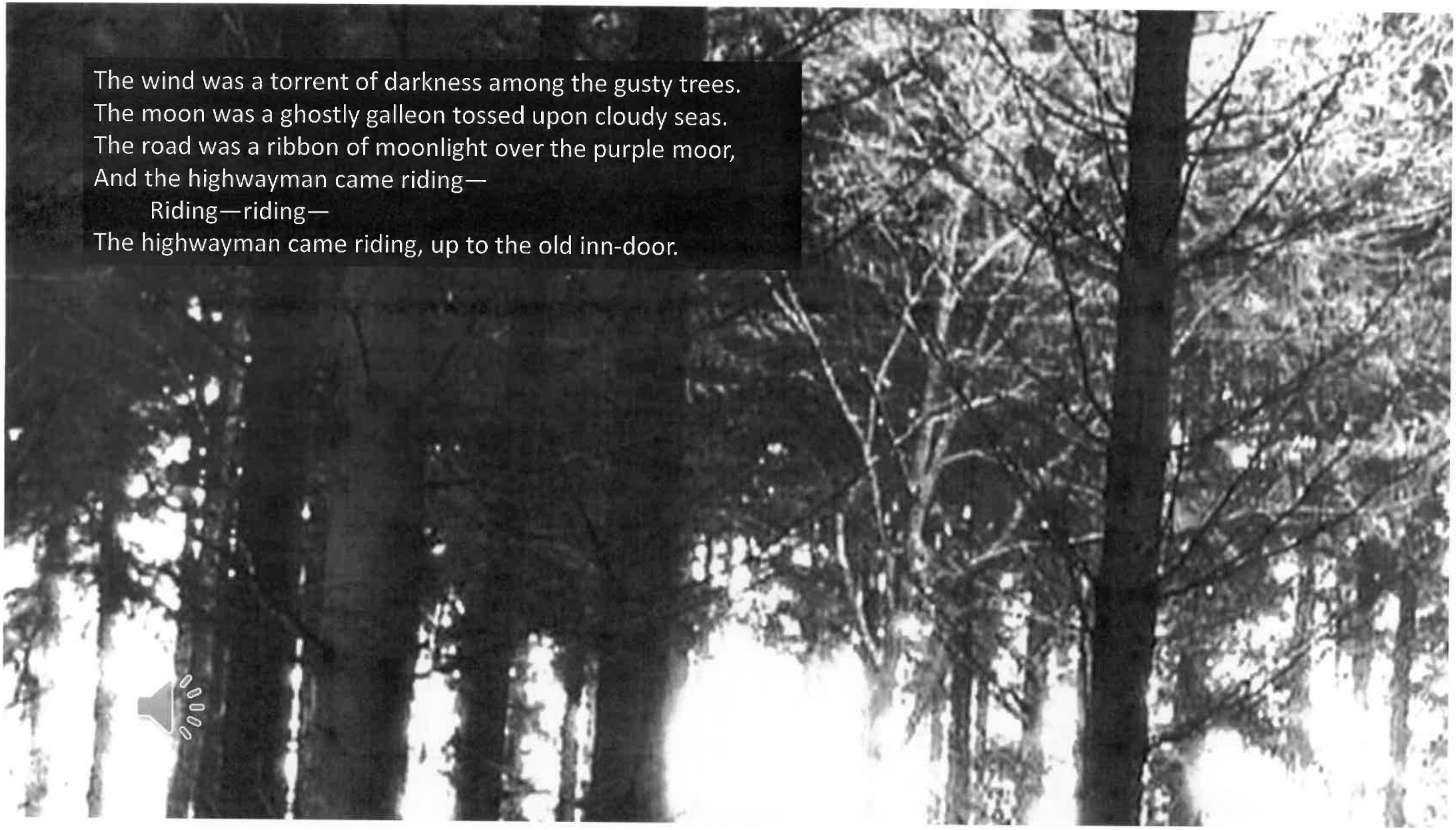
The road was a ribbon of moonlight, over the purple moor,

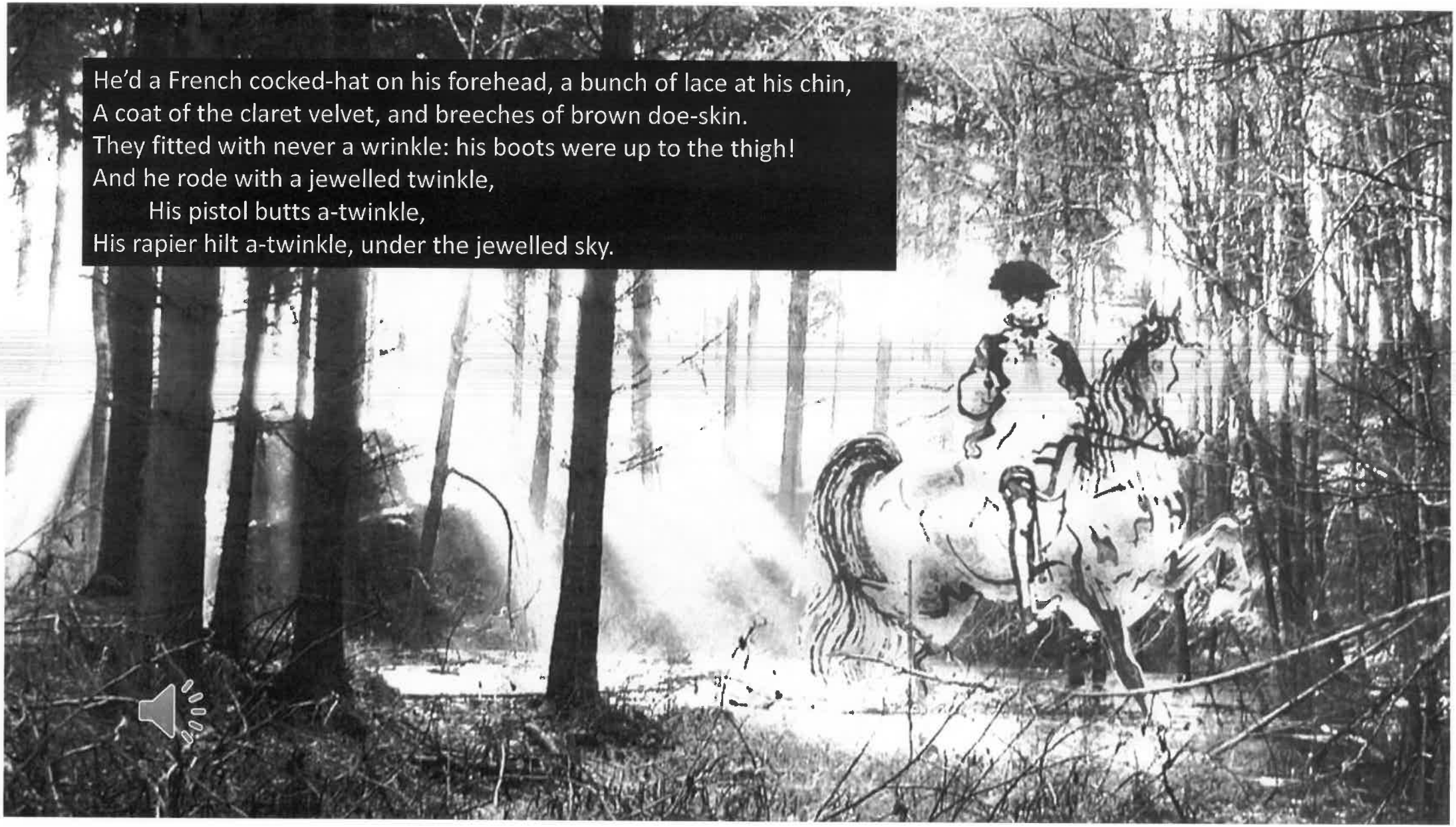
And the highwayman came riding –

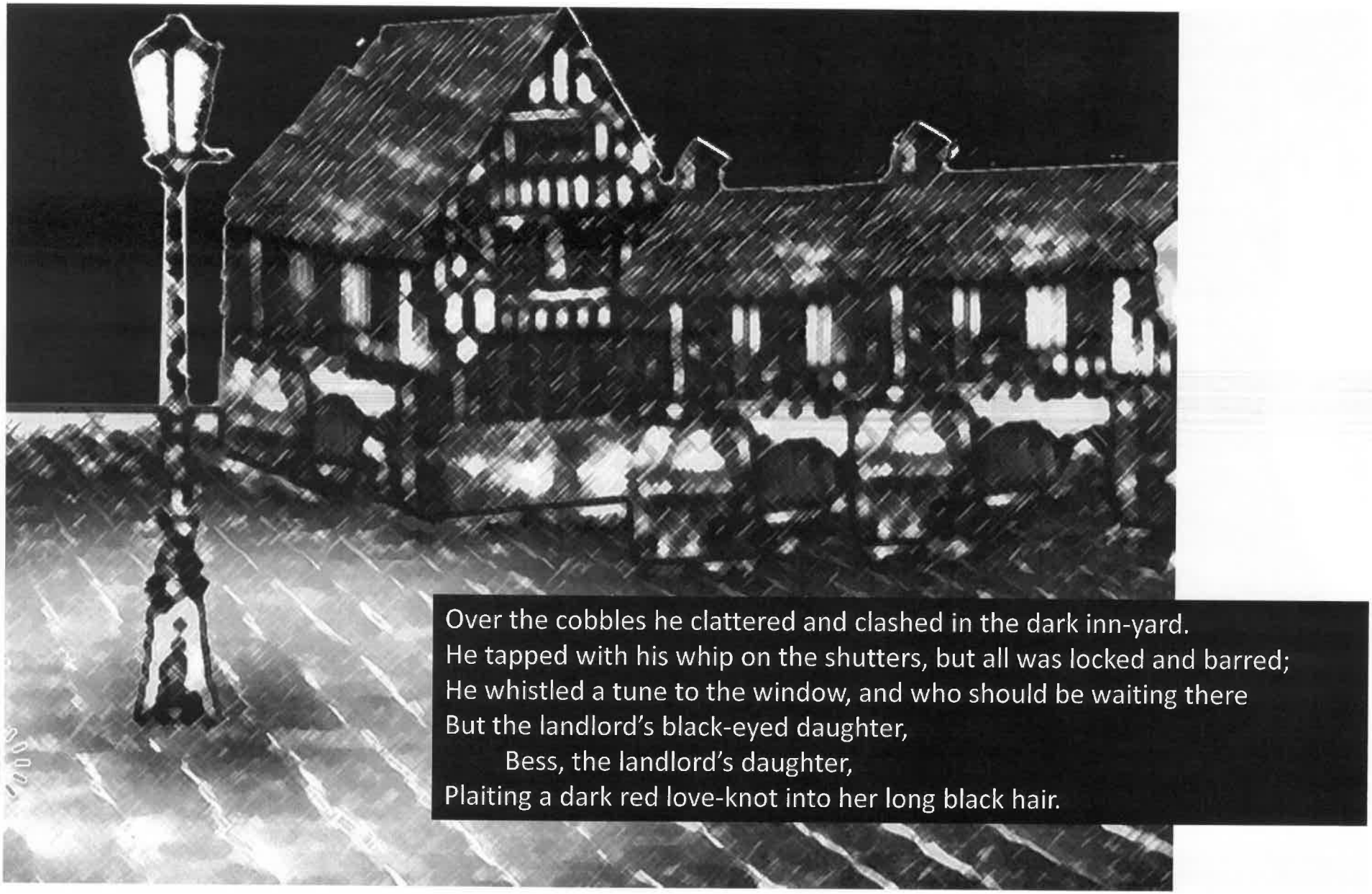
Riding – riding –

The highwayman came riding, up to the old inn-door.

The Highwayman!


The wind was a torrent of darkness among the gusty trees.
The moon was a ghostly galleon tossed upon cloudy seas.
The road was a ribbon of moonlight over the purple moor,
And the highwayman came riding—
Riding—riding—
The highwayman came riding, up to the old inn-door.


He'd a French cocked-hat on his forehead, a bunch of lace at his chin,
A coat of the claret velvet, and breeches of brown doe-skin.
They fitted with never a wrinkle: his boots were up to the thigh!
And he rode with a jewelled twinkle,
His pistol butts a-twinkle,
His rapier hilt a-twinkle, under the jewelled sky.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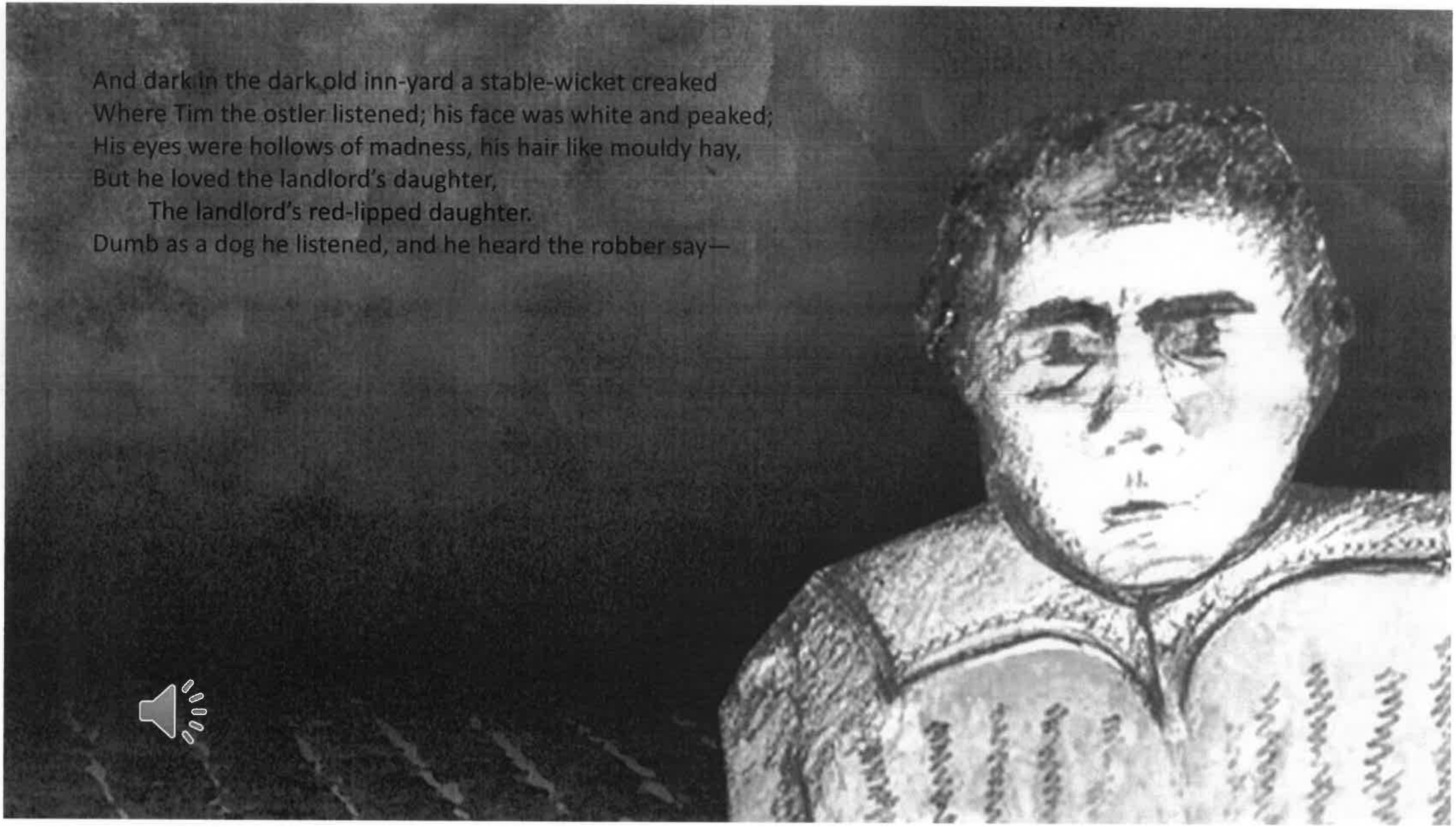
He tapped with his whip on the shutters, but all was locked and barred;
He whistled a tune to the window, and who should be waiting there
But the landlord's black-eyed daughter,
Bess, the landlord's daughter,
Plaiting a dark red love-knot into her long black hair.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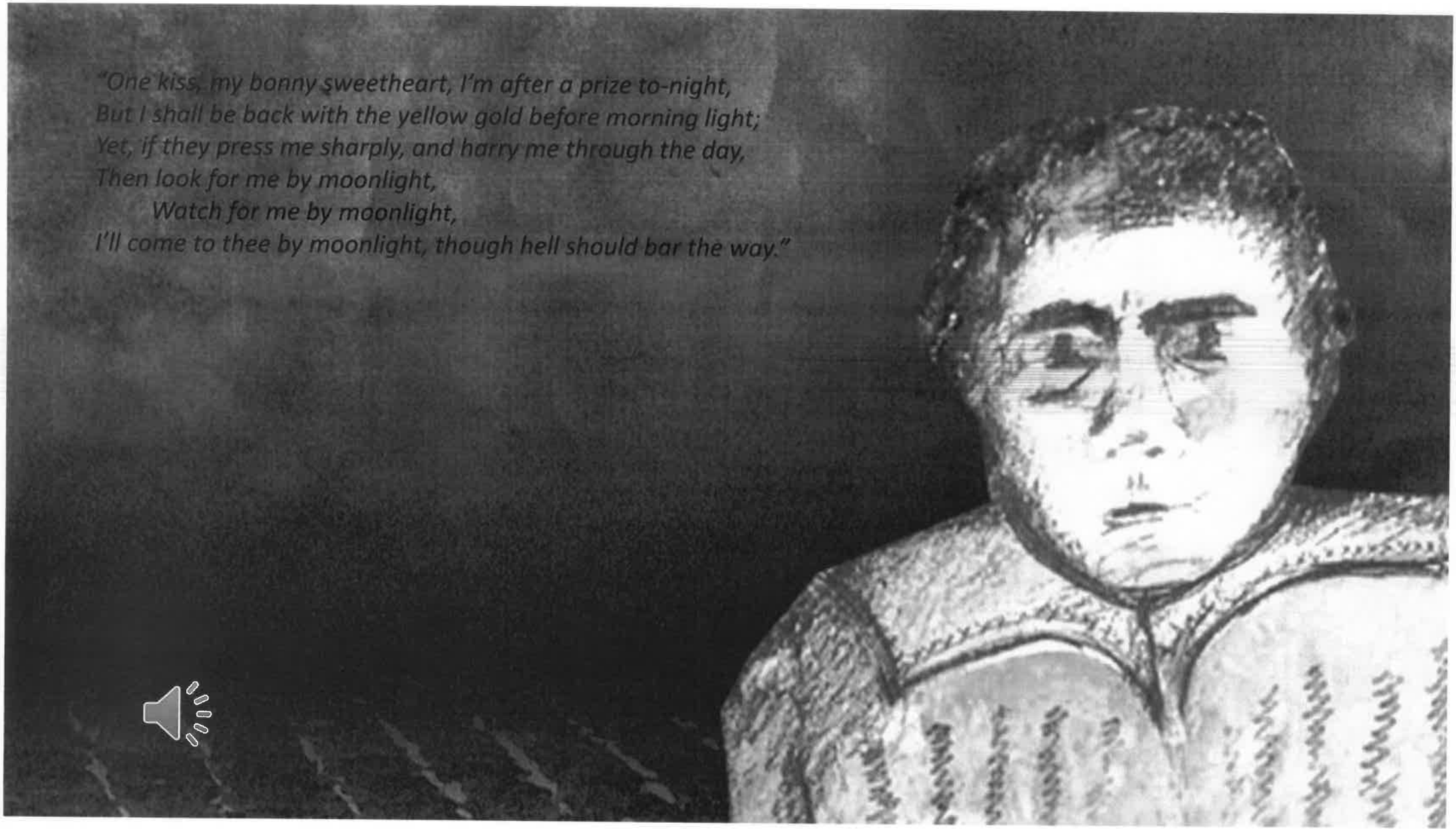
Dumb as a dog he listened, and he heard the robber say—


"One kiss, my bonny sweetheart, I'm after a prize to-night,
But I shall be back with the yellow gold before morning light;
Yet, if they press me sharply, and harry me through the day,
Then look for me by moonlight,
Watch for me by moonlight,
I'll come to thee by moonlight, though hell should bar the way."

He rose
But she
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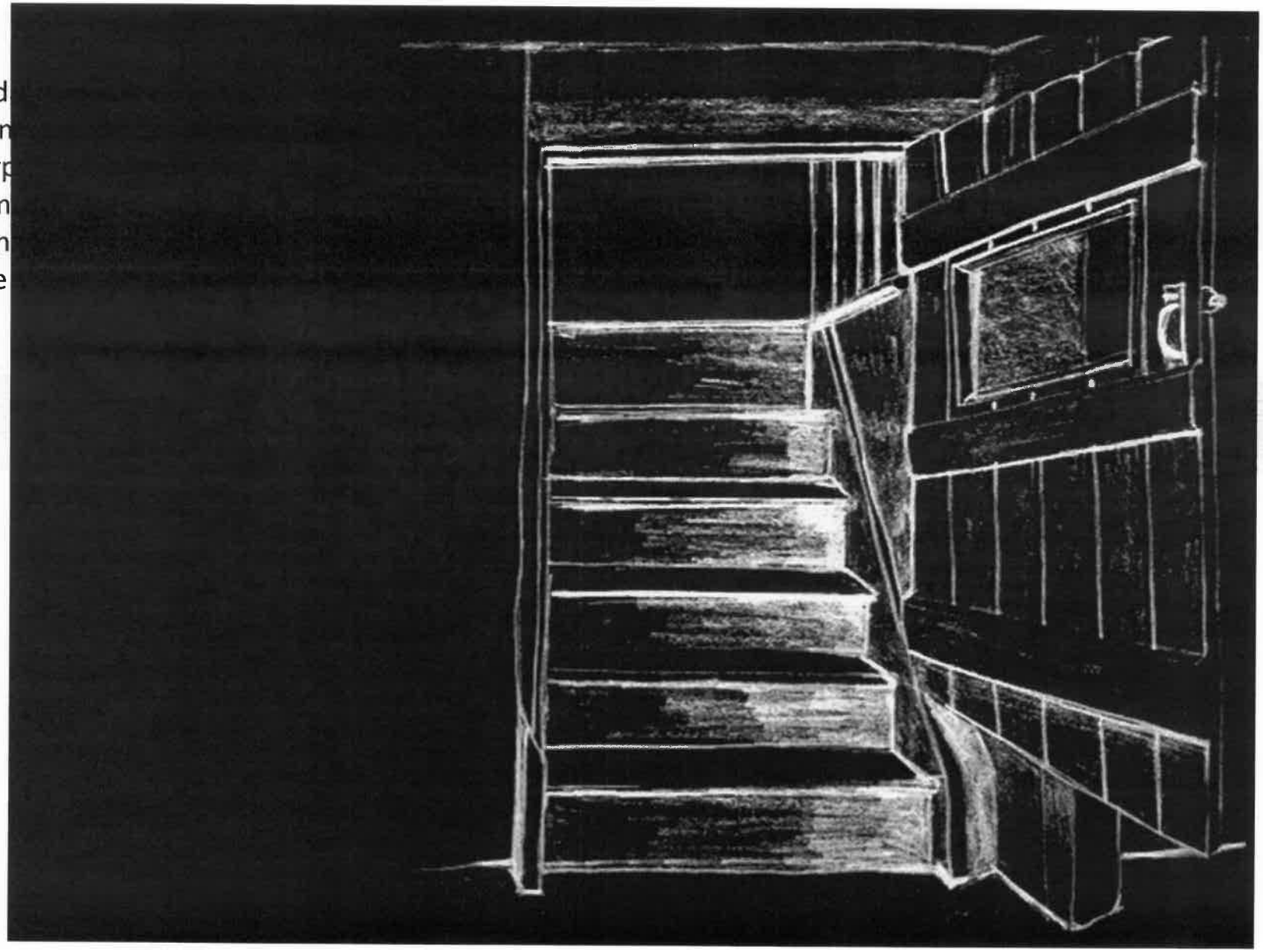
And he k
(Oh
Then he

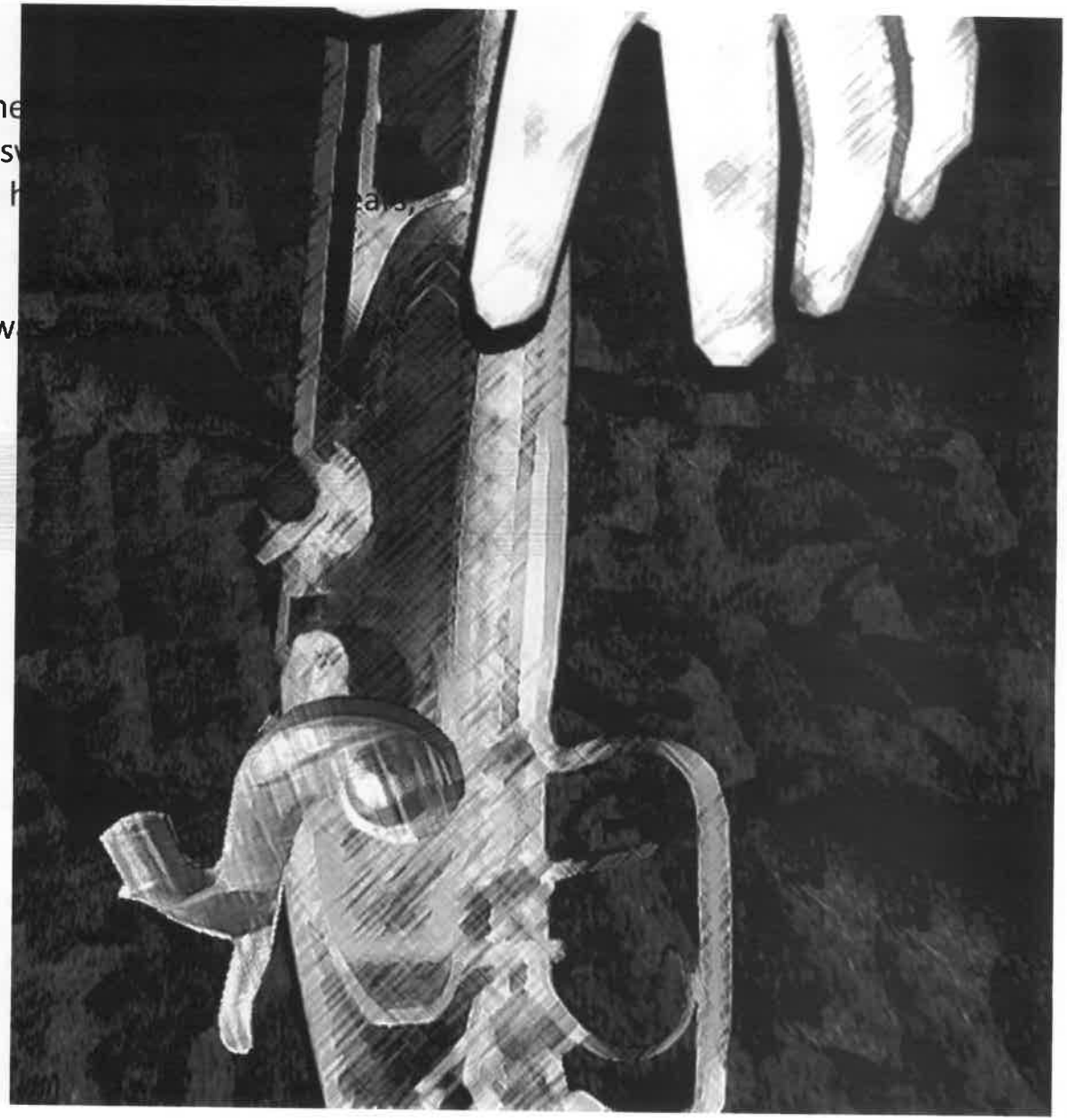
He did not come in the d
And out o' the tawny sun
When the road was a gyp
A red-coat troop came m
Marching—marchin
King George's men came



her breast!

dead man say—

She twisted her hands behind her; but all the knots he
She writhed her hands till her fingers were wet with s
They stretched and strained in the darkness, and the h
Till, now, on the stroke of midnight,
Cold, on the stroke of midnight,
The tip of one finger touched it! The trigger at least w



The tip of one finger touche
Up, she stood up to attentio
She would not risk their hea
For the road lay bare in the
Blank and bare in the
And the blood of her veins,

se-hoofs ringing clear;
deaf that they did not hear?
of the hill,

od up, straight and still!

Clip clop, in the frosty silenc
Nearer he came and nearer
Her eyes grew wide for a mo
Then her finger moved in th
Her musket shattered t
Shattered her breast in the

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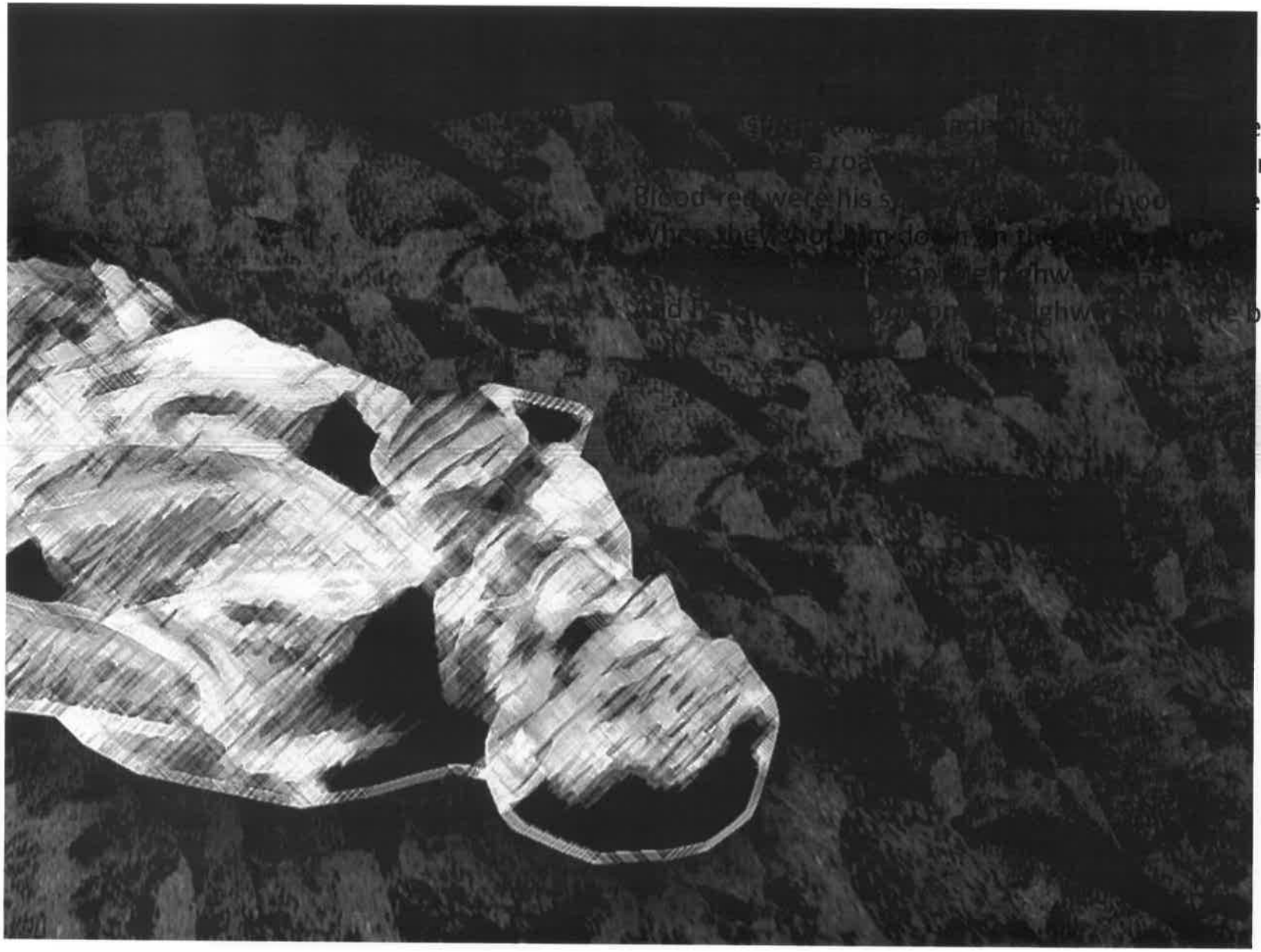
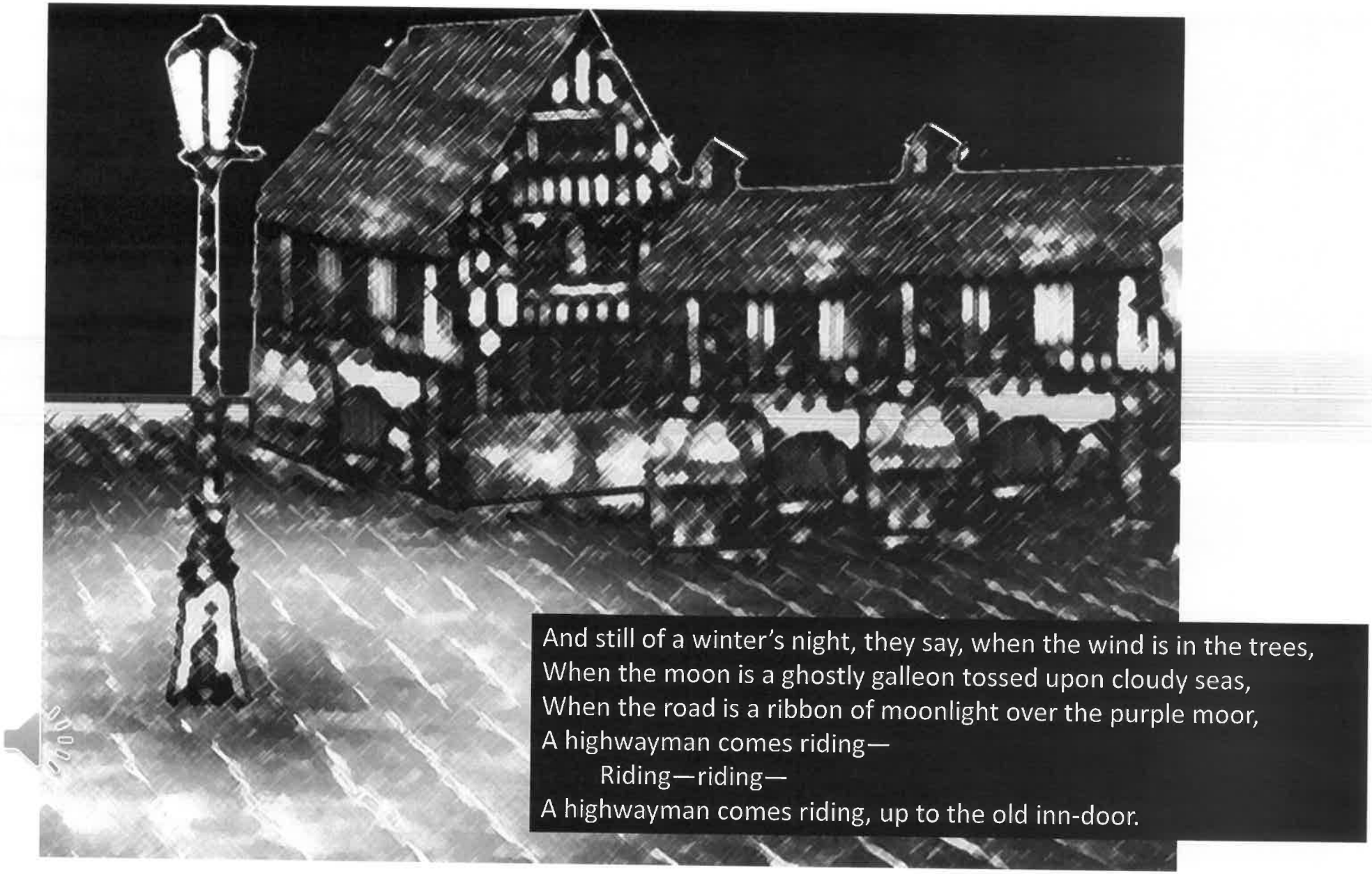


e to the sky,
rapier brandished high!
e-red was his velvet coat,

bunch of lace at his throat.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Riding—riding—
A highwayman comes riding, up to the old inn-door.

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The Highwayman
By Alfred Noyes

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Riding – riding –
The highwayman came riding, up to the old inn-door.

II

He'd a French cocked-hat on his forehead, a bunch of lace at his chin,
A coat of the claret velvet, and breeches of brown doe-skin;
They fitted with never a wrinkle: his boots were up to the thigh!
And he rode with a jewelled twinkle,
His pistol butts a-twinkle,
His rapier hilt a-twinkle, under the jewelled sky.

III

Over the cobbles he clattered and clashed in the dark inn-yard,
He tapped with his whip on the shutters, but all was locked and barred;
He whistled a tune to the window, and who should be waiting there
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And dark in the old inn-yard a stable-wicket creaked
Where Tim the ostler listened; his face was white and peaked;
His eyes were hollows of madness, his hair like mouldy hay,
But he loved the landlord's daughter,
The landlord's red-lipped daughter,
Dumb as a dog he listened, and he heard the robber say –

V

'One kiss, my bonny sweetheart, I'm after a prize to-night,
But I shall be back with the yellow gold before the morning light;
Yet, if they press me sharply, and harry me through the day,
Then look for me by moonlight,
Watch for me by moonlight,
I'll come to thee by moonlight, though hell should bar the way.'

VI

He rose upright in the stirrups; he scarce could reach her hand,
But she loosened her hair i' the casement! His face burnt like a brand
As the black cascade of perfume came tumbling over his breast;
And he kissed its waves in the moonlight,
(Oh, sweet black waves in the moonlight!)
Then he tugged at his rein in the moonlight, and galloped away to the West.

VII

He did not come in the dawning; he did not come at noon;
And out o' the tawny sunset, before the rise o' the moon,
When the road was a gipsy's ribbon, looping the purple moor,
A red-coat troop came marching-
Marching-marching-
King George's men came marching, up to the old inn-door.

VIII

They said no word to the landlord, they drank his ale instead,
But they gagged his daughter, and bound her, to the foot of her narrow bed;
Two of them knelt at her casement, with muskets at their side!
There was death at every window;
And hell at one dark window;
For Bess could see, through the casement, the road that he would ride.

IX

They had tied her up to attention, with many a sniggering jest;
They bound a musket beside her, with the muzzle beneath her breast!
'Now, keep good watch!' and they kissed her.
She heard the dead man say-
Look for me by moonlight;
Watch for me by moonlight;
I'll come to thee by moonlight, though hell should bar the way!

X

She twisted her hands behind her; but all the knots held good!
She writhed her hands till her fingers were wet with sweat or blood!
They stretched and strained in the darkness, and the hours crawled by like years,
Till, now, on the stroke of midnight,
Cold, on the stroke of midnight,
The tip of one finger touched it! The trigger at least was hers!

XI

The tip of one finger touched it; she strove no more for the rest!
Up, she stood up to attention, with the muzzle beneath her breast,
She would not risk their hearing; she would not strive again;
For the road lay bare in the moonlight;
Blank and bare in the moonlight;
And the blood of her veins in the moonlight throbbed to her love's refrain.

XII

Tlot-tlot; tlot-tlot! Had they heard it? The horse-hoofs ringing clear;
Tlot-tlot; tlot-tlot, in the distance? Were they deaf that they did not hear?
Down the ribbon of moonlight, over the brow of the hill,
The highwayman came riding,
Riding, riding!
The red-coats looked to their priming! She stood up straight and still.

XIII

Tlot-tlot, in the frosty silence! Tlot-tlot, in the echoing night!
Nearer he came and nearer! Her face was like a light!
Her eyes grew wide for a moment; she drew one last deep breath,
Then her finger moved in the moonlight,
Her musket shattered the moonlight,
Shattered her breast in the moonlight and warned him - with her death.

XIX

He turned; he spurred to the West; he did not know who stood
Bowed, with her head o'er the musket, drenched with her own red blood!
Not till the dawn he heard it, his face grew grey to hear
How Bess, the landlord's daughter,
The landlord's black-eyed daughter,
Had watched for her love in the moonlight, and died in the darkness there.

XX

Back, he spurred like a madman, shouting a curse to the sky,
With the white road smoking behind him and his rapier brandished high!
Blood-red were his spurs i' the golden noon; wine-red was his velvet coat,
When they shot him down on the highway,
Down like a dog on the highway,
And he lay in his blood on the highway, with the bunch of lace at his throat.

XXI

And still of a winter's night, they say, when the wind is in the trees,
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XXII

Over the cobbles he clatters and clangs in the dark inn-yard,
And he taps with his whip on the shutters, but all is locked and barred;
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by Alfred Noyes

Highwayman Events - Put the events into the right order

A. One night the Highwayman rides to the inn to see Bess, the landlord's daughter.
B. Bess hears the noise of the Highwayman's horse's hooves getting closer and closer.
C. The next morning the highwayman finds out that Bess saved him by shooting herself to warn him.
D. The Highwayman rides away when he hears the noise of the gun shot.
E. Tim the ostler watches Bess talking to the Highwayman and is jealous because he loves her.
F. Ever since then, on a winter's night people say the ghosts of Bess and the Highwayman are seen.
G. There is no sign of the highwayman in the daytime, but King George's men arrive at the inn.

H. The highwayman kisses Bess goodbye and promises he will return before tomorrow night.
I. Bess twists and turns her hands until she manages to get one finger on the trigger of the gun.
J. Bess shoots herself as a warning to the highwayman to turn back.
K. The soldiers shoot the highwayman as he is riding like a madman along the highway.
L. The King's Men make fun of Bess and tie her up to the bed.
M. Bess wants to escape but her hands are tied together too tightly.
N. They have also tied a musket beside her, aiming right at her.

Highwayman Questions

Top tips for learning a poem by heart

- Read the poem aloud several times slowly.
- Copy the poem out a couple of times.
- Be strategic. Pick a poem with a pattern, metre and rhyme are much easier to learn by heart than free verse.
- Learn and internalise the "story" in the poem
- Understand the poem by knowing every word's meaning
- With a card, cover everything but the first line of the poem. Read it. Look away, see the line in the air, and say it. Look back. Repeat until you've "got it."
- Uncover the second line. Learn it as you did the first line, but also add second line to first, until you've got the two.
- Then it's on to three. Always repeat the first line on down, till the whole poem sings.

Highwayman – Sequence of Events - ANSWERS

A

E

H

G

L

N

M

I

B

J

D

C

K

F

What to do today

IMPORTANT Parent or Carer – Read this page with your child and check that you are happy with what they have to do and any weblinks or use of internet.

1. Watch another version of the poem

- If possible, watch whichever version of the poem you didn't use yesterday: the PowerPoint or the video animation: https://www.youtube.com/watch?v=ryu1JZiSbHo
- Which of these do you think makes the poem clearest? Why?

2. Revise the Perfect Form

- Use the *Revision Card* or the *Perfect Form PowerPoint* to remind yourself about the past perfect and present perfect form of verbs.

3. Practise using the Perfect Form

- Complete *Perfect Verb Forms **A** and **C***
- You could challenge yourself to complete *Perfect Verb Forms **B*** as well!

Explain your answers to a grown-up. You can check with the answers at the end of the pack. Don't worry, if you're not yet clear about the Perfect Form of verbs – it can take a bit of time to understand.

Try these Fun-Time Extras

- Can you make some illustrations from the story of the Highwayman?
- Can you find out about the historical character Dick Turpin? What are the five most interesting facts that you can discover about him?

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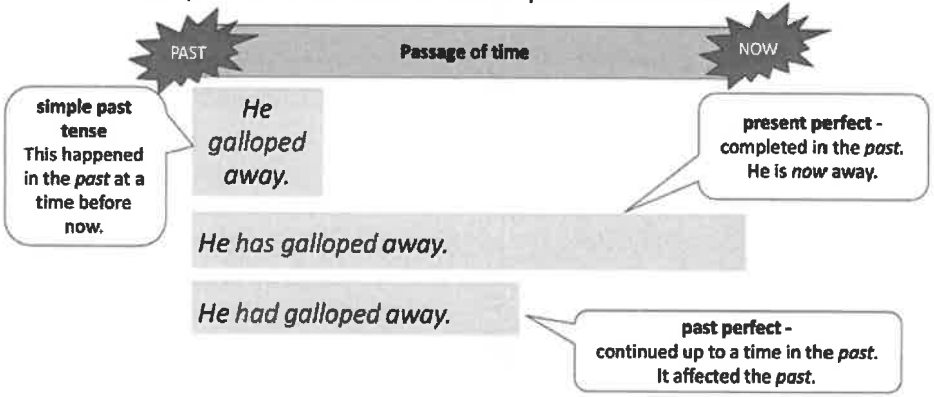
by Alfred Noyes

Revision Card – Perfect Form

Perfect form

The perfect form marks relationships of **time** and **cause**.



Present Perfect Form

The present perfect form suggests that a past action is *still affecting the present.*

Simple past	Present Perfect form
Bess met the highwayman.	*Bess has met the highwayman.*
He wore his hat.	*He has worn his hat.*
Tim listened.	*Tim has listened.*

Bess met the highwayman *in the past* and she *still* knows him.

He wore his hat *in the past* and it is *still* on his head!

Tim listened in the past and he *still* heard them.

Past Perfect Form

The past perfect form is created by using the auxiliary verb 'have/has' and the past participle of a verb.

They had tied her up to attention.

The landlord's black-eyed daughter had watched for her love in the moonlight.

Simple Past, Present Perfect and Past Perfect Forms

I brushed my hair (simple past).

I had brushed my hair (past perfect).

I have brushed my hair (present perfect).

She ate the pizza (simple past).

She had eaten the pizza (past perfect).

She has eaten the pizza (present perfect).

Perfect Verb Forms A

Underline the perfect verb forms used in the sentences below.

1. *The moon had risen over the misty moor.*
2. *The wind had gusted through the trees earlier that night.*
3. *Wearing his new hat, the highwayman had decided to visit Bess.*
4. *She had told him that she would be waiting by the window.*
5. *They had met secretly before, but Tim had not listened until that night.*
6. *We have read this poem many times.*
7. *The ending has surprised many people because they were expecting a happy ending.*
8. *Noyes has created a poem which continues to be read over a century later.*

Perfect Verb Forms B

Fill in the missing boxes with the correct verb form

simple past	past perfect	present perfect
	Tim the ostler, had fallen in love with Bess.	*Tim the ostler has fallen in love with Bess.*
The red coats drank some of the landlord's ale.		*The redcoats have drunk some of the landlord's ale.*
The wind blew some leaves off the trees.	*The wind had blown some leaves off the trees.*	
The highwayman promised he would return.		
		Bess and the highwayman have met many times.
Tim listened to their plan.		

Perfect Verb Forms C

Select the best Verb Form to give clues about time and cause

	simple past	past perfect	present perfect
Bess as a child went **once** to a fair.	*Bess went to a fair.*	*Bess had gone to a fair.*	*Bess has gone to a fair.*
Bess plaited her hair earlier **and it is still plaited now.**	*Bess plaited her hair.*	*Bess had plaited her hair.*	*Bess has plaited her hair.*
Tim asked Bess to marry him last year. She said no **then.**	*Tim asked Bess to marry him.*	*Tim had asked Bess to marry him.*	*Tim has asked Bess to marry him.*
Bess and the Highwayman promised to meet when the moon was full. **Tonight is the night.**	*They promised to meet when the moon was full.*	*They had promised to meet when the moon was full.*	*They have promised to meet when the moon is full.*
Bess was planning to wear her new dress but she changed her mind **yesterday.**	*Bess planned to wear her new dress.*	*Bess had planned to wear her new dress.*	*Bess has planned to wear her new dress.*
The soldiers **heard** about the Highwayman's visits to the inn. They decided to go to the inn last week. The journey was long.	*The soldiers heard about the secret visits.*	*The soldiers had heard about the secret visits.*	*The soldiers have heard about the secret visits.*

PERFECT FORM ANSWERS

A

1. *The moon had risen over the misty moor.*
2. *The wind had gusted through the trees earlier that night.*
3. *Wearing his new hat, the highwayman had decided to visit Bess.*
4. *She had told him that she would be waiting by the window.*
5. *They had met secretly before, but Tim had not listened until that night.*
6. *We have read this poem many times.*
7. *The ending has surprised many people because they were expecting a happy ending.*
8. *Noyes has created a poem which continues to be read over a century later.*

C

	simple past	past perfect	present perfect
Bess as a child went once to a fair.	Bess went to a fair.	Bess had gone to a fair.	Bess has gone to a fair.
Bess plaited her hair earlier and it is still plaited now.	Bess plaited her hair.	Bess had plaited her hair.	Bess has plaited her hair.
Tim asked Bess to marry him last year. She said no then.	Tim asked Bess to marry him.	Tim had asked Bess to marry him.	Tim has asked Bess to marry him.
Bess and the Highwayman promised to meet when the moon was full. Tonight is the night.	They promised to meet when the moon was full.	They had promised to meet when the moon was full.	They have promised to meet when the moon is full.
Bess was planning to wear her new dress but she changed her mind yesterday.	Bess planned to wear her new dress.	Bess had planned to wear her new dress.	Bess has planned to wear her new dress.
The soldiers heard about the Highwayman's visits to the inn. They decided to go to the inn last week. The journey was long.	The soldiers heard about the secret visits.	The soldiers had heard about the secret visits.	The soldiers have heard about the secret visits.

B

simple past	past perfect	present perfect
Tim the ostler, fell in love with Bess.	*Tim the ostler, had fallen in love with Bess.*	*Tim the ostler has fallen in love with Bess.*
The red coats drank some of the landlord's ale.	*The redcoats had drunk some of the landlord's ale.*	*The redcoats have drunk some of the landlord's ale.*
The wind blew some leaves off the trees.	*The wind had blown some leaves off the trees.*	*The wind has blown some leaves off the trees.*
The highwayman promised he would return.	*The highwayman had promised he would return.*	*The highwayman has promised he would return.*
Bess and the highwayman met many times.	*Bess and the highwayman had met many times.*	*Bess and the highwayman have met many times.*
Tim listened to their plan.	*Tim had listened to their plan.*	*Tim has listened to their plan.*

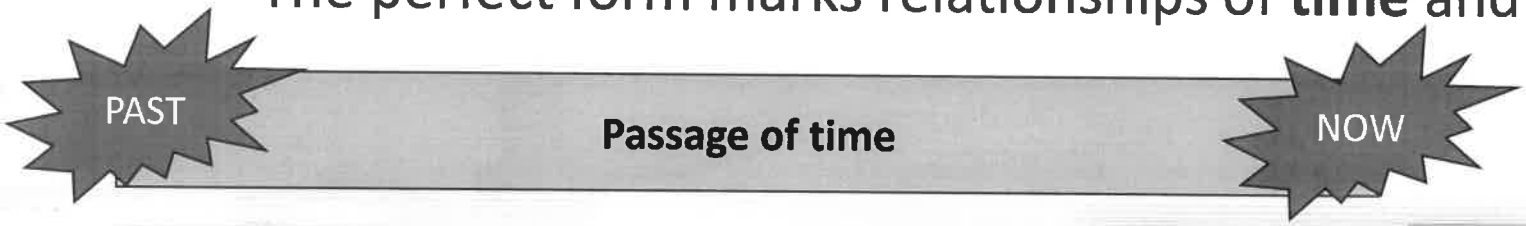
Perfect Verb Forms

The Highwayman

The highwayman had ridden through the wood.

Perfect form

The perfect form marks relationships of **time** and **cause**.



He galloped away.

simple past tense
This happened in the *past* at a time before now.

Perfect

Past perfect form is used in *The Highwayman*. It describes events that were *completed in the past* at the time of the poem's narrative.

He has galloped away.

affects the **past**

action... *w* away.

He had galloped away.

past perfect -
continued up to a time in the *past*.
It affected the *past*.

Present Perfect Form

The present perfect form suggests that a past action is still affecting the present.

Simple past	Present Perfect form
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Bess met the highwayman *in the past* and she *still* knows him.

He wore his hat *in the past* and it is *still* on his head!

Tim listened in the past and he *still* heard them.

Past Perfect Form

The past perfect form suggests that an action had an effect on another point in the past.

The highwayman had ridden across the moor.

He had tapped his whip on the shutters.

He had whistled a tune at the window.

Bess had waited for him.

She had plaited her hair into a love-knot.

They had met in secret.

The verbs were completed (**perfected**) *in the past*.
The result has an effect *on a **past** point* (the moment of the poem).
Past perfect form gives clues to time and cause.

Answers

Past Perfect Form

The perfect form is created by using the auxiliary verb 'have/has' and the past participle of a verb.

They had tied her up to attention.

The landlord's black-eyed daughter had watched for her love in the moonlight.

They tied her up to attention.

form of t

They have tied her up to attention.

How would the timing change if it was in **simple past** or **present perfect** form?

Present Perfect and Past Perfect Forms

The perfect form is created by using the auxiliary verb 'have/has' and the past participle of a verb.

I brushed my hair (simple past).

I had brushed my hair (past perfect).

I have brushed my hair (present perfect).

The auxiliary verb indicates whether the verb form is past or present.

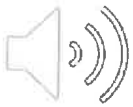
She ate the pizza (simple past).

She had eaten the pizza (past perfect).

She has eaten the pizza (present perfect).

For past perfect: use had.

For present perfect:
have is used for I, you, we and they,
has is used for third person (he, she).



Punctuation

- Semi-colons, colons and dashes to mark independent clauses
- Colons and semi-colons in lists
- Hyphens to avoid ambiguity

Using Semi-Colons to link clauses

Semi-colons are used in **formal writing.**

Semi-colons can be used to link two independent clauses that are *closely related*.

We tried as hard as we could. We crashed within seconds.

We tried as hard as we could; we crashed within seconds.

The **semi-colon** emphasises the *close link*.

It links main clauses like a co-ordinating conjunction. The two clauses have *equal weight*.

Our machine had taken months to build; it was now in pieces.

We swam for the shore; the crowd applauded and laughed.

To link two clauses: replace the full stop with a semi-colon and then use lower case to start the second main clause.

Using Colons to link clauses

Colons are used in **formal writing.**

Colons are used slightly differently.
They also show a link between clauses, when *the second clause expands the first*.

She flew a record-breaking distance. Her craft was aerodynamic.

She flew a record-breaking distance: her craft was aerodynamic.

The **colon** emphasises how the second clause expands on the first.

She deserved her success: she had planned her design carefully.

She was overwhelmed: she had not expected to break the record.

It links clauses like a subordinating conjunction. The second clause has *less weight* than the first.

To link two clauses: replace the full stop with a **colon** and then use lower case to start the second main clause.

Using Dashes to link clauses

Dashes are used in **informal writing.**

We can use **dashes** like colons and semi-colons.
They indicate grammatical breaks.
They are used in informal writing—the rules are less precise.

My heart was beating like crazy—it was awesome .

I'm so proud—I can't wait to tell Nan.

It just kept going—you're a complete hero.

To link two clauses: replace the full stop with a **dash** and then use lower case to start the second main clause.

Colons in lists

Colons are used in **formal writing.**

Colons can be used to introduce lists.
We use them if the list comes after an *independent clause.*

You may be required to bring many items: custard pies, a towel and a change of clothes.

I was most impressed by the following: the size of the beards, the range of styles and the care that was taken.

To be successful you should *try your best, listen to instructions and have fun.*

The **colon** comes after the independent clause.

We do not use a colon if the words before are not an independent clause.

'To be successful you should' is not an independent clause. We do not use a colon.

Semi-Colons in lists

Semi-colons can be used to separate items in lists.

We use them when it will make the list clearer.

The sights we saw amazed us: bright lights; babies, supported by their parents, in the centre of the arena; an enthusiastic, noisy, shouting crowd; and, watching carefully, a group of expert-looking judges.

The **semi-colons** separate the four items:

- lights
- babies
- crowd
- judges

The sights we saw amazed us: bright lights, babies, supported by their parents, in the centre of the arena, an enthusiastic, noisy, shouting crowd and, watching carefully, a group of expert-looking judges.

Without **semi-colons** it is not clear how many items there are.

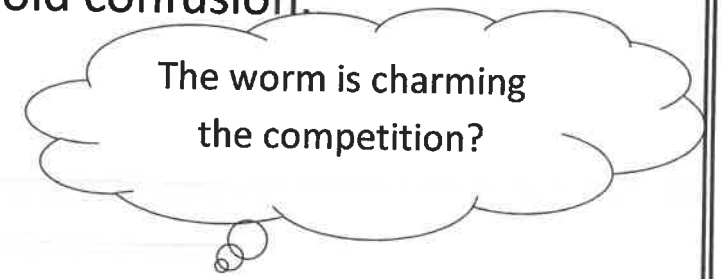
When the items in a list already include commas, it helps to use semi-colons.

Using hyphens to avoid ambiguity

Hyphens can be used to join compound adjectives to avoid confusion.

a worm charming competition

a worm-charming competition



Hyphens can be used with prefixes to avoid confusion.

Satnam resigned last week.

Satnam re-signed last week.

Hyphens can also be used when a prefix creates repeated vowels e.g. re-enter (not reenter)

What to do today

IMPORTANT Parent or Carer – Read this page with your child and check that you are happy with what they have to do and any weblinks or use of internet.

1. Read the article: Flutag Explanation

- Read the article '*Flutag Explanation*' and then watch https://www.youtube.com/watch?v=8kmEUuai-tE
- Explain Flutag to somebody else, so that they are clear about what it involves and know three facts about it.
- Highlight and name all the punctuation that you can find in *Flutag Explanation*.

2. Revise linking clauses using semi-colons, colons and dashes

- Use the *PowerPoint* or the *Revision Card* to remind yourself about using colons, semi-colons and dashes to link clauses.
- Complete either *Linking Clauses 1* or *Linking Clauses 2*. (Version 2 is more challenging).

Explain your answers to a grown-up. Explain why you chose particular punctuation.

3. Now for some writing

- Look at the design for a *Giant Flying Techno Badger*.
- Write some sentences about this – include clauses separated with semi-colons, colons and dashes. Maybe use some of the *Example Sentences.*

Try these Fun-Time Extras

- Find out more about Flutag. Which is your favourite machine? Look again at https://www.youtube.com/watch?v=8kmEUuai-tE
- Design a Flutag Flying machine of your own.

Flugtag Explanation

Flugtag (German for flight day) is an event in which competitors attempt to fly home-made, human-powered flying machines. Teams that enter the competition are judged according to three criteria: distance, creativity and showmanship.

The crafts are limited to around 10m and 150kg. They must be powered by human-effort and gravity. The designs have to be unsinkable: they ultimately end up in the water. The flying machines are usually launched off a pier about 30 feet (9.1 m) high into the sea.

Most competitors enter for the entertainment value; the flying machines rarely fly at all. A design, in 2013, that paired a glider with a launch-tower, flew over 63m and broke the world-record.

The original format was invented in Selsey, a small seaside town in England, under the name Birdman Rally.

Flutag competitions happen each year – you could plan to take part one day!

Revision Card – Linking Clauses

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We tried as hard as we could; we crashed within seconds.

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Our machine had taken months to build; it was now in pieces.
We swam for the shore; the crowd applauded and laughed.

It links main clauses like a co-ordinating conjunction. The two clauses have *equal weight*.

To link two clauses: replace the full stop with a semi-colon and then use lower case to start the second main clause.

Using Colons to link clauses

Colons are used in formal writing.

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Using Dashes to link clauses

Dashes are used in informal writing

We can use **dashes** like colons and semi-colons.
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They are used in informal writing—the rules are less precise.

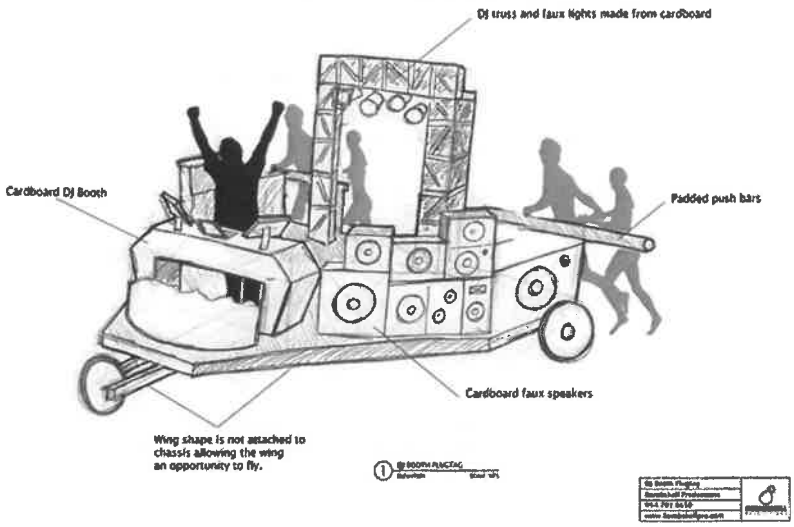
My heart was beating like crazy—it was awesome .

I'm so proud—I can't wait to tell Nan.

It just kept going—you're a complete hero.

To link two clauses: replace the full stop with a **dash** and then use lower case to start the second main clause.

Linking Clauses 1



Link the independent clauses using semi-colons.

1. The theme of the craft is a night-club it will include a booth.
2. The lights and speakers are made of cardboard the main chassis will be wooden.
3. Power will be provided by the team pushing from behind the pilot will simply enjoy the ride.

Link the independent clauses using colons

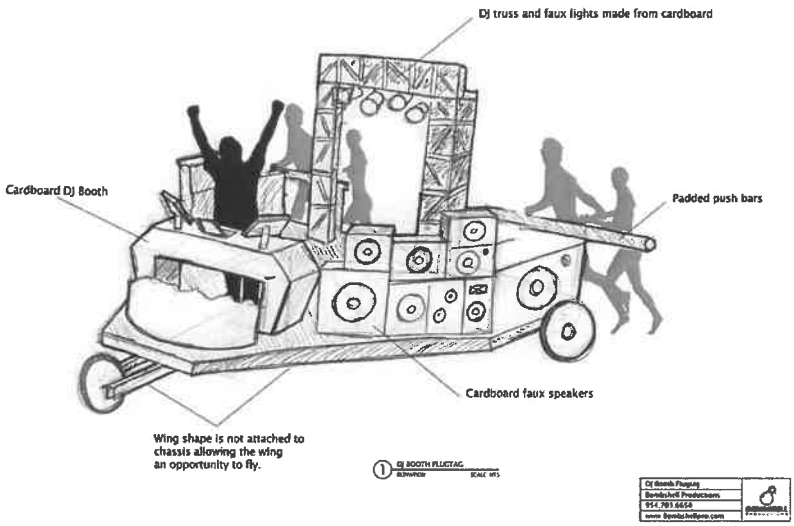
4. The design uses a lot of carboard it is an environmentally friendly material.
5. The push bars are padded they will be more comfortable for the team.
6. The lights and speakers are not real they avoid the dangers of using electricity.

Link the independent clauses using dashes

7. I will stand at the front and wave my arms I'm just along for the ride!
8. We don't think we will get actually fly we hope to look cool rather than go far.
9. It's been great building it now let's see whether it flies!

Write explaining why we can choose semi-colons, colons or dashes to mark independent clauses.

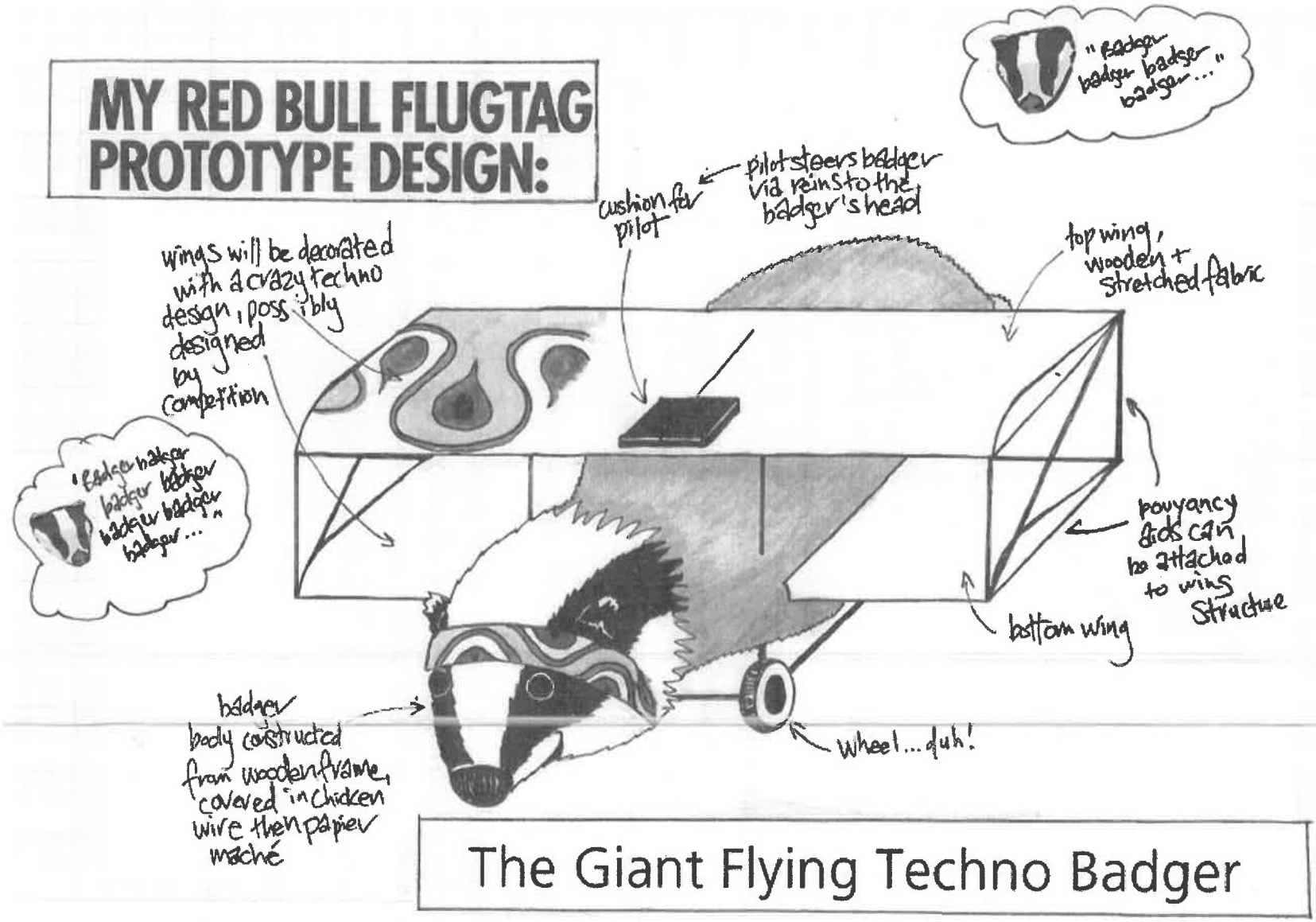
Linking Clauses 2



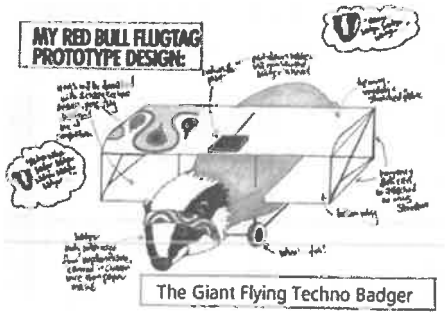
Choose semi-colons, colons or dashes to mark the independent clauses. Think carefully about which you choose.

1. The theme of the craft is a night-club it will include a booth.
2. We don't think we will get it to actually fly we hope to look cool rather than go far.
3. The lights and speakers are made of cardboard the main chassis will be wooden.
4. The lights and speakers are not real they avoid the dangers of using electricity.
5. The design uses a lot of carboard it is an environmentally friendly material.
6. The push bars are padded they will be more comfortable for the team.
7. I will stand at the front and wave my arms I'm just along for the ride!
8. Power will be provided by the team pushing from behind the pilot will simply enjoy the ride.
9. It's been great building it now let's see whether it flies!

Choose three of your sentences and explain why you chose that particular piece of punctuation.



Example Sentences



You will need to add semi-colons, colons or dashes to these sentence.

1. The design includes the following components* decorated wings, an animal nose-piece, a cushion for the pilot and a wheeled base.

2. The badger body is made from papier maché* the wings will use stretched fabric.

3. The design combines two elements* style and fun.

4. Buoyancy aids are essential* the craft will end up in the water.

5. The pilot will need many qualities* balance, bravery and a sense of humour!

Giant Flying Techno Badger

Write sentences about the flying machine.
Use some sentences that have two clauses that are separated with semi-colons, colons or dashes.
You could use some of the Example Sentences, but try your own too.

Linking Clauses ANSWERS

Link the independent clauses using semi-colons.

1. The theme of the craft is a night-club; it will include a booth.
2. The lights and speakers are made of cardboard; the main chassis will be wooden.
3. Power will be provided by the team pushing from behind; the pilot will simply enjoy the ride.

Link the independent clauses using colons

4. The design uses a lot of carboard: it is an environmentally friendly material.
5. The push bars are padded: they will be more comfortable for the team.
6. The lights and speakers are not real: they avoid the dangers of using electricity.

Link the independent clauses using dashes

7. I will stand at the front and wave my arms - I'm just along for the ride!
8. We don't think we will get actually fly - we hope to look cool rather than go far.
9. It's been great building it - now let's see whether it flies!

What to do today

IMPORTANT Parent or Carer – Read this page with your child and check that you are happy with what they have to do and any weblinks or use of internet.

1. Read Rules of Participation

- Read *Rules of Participation*. This is about the Flutag competition. Which do you think is the most important rule here?
- Highlight the punctuation used in this writing. What is the name of each and what is it doing?

2. Revise using colons and semi-colons in lists.

- Use the *Revision Card* or the *PowerPoint* to revise using colons and semi-colons in lists.

3. Practise using colons and semi colons in lists.

- Look at *Crazy Competitions*. Which of these would you most like to see? Which would you most like to take part in.
- Read *Crazy Competition Rules*. Choose one of these competitions and write the rules as a list introduced with a colon and with items separated by colons.
- Try writing lists for two more competitions.

Share your writing with a grown-up. Show them the punctuation that you have used.

Try the Fun-Time Extras

- Use the Internet to find out more about three of the Crazy Competitions.

Terms of Participation

The rules are as follows: all crafts must be built by the team; the maximum weight, including the pilot, is 180kg; all crafts must be pushed from the rear; chicken-wire, pyrotechnics, firecrackers and ropes are not permitted; and all team-members must be over 16.

Revision Card – Colons and Semi-Colons in lists

Colons in lists

Colons are used in formal writing.

Colons can be used to introduce lists.
We use them if the list comes after an ***independent clause.***

You may be required to bring many items: custard pies, a towel and a change of clothes.

I was most impressed by the following: the size of the beards, the range of styles and the care that was taken.

To be successful you should *try your best, listen to instructions and have fun.*

The **colon** comes after the independent clause.

We do not use a colon if the words before are not an independent clause.

'To be successful you should' is not an independent clause. We do not use a colon.

Semi-Colons in lists

Semi-colons can be used to separate items in lists.
We use them when it will make the list clearer.

The sights we saw amazed us: bright lights; babies, supported by their parents, in the centre of the arena; an enthusiastic, noisy, shouting crowd; and, watching carefully, a group of expert-looking judges.

The sights we saw amazed us: bright lights, babies, supported by their parents, in the centre of the arena, an enthusiastic, noisy, shouting crowd and, watching carefully, a group of expert-looking judges.

The **semi-colons** separate the four items:

- lights
- babies
- crowd
- judges

Without **semi-colons** it is not clear how many items there are.

When the items in a list already include commas, it helps to use semi-colons.

Crazy Competitions

World Beard and Moustache Championships

Black pudding throwing

Custard Pie throwing

Baby Crawling

Worm Charming

Toe Wrestling

Extreme Ironing

Hoop Rolling

Crazy Competition Rules

Black-Pudding Throwing	• Competitors have three turns each • Yorkshire Puddings, arranged in piles of a dozen, are the target • All throwing must be underarm
Custard-Pie Throwing	• Teams, made up of four members, are drawn against each other • Every player, without exception, must throw with their left hand • A player who misses three times has points deducted
Baby-Crawling	• Babies must be between six and twelve months old • Only one contest entry can be made per person, per contest • Babies, whilst competing, must be wearing nappies
Worm-Charming	• Each competitor to operate in a 3 by 3 metre plot • Duration of competition is 30 minutes, starting at 2.30pm • A piece of wood, smooth or notched, may be used to strike the handle of a garden fork
Toe-Wrestling	• Players must remove shoes and socks before beginning • Toes must be linked, with feet flat, before wrestling • Rounds are played first with the right foot, then left, and right again if necessary
Extreme ironing	• Only ironing boards of the standard size, 1m long and 30cm wide, are allowed • The garment must be at least the size of a tea towel • Plastic, wooden or model irons are not permitted
Hoop-Rolling	• Teams can be male, female or mixed • Teams are made up of five members • The hoops must be controlled using hands, sticks or feet

Competition Rules

Write the rules as a list – introduced with a colon and with semi-colons separating each item.

You could start 'The rules are as follows:'

What to do today

IMPORTANT Parent or Carer – Read this page with your child and check that you are happy with what they have to do and any weblinks or use of internet.

1. Read Ambiguous Headlines

- Read *Ambiguous Headlines*. When something is ambiguous it means it could have more than one meaning.
- Can you work out how these headlines could have more than one meaning? The first has been done for you.

2. Revise using hyphens to avoid ambiguity

- Use the *Revision Card* or the *PowerPoint* to revise using hyphens to avoid ambiguity.

3. Practise using hyphens

- Complete the activities on *Hyphens*, putting hyphens in the right place.

Check your answers with a grown-up. Explain why you have put the hyphens in those places.

4. Now for some writing

- Take one of the 'wrong' headlines on Ambiguous Headlines and make up a story about it. e.g. six one-year-old children win a worm charming competition!

Try these Fun-Time Extras

- Find out more about worm-charming, toe-wrestling, hoop-rolling or giant pie making. Are there records for each of these activities?
- Make some illustrations for the 'wrong' version of the *Ambiguous Headlines*.

Ambiguous Headlines

Toe wrestling champion says this is his greatest achievement

A toe wrestled a champion and said that it was his greatest achievement.
Someone who wrestles using his toe has said that something (we don't what) is his greatest achievement.

Hoop rolling team to visit America

Six year old children win worm charming competition

Extra large pie made for championships

Unit 2 Day 3

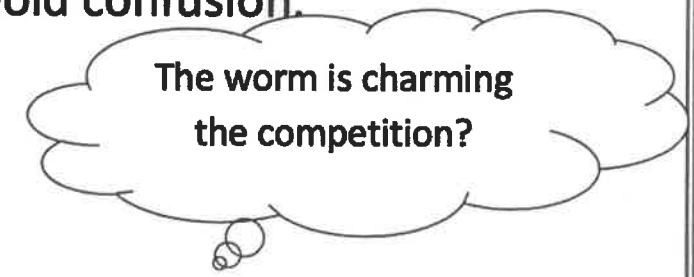
Revision Card – Using hyphens to avoid ambiguity

Using hyphens to avoid ambiguity

Hyphens can be used to join compound adjectives to avoid confusion.

a worm charming competition

a worm-charming competition



Hyphens can be used with prefixes to avoid confusion.

Satnam resigned last week.

Satnam re-signed last week.

Hyphens can also be used when a prefix creates repeated vowels e.g. re-enter (not reenter)

Hyphens

Where could you place hyphens to make these sentences clearer?

1. The competition took place in a brightly lit room

2. Her long suffering friends supported her through all the preparations.

3. He worked part time so that he could prepare for the competition.

4. They were well known in the pie throwing world.

5. They were all given a ten minute break to recover.

6. The short haired man had strong hopes of winning the moustache competition.

7. This is an old fashioned game with straightforward rules.

8. This really was a record breaking afternoon.

9. We were excited to be taking part in this world famous competition.

10. His pursuit of the best place to iron was never ending.

Writing

Write the story of one of these strange events

- The toe that wrestles
- The hoops that form a rolling-team and visit America
- The six one-year old children who win a worm-charming competition
- Why extra large-pies were needed for the championship.

Hyphens - Answers

1. The competition took place in a brightly-lit room
2. Her long-suffering friends supported her through all the preparations.
3. He worked part-time so that he could prepare for the competition.
4. They were well-known in the pie-throwing world.
5. They were all given a ten-minute break to recover.
6. The short-haired man had strong hopes of winning the moustache competition.
7. This is an old-fashioned game with straightforward rules.
8. This really was a record-breaking afternoon.
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10. His pursuit of the best place to iron was never-ending.