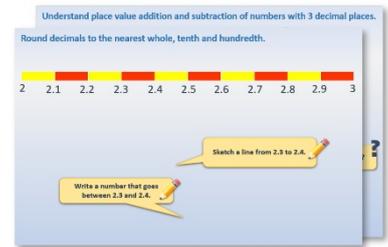


Week 10, Day 2

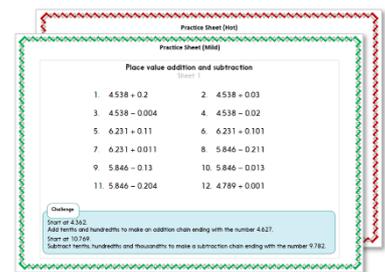
Use mental strategies to divide. Solve scaling problems.

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

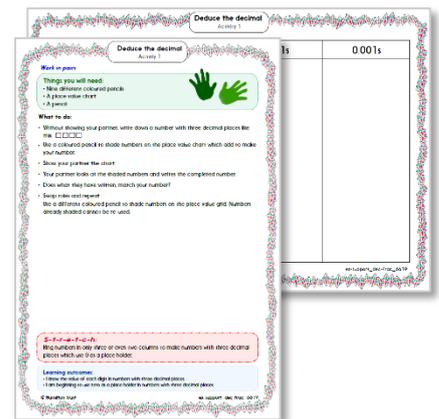
1. Start by reading through the **Learning Reminders**. They come from our *PowerPoint* slides.



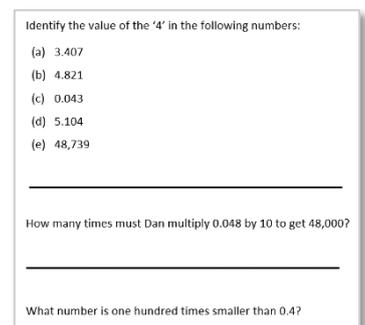
2. Tackle the questions on the **Practice Sheet**. There might be a choice of either **Mild** (easier) or **Hot** (harder)! Check the answers.



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

Use mental strategies to divide by 5, 20, 6, 4 and 8.

$$630 \div 10 = 63$$

$$630 \div 5 = 126$$

How can we use $630 \div 10 = 63$ to work out the answer to $630 \div 5$?

We can divide numbers by 5 by dividing by 10, and then doubling.

$$630 \div 20 = 31.5$$

How can we use $630 \div 10 = 63$ to work out the answer to $630 \div 20$?

We can halve the answer to $630 \div 10$.
If a number is split into bigger groups, there will be fewer groups, so dividing by a bigger number gives a smaller answer.

Learning Reminders

Use mental strategies to divide by 5, 20, 6, 4 and 8.

Work out $450 \div 3$.
Hint: use $45 \div 3$.

$$450 \div 6 =$$

How can we use $450 \div 3 = 150$ to work out the answer to $450 \div 6$?

We need to halve the answer to $450 \div 3$.
(150)

Work out $280 \div 4$.
Hint: halve twice, or use a tables fact.

$$280 \div 8 =$$

How can we use $280 \div 4 = 70$ to work out the answer to $280 \div 8$?

We need to halve the answer to $280 \div 4$.
(70)

Use this strategy to find $624 \div 4$, then $624 \div 8$.

$624 \div 4$
Half of 624 is 312
Half of 312 is 156
 $624 \div 8$
Half of 156 is 78

Practice Sheet Mild

Dimensions for dinosaur toys

A natural history museum wants to sell tiny toy dinosaurs in its shop. Each measurement will be $\frac{1}{200}$ of the size they think the dinosaurs were. Calculate the height and length of each toy. How can you check your answers?

Dinosaur	Actual height	Toy's height	Actual length	Toy's length
Allosaurus	5.2m		12.2m	
Triceratops	2.9m		8.4m	
Stegosaurus	3.8m		8.9m	
Spinosaurus	5.4m		13.2m	
Brontosaurus	4.6m		23m	

Challenge

If you have time, look up your own choice of dinosaur in a book or online. Find its length and height and calculate the scaled-down measurements.

Practice Sheet Hot

Scaling down

A factory is making large dinosaur models for a theme park. They will be $\frac{1}{8}$ of the size they think the dinosaurs were. Calculate the height and length of each model in centimetres. How can you check your answers?

Dinosaur	Actual height	Toy's height	Actual length	Toy's length
Allosaurus	5.2m		12.2m	
Triceratops	2.9m		8.4m	
Stegosaurus	3.8m		8.9m	
Spinosaurus	5.4m		13.2m	
Brontosaurus	4.6m		23m	

Challenge

If you have time, look up your own choice of dinosaur in a book or online. Find its length and height and work out the scaled-down measurements.

Practice Sheets Answers

Dimensions for dinosaur toys (mild)

Dinosaur	Actual height	Toy's height	Actual length	Toy's length
Allosaurus	5.2m	2.6cm	12.2m	6.1cm
Triceratops	2.9m	1.45cm	8.4m	4.2cm
Stegosaurus	3.8m	1.9cm	8.9m	4.45cm
Spinosaurus	5.4m	2.7cm	13.2m	6.6cm
Brontosaurus	4.6m	2.3cm	23m	11.5cm

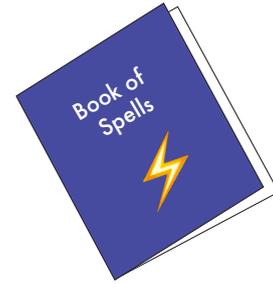
Scaling down (hot)

Dinosaur	Actual height	Model height	Actual length	Model length
Allosaurus	5.2m	65cm	12.2m	152½cm
Triceratops	2.9m	36¼cm	8.4m	105cm
Stegosaurus	3.8m	47½cm	8.9m	111¼cm
Spinosaurus	5.4m	67½cm	13.2m	165cm
Brontosaurus	4.6m	57½cm	23m	287½cm

A Bit Stuck? Your Hogwarts' bedroom

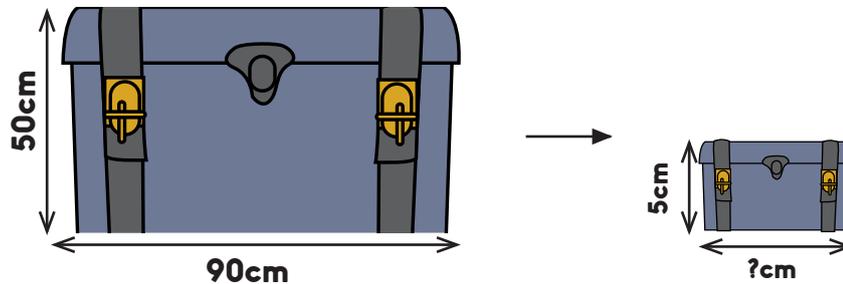
You will need:

- List of bedroom furniture (see resources)
- Sheet of cm² paper
- Scissors
- Tape

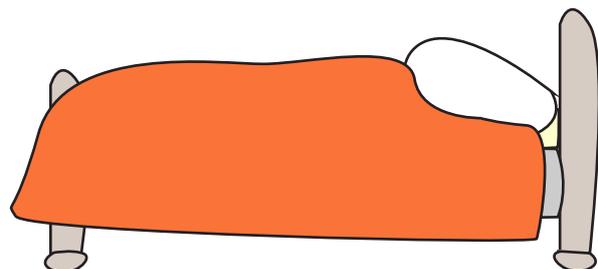


Your challenge is to make a model of your bedroom in Hogwarts!

- Choose from a list of items (see resources), recording the dimensions, both real life and those for the scale model. All of your model items should be **one tenth** of the actual size.



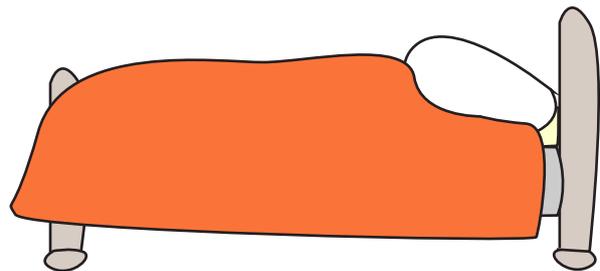
- Then make each item from cm² paper.
- You can also choose your own items if you wish, measuring them to the nearest 10cm, before calculating the scaled dimensions.
- Afterwards, look at your model. Does it look correct, i.e. in proportion?
- What would your model have looked like if you had only divided some dimensions by 10!



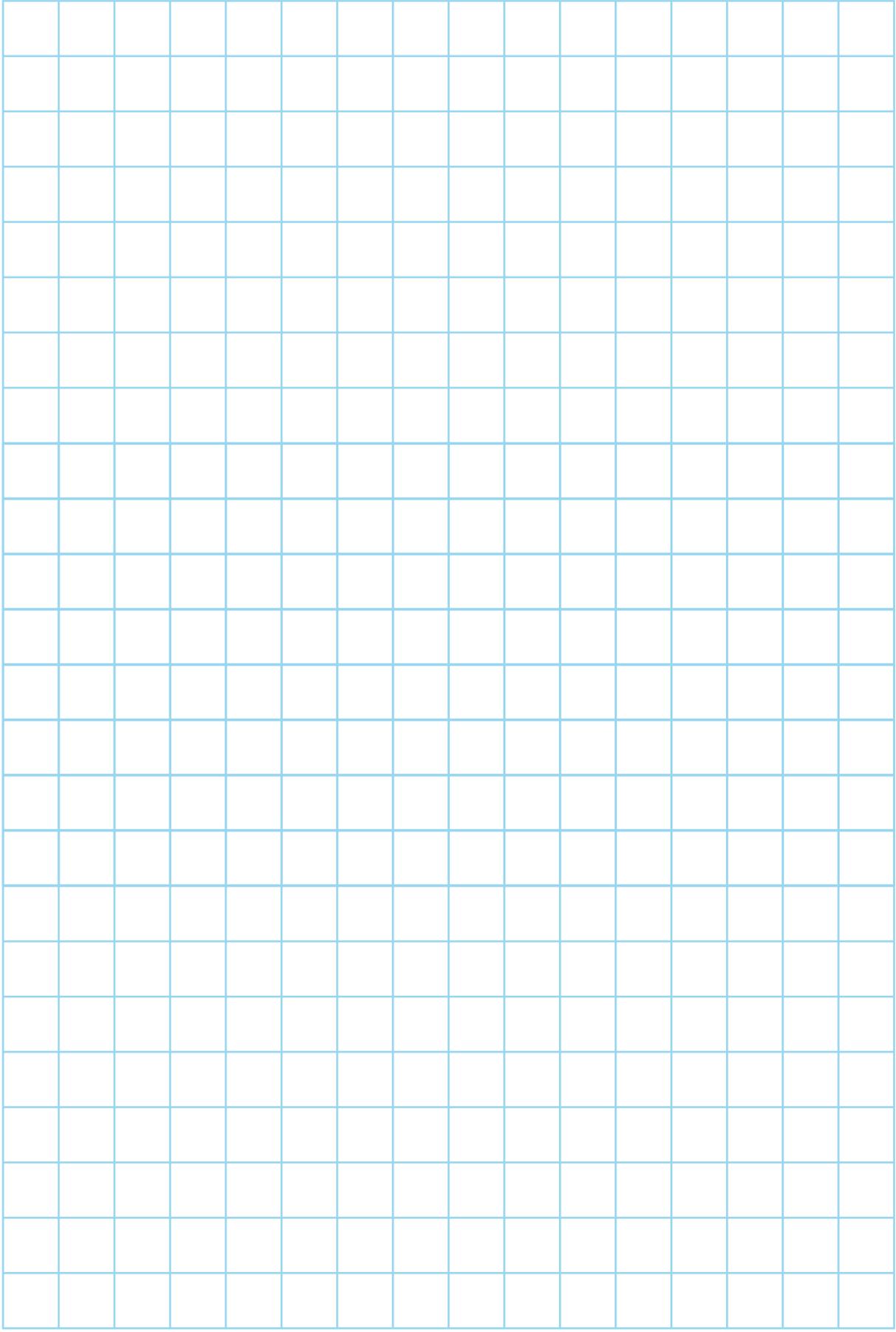
A Bit Stuck? Your Hogwart's bedroom

Choose items from the following:

Single bed	90cm wide, 2m long, 60cm high
Cabin bed	2.1m long, 90cm wide, 1m high
4 poster bed	1.5m wide, 1.9m long, 2m high
Trunk	90cm wide, 50cm tall, 40cm wide
Owl's cage	90cm tall, 40cm wide, 40cm deep
Box of potions	30cm by 20cm by 20cm
Desk	80cm tall, 1.2m wide, 70cm deep
Spells book	50cm tall, 30cm wide, 10cm deep
Flat screen TV	1m wide, 60cm tall and 10cm deep
Mini TV	30cm by 20cm by 10cm
CD player	40cm by 20cm by 20cm
Cube seat	40cm by 40cm by 40cm
Video console	30cm by 20cm by 10cm
Wardrobe	80cm wide, by 1.2m tall and 50cm deep
Chest of drawers	80cm wide, 80cm tall, 40cm deep
Bedside drawers	50cm wide, 40cm deep, 60cm tall



A Bit Stuck?
Your Hogwarts' bedroom



Check your understanding

Questions

Find the answers using mental strategies:

- (i) 234×5
- (ii) 450×20
- (iii) $1270 \div 8$
- (iv) 253×6
- (v) $732 \div 5$

Explain which you found most tricky and why.

A doll's house is made so that all the furniture is $\frac{1}{12}$ the size of actual real furniture.

Write the dimensions of these items in the doll's house:

- Bed (actual size 2.4m by 1.2m)
- Sofa (actual size 1.8m by 120cm)
- Wardrobe (actual size 2.4m by 1.8m by 60cm)

Fold here to hide answers.

Check your understanding

Answers

Solve these calculations using mental strategies:

- (i) 234×5 1170 – multiply by 10 and find half.
- (ii) 450×20 9000 – double and multiply by 10
- (iii) $1270 \div 8$ 158.75 Half, half and half again.
- (iv) 253×6 1518 Find 250×6 and add 3×6 (18).
- (v) $732 \div 5$ 183 Find $732 \div 10$ then double.

Explain which you found most tricky and why.

The above are example methods; other strategies are possible.

A doll's house is made so that all the furniture is $\frac{1}{12}$ the size of actual real furniture. Write the dimensions of these items in the doll's house:

- Bed (actual size 2.4m by 1.2m) 20cm by 10cm
- Sofa (actual size 1.8m by 120cm) 15cm by 10cm
- Wardrobe (actual size 2.4m by 1.8m by 60cm). 20cm by 15cm by 5cm.

Children may give answers in equivalent metres but check decimal point is in correct place.