Key Instant Recall Facts

Sharow CE Primary School

To help develop children's fluency in mathematics, we ask them to learn Key Instant Recall Facts (KIRFs) each half term.

We expect children to practise their KIRFs regularly, at least 3 times a week at home to support their learning in school.

By the end of each half term, the aim and expectation is that ALL our pupils achieve and will be able to instantly recall these facts to support their mathematical fluency in class.

Some KIRFs have facts to learn in blue. These are the next steps for children who have mastered the expected facts and who enjoy a challenge. All facts in black **must** be mastered before moving on to blue ones.

There are some ideas to help you on each sheet but please ask your class teacher if you need any more ideas to help you practise them at home. They can be completed during the walk to school or over breakfast in the morning; it doesn't need to be a long, formal session of learning or a large time commitment.

Key Instant Recall Facts

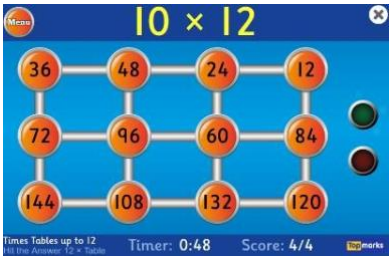
Some helpful apps and websites

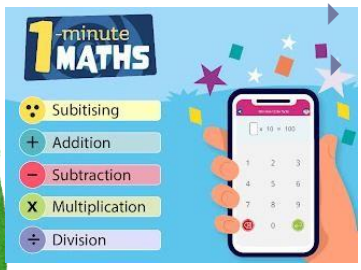
There are lots of fantastic resources available to help our children learn their key facts. Some of these below are no-nonsense, but super fun and effective apps, videos and games for the children to use to learn their KIRFs

Hit the Button

https://www.topmarks.co.uk/maths-games/hit-the-button

This is great for number bonds, multiplication and division facts. Beautifully simple, it is free to use on a web browser but is also available as a paid app (£2.99). Probably the best 'no fuss' maths app available!





White Rose 1 Minute Maths App

Superb free app for all children from nursery to Year 6! The app uses the notion of little and often, encouraging the children to practise for 1 minute a day. It is covers subitising, addition, subtraction, number bonds, multiplication and division.

Numberblocks Videos:
https://www.bbc.co.uk/iplayer/episodes/b08bzfnh/numberblocks?scrlybrkr=9c05d913

Watching Numberblocks is great fun! Initially created for younger children, they have now created episodes that cover objectives taught in Key Stage 1 and even some in Key Stage 2. They have lots of catchy songs to help recall number facts too.

- Times Table Rock-Stars App
- The school subscribes to Times Table Rock-stars App. Download the App and log in! This is a great app to encourage children to increase the speed of their recall of multiplication facts.

Year 3 & 4 Key Instant Recall Facts (KIRF): Overview of the year		
Autumn 1	Year 3	I know the multiplication and division facts for the 3 times table.
	Year 4	I know the multiplication and division facts for the 6 times table.
Autumn 2	Year 3	I know the multiplication and division facts for the 4 times table.
	Year 4	I know the multiplication and division facts for the 9 and 11 times tables.
Spring 1	Year 3	I know the multiplication and division facts for the 8 times table.
	Year 4	I know the multiplication and division facts for the 7 times table.
Spring 2	Year 3	I know number bonds for all numbers to 20. I can identify addition and subtraction fact families for all numbers to 20
	Year 4	I know the multiplication and division facts for the 12 times table.
Summer 1	Year 3	I can revise and know the multiplication and division facts for the 0, 1, 2, 3, 4, 5, 8 & 10 times tables.
	Year 4	I can revise and know the multiplication and division facts up to 12 x 12.
Summer 2	Year 3	I can recall facts about durations of time including knowing the days in each month.
	Year 4	I know the multiplication and division facts for the 25, 50 and 100 times table.

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Key Instant Recall Facts

Year 3 – Autumn 1

I know the multiplication and division facts for the 3 times table.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

3 × 1 = 3	1 × 3 = 3	3 ÷ 3 = 1	3 ÷ 1 = 3
3 × 2 = 6	2 × 3 = 6	6 ÷ 3 = 2	6 ÷ 2 = 3
3 × 3 = 9	3 × 3 = 9	9 ÷ 3 = 3	9 ÷ 3 = 3
3 × 4 = 12	4 × 3 = 12	12 ÷ 3 = 4	12 ÷ 4 = 3
3 × 5 = 15	5 × 3 = 15	15 ÷ 3 = 5	15 ÷ 5 = 3
3 × 6 = 18	6 × 3 = 18	18 ÷ 3 = 6	18 ÷ 6 = 3
3 × 7 = 21	7 × 3 = 21	21 ÷ 3 = 7	21 ÷ 7 = 3
3 × 8 = 24	8 × 3 = 24	24 ÷ 3 = 8	24 ÷ 8 = 3
3 × 9 = 27	9 × 3 = 27	27 ÷ 3 = 9	27 ÷ 9 = 3
3 × 10 = 30	10 × 3 = 30	30 ÷ 3 = 10	30 ÷ 10 = 3
3 × 11 = 33	11 × 3 = 33	33 ÷ 3 = 11	33 ÷ 11 = 3
3 × 12 = 36	12 × 3 = 36	36 ÷ 3 = 12	36 ÷ 12 = 3

Key Vocabulary

What is 3 multiplied by 8?

What is 8 times 3?

What is 24 divided by 3?

What is three lots of 8?

Three 6s are?

Three groups of 7 make?

Share 21 into 3 groups. How many is in each group?

They should be able to answer these questions in any order, including missing number questions e.g. 3 × ◯ = 18 or ◯ ÷ 3 = 11.

The children will be expected to recall answers to facts out of order instantly (within 5 seconds)

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact family of the day. If you would like more ideas, please speak to your child's teacher.

Songs and Chants – Listen to fun multiplication songs and chants online such as: https://www.youtube.com/watch?v=uFmbB2vileA . You could even create your own song! If your child creates their own song, this can make the times tables even more memorable. Chant the times table in and out of order …4 threes are twelve, five threes are fifteen …

Buy one get three free – If your child knows one fact (e.g. 3 × 5 = 15), can they tell you the other three facts in the same fact family? – When creating fact families, children sometimes get confused by the order of the numbers it can be helpful to get practical items such as beads to recreate the number facts: 3 x 5 = 15, 5 x 3 = 15, 15 ÷ 5 = 3, 15 ÷ 3 = 5

Play games – Use the White Rose '1 minute maths' app
Use the Times Table Rock-Stars App
Play 'hit the button'. Available for free online or as a paid app.
https://www.topmarks.co.uk/maths-games/hit-the-button

Key Instant Recall Facts

Year 3 – Autumn 2

I know the multiplication and division facts for the 4 times table.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

4 × 1 = 4	1 × 4 = 4	4 ÷ 4 = 1	4 ÷ 1 = 4
4 × 2 = 8	2 × 4 = 8	8 ÷ 4 = 2	8 ÷ 2 = 4
4 × 3 = 12	3 × 4 = 12	12 ÷ 4 = 3	12 ÷ 3 = 4
4 × 4 = 16	4 × 4 = 16	16 ÷ 4 = 4	16 ÷ 4 = 4
4 × 5 = 20	5 × 4 = 20	20 ÷ 4 = 5	20 ÷ 5 = 4
4 × 6 = 24	6 × 4 = 24	24 ÷ 4 = 6	24 ÷ 6 = 4
4 × 7 = 28	7 × 4 = 28	28 ÷ 4 = 7	28 ÷ 7 = 4
4 × 8 = 32	8 × 4 = 32	32 ÷ 4 = 8	32 ÷ 8 = 4
4 × 9 = 36	9 × 4 = 36	36 ÷ 4 = 9	36 ÷ 9 = 4
4 × 10 = 40	10 × 4 = 40	40 ÷ 4 = 10	40 ÷ 10 = 4
4 × 11 = 44	11 × 4 = 44	44 ÷ 4 = 11	44 ÷ 11 = 4
4 × 12 = 48	12 × 4 = 48	48 ÷ 4 = 12	48 ÷ 12 = 4

Key Vocabulary

What is 4 multiplied by 6?

What is 8 times 4?

What is 24 divided by 4?

What is four lots of 8?

Four 6s are?

Four groups of 7 make?

Share 28 into 4 groups.
How many is in each group?

They should be able to answer these questions in any order, including missing number questions e.g. 4 × ◯ = 16 or ◯ ÷ 4 = 7.

The children will be expected to recall answers to facts out of order instantly (within 5 seconds)

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact family of the day. If you would like more ideas, please speak to your child's teacher.

What do you already know? – Your child will already know many of these facts from the 2, 3, 5 and 10 times tables.

Double and double again – Multiplying a number by 4 is the same as doubling and doubling again. Double 6 is 12 and double 12 is 24, so 6 × 4 = 24.

Buy one get three free – If your child knows one fact (e.g. 12 × 4 = 48), can they tell you the other three facts in the same fact family? 12 x 4 = 48, 4 x 12 = 48, 48 ÷ 4 = 12, 48 ÷ 12 = 4

Songs and Chants – Listen to fun multiplication songs and chants online such as: https://www.youtube.com/watch?v=TXoKhcB9a1o . You could even create your own song! If your child creates their own song, this can make the times tables even more memorable.
Chant the times table in and out of order …five fours are twenty, six fours are twenty four…

Play games – Use the White Rose '1 minute maths' app
Use the Times Table Rock-Stars App
Play 'hit the button'. Available for free online or as a paid app. https://www.topmarks.co.uk/maths-games/hit-the-button

Key Instant Recall Facts

Year 3 – Spring 1

I know the multiplication and division facts for the 8 times table.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

8 × 1 = 8	1 × 8 = 8	8 ÷ 8 = 1	8 ÷ 1 = 8
8 × 2 = 16	2 × 8 = 16	16 ÷ 8 = 2	16 ÷ 2 = 8
8 × 3 = 24	3 × 8 = 24	24 ÷ 8 = 3	24 ÷ 3 = 8
8 × 4 = 32	4 × 8 = 32	32 ÷ 8 = 4	32 ÷ 4 = 8
8 × 5 = 40	5 × 8 = 40	40 ÷ 8 = 5	40 ÷ 5 = 8
8 × 6 = 48	6 × 8 = 48	48 ÷ 8 = 6	48 ÷ 6 = 8
8 × 7 = 56	7 × 8 = 56	56 ÷ 8 = 7	56 ÷ 7 = 8
8 × 8 = 64	8 × 8 = 64	64 ÷ 8 = 8	64 ÷ 8 = 8
8 × 9 = 72	9 × 8 = 72	72 ÷ 8 = 9	72 ÷ 9 = 8
8 × 10 = 80	10 × 8 = 80	80 ÷ 8 = 10	80 ÷ 10 = 8
8 × 11 = 88	11 × 8 = 88	88 ÷ 8 = 11	88 ÷ 11 = 8
8 × 12 = 96	12 × 8 = 96	96 ÷ 8 = 12	96 ÷ 12 = 8

Key Vocabulary

What is 8 multiplied by 6?

What is 8 times 8?

What is 24 divided by 8?

What is eight lots of 9?

Eight 6s are?

Eight groups of 7 make?

Share 56 into 4 groups.
How many is in each group?

They should be able to answer these questions in any order, including missing number questions e.g. 8 × ◯ = 16 or ◯ ÷ 8 = 7.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact family of the day. If you would like more ideas, please speak to your child's teacher.

Double your fours – Multiplying a number by 8 is the same as multiply by 4 and then doubling the answer. 8 × 4 = 32 and double 32 is 64, so 8 × 8 = 64.

Songs and Chants – Listen to fun multiplication songs and chants online such as: https://www.youtube.com/watch?v=dSnNkgMbtfs or https://www.youtube.com/watch?v=z_BJjR9rdwA . You could even create your own song! If your child creates their own song, this can make the times tables even more memorable.
Chant the times table in and out of order …six eights are forty-eight, seven eights are fifty-six…

Use memory tricks – For those hard-to-remember facts, www.multiplication.com has some strange picture stories to help children remember.

Play games – Use the White Rose '1 minute maths' app
Use the Times Table Rock-Stars App
Play 'hit the button'. Available for free online or as a paid app. https://www.topmarks.co.uk/maths-games/hit-the-button

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Key Instant Recall Facts

Year 3 – Spring 2

I know number bonds for all numbers to 20.
I can identify addition and subtraction fact families for all numbers to 20

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

Example of number bonds for all numbers to 20

2 + 9 = 11
3 + 8 = 11
4 + 7 = 11
5 + 6 = 11
3 + 9 = 12
4 + 8 = 12
5 + 7 = 12
6 + 6 = 12
4 + 9 = 13
5 + 8 = 13
6 + 7 = 13
5 + 9 = 14
6 + 8 = 14
7 + 7 = 14
6 + 9 = 15
7 + 8 = 15
7 + 9 = 16
8 + 8 = 16
8 + 9 = 17
12 + 6 = 18
12 + 7 = 19
16 + 4 = 20 etc

Example of an addition and subtraction fact family

6 + 9 = 15
9 + 6 = 15
15 – 9 = 6
15 – 9 = 6

Examples of other facts

4 + 5 = 9
13 + 5 = 18
19 – 7 = 12
10 – 6 = 4

Key Vocabulary

What do I add to 5 to make 19?
What is 17 take away 6?
What is 13 less than 15?
How many more than 8 is 11?
What is the difference between 9 and 13?
I have 14 how many more do I need to make 20?
Give me the bond to 6 to make 19
What should I take from 10 to make 4?

This list includes challenging facts, but children will need to use strategies to be able to say all number bonds for each number to 20 (e.g. 15 + 2 = 17). This includes related subtraction facts (e.g. 17 – 2 = 15). They should use mental strategies to give their number bonds quickly.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact of the day. If you would like more ideas, please speak to your child's teacher.

Use what you know! – Children should be able to recall number bonds for all numbers to 10. Can the children spot patterns with the number bonds from 10 to 20?

Buy one get three free - If your child knows one fact (e.g. 8 + 5 = 13), can they tell you the other three facts in the same fact family? (e.g.: 8+5=13, 5+8=13, 13-8=5, 13-5=8)

Use doubles and near doubles and known facts – If you know that 6 + 6 = 12, how can you work out 6 + 7? If you know 6 + 3 = 9, what is 16+3?

Play games – Use the White Rose '1 minute maths' app
Play 'hit the button'. Available for free online or as a paid app.
https://www.topmarks.co.uk/maths-games/hit-the-button

Key Instant Recall Facts

Year 3 – Summer 1

I can revise and know the multiplication and division facts for the 0, 1, 2, 3, 4, 5, 8 &10 times tables.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

It is imperative that ALL children should be able to rapidly recall ALL multiplication and division facts for the 0, 1, 2, 3, 4, 5, 8 & 10 times tables.

This is a chance for children to consolidate their multiplication knowledge as well as increase the speed and accuracy of their recall of facts.

The children should also know that any number multiplied by 0 is equal to 0.

×	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Key Vocabulary

What is 3 multiplied by 9?

What is 11 times 8?

What is 48 divided by 4?

What is eleven lots of 2?

Eleven 5s are?

What is eight squared?

Eight groups of 5 make?

Share 72 into 8 groups. How many is in each group?

They should be able to answer these questions in any order, including missing number questions e.g. 8 × ◯ = 24 or ◯ ÷ 4 = 8.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact family of the day. If you would like more ideas, please speak to your child's teacher.

Speed Challenge – Take two packs of playing cards and remove the kings. Turn over two cards and ask your child to multiply the numbers together (Ace = 1, Jack = 11, Queen = 12). How many questions can they answer correctly in 2 minutes? Practise regularly and see if they can beat their high score.

Songs and Chants – Listen to fun multiplication songs and chants online such as ones in this playlist: https://www.youtube.com/watch?v=9C4EN7mFHCk&list=PLT7bdKR_x4puC5TuNMedpbNcw6m0OSwkt You could even create your own song! If your child creates their own song, this can make the times tables even more memorable.
Chant the times table in and out of order …six fours are twenty-four, seven fours are twenty-eight…

Order of difficulty – Ask your child to order these facts from the easiest to the most challenging. Can they explain why some facts are easier to remember? Then focus on practising the most challenging facts.

Buy one get three free – If your child knows one fact (e.g. 12 x 7 = 84), can they tell you the other three facts in the same fact family? E.g.: 12 x 8 = 96, 8 x 12 = 96, 96 ÷ 8 = 12, 96 ÷ 12 = 8.

Play games – Use the White Rose '1 minute maths' app
Use the Times Table Rock-Stars App
Play 'hit the button'. Available for free online or as a paid app. https://www.topmarks.co.uk/maths-games/hit-the-button

Key Instant Recall Facts

Year 3 – Summer 2

I can recall facts about durations of time including knowing the days in each month.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

There are 60 seconds in a minute.
There are 60 minutes in an hour.
There are 30 minutes in half an hour
There are 15 minutes in a quarter of an hour
There are 24 hours in a day.
There are 48 hours in 2 days.
There are 7 days in a week.
A fortnight is 2 weeks (14 days)
There are 12 months in a year.
There are 365 days in a year.
There are 366 days in a leap year.

The children will be expected to know the number of days in each month:

January	31	July	31
February	28/29	August	31
March	31	September	30
April	30	October	31
May	31	November	30
June	30	December	31

Children also need to know the order of the months in a year. They should be able to apply these facts to answer questions, such as:

What day comes after 30th April? Or What day comes before 1st February?

I go on holiday on 25th June for 10 days. On what date do I return?

Which date is 14 days after Christmas Day?

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact of the day. If you would like more ideas, please speak to your child's teacher.

Use rhymes and memory games– This traditional rhyme can help children remember which months have 30 days:

Thirty days hath September,
April, June, and November,
All the rest have thirty-one,
Except February, twenty-eight days clear,
And twenty-nine in each leap year.,
can help children remember which months have 30 days.

Use the knuckles trick – This video explains how to use the knuckles and depressions (as shown in the illustration above) can remind us of which months have 31 days.
https://www.youtube.com/watch?v=p6Ma0D-fN38

Use calendars – If you have a calendar for the new year, your child could be responsible for recording the birthdays of friends and family members in it. Your child could even make their own calendar.

How long is a minute? – Ask your child to sit with their eyes closed for exactly one minute while you time them. Can they guess the length of a minute? Carry out different activities for one minute. How many times can they jump in sixty seconds?

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Key Instant Recall Facts

Year 4 – Autumn 1

I know the multiplication and division facts for the 6 times table.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

6 × 1 = 6	1 × 6 = 6	6 ÷ 6 = 1	6 ÷ 1 = 6
6 × 2 = 12	2 × 6 = 12	12 ÷ 6 = 2	12 ÷ 2 = 6
6 × 3 = 18	3 × 6 = 18	18 ÷ 6 = 3	18 ÷ 3 = 6
6 × 4 = 24	4 × 6 = 24	24 ÷ 6 = 4	24 ÷ 4 = 6
6 × 5 = 30	5 × 6 = 30	30 ÷ 6 = 5	30 ÷ 5 = 6
6 × 6 = 36	**6 × 6 = 36**	**36 ÷ 6 = 6**	**36 ÷ 6 = 6**
6 × 7 = 42	**7 × 6 = 42**	**42 ÷ 6 = 7**	**42 ÷ 7 = 6**
6 × 8 = 48	**8 × 6 = 48**	**48 ÷ 6 = 8**	**48 ÷ 8 = 6**
6 × 9 = 54	**9 × 6 = 54**	**54 ÷ 6 = 9**	**54 ÷ 9 = 6**
6 × 10 = 60	10 × 6 = 60	60 ÷ 6 = 10	60 ÷ 10 = 6
6 × 11 = 66	**11 × 6 = 66**	**66 ÷ 6 = 11**	**66 ÷ 11 = 6**
6 × 12 = 72	**12 × 6 = 72**	**72 ÷ 6 = 12**	**72 ÷ 12 = 6**

Key Vocabulary

What is 8 multiplied by 6?
What is 6 times 8?
What is 24 divided by 6?
What is six lots of 9?
Six 6s are?
What is six squared?
Six groups of 7 make?
Share 48 into 6 groups. How many is in each group?

They should be able to answe r these questions in any order, including missing number questions e.g. 6 × ◯ = 72 or ◯ ÷ 6 = 7.

The children will be expected to recall answers to facts out of order instantly (within 5 seconds)

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact family of the day. If you would like more ideas, please speak to your child's teacher.

Songs and Chants – Listen to fun multiplication songs and chants online such as: https://www.youtube.com/watch?v=e7rYbk9PNuM . You could even create your own song! If your child creates their own song, this can make the times tables even more memorable.
Chant the times table in and out of order …six sixes are thirty-six, seven sixes are forty-two…

Double your threes – Multiplying a number by 6 is the same as multiplying by 3 and then doubling the answer. 7 × 3 = 21 and double 21 is 42, so 7 × 6 = 42.

Use what you know! – Children should already know many of these facts by learning their other multiplication tables. Focus on the new facts to be learnt highlighted in bold.

Buy one get three free – If your child knows one fact (e.g. 3 × 6 = 18), can they tell you the other three facts in the same fact family? E.g.: 3 × 6 = 18, 6 × 3 = 18, 18 ÷ 6 = 3, 18 ÷ 3 = 6.

Play games – Use the White Rose '1 minute maths' app
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Key Instant Recall Facts

Year 4 – Autumn 2

I know the multiplication and division facts for the 9 and 11 times tables.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

9 × 1 = 9	9 ÷ 9 = 1	11 × 1 = 11	11 ÷ 11 = 1
9 × 2 = 18	18 ÷ 9 = 2	11 × 2 = 22	22 ÷ 11 = 2
9 × 3 = 27	27 ÷ 9 = 3	11 × 3 = 33	33 ÷ 11 = 3
9 × 4 = 36	36 ÷ 9 = 4	11 × 4 = 44	44 ÷ 11 = 4
9 × 5 = 45	45 ÷ 9 = 5	11 × 5 = 55	55 ÷ 11 = 5
9 × 6 = 54	54 ÷ 9 = 6	11 × 6 = 66	66 ÷ 11 = 6
9 × 7 = 63	**63 ÷ 9 = 7**	**11 × 7 = 77**	**77 ÷ 11 = 7**
9 × 8 = 72	**72 ÷ 9 = 8**	**11 × 8 = 88**	**88 ÷ 11 = 8**
9 × 9 = 81	**81 ÷ 9 = 9**	**11 × 9 = 99**	**99 ÷ 11 = 9**
9 × 10 = 90	90 ÷ 9 = 10	11×10 = 110	110÷11 = 10
9 × 11 = 99	**99 ÷ 9 = 11**	**11×11 = 121**	**121÷11 = 11**
9 × 12 = 108	**108 ÷ 9 = 12**	**11×12 = 132**	**132÷11 = 12**

KeyVocabulary

What is 6 multiplied by 9?

What is 11 times 8?

What is 72 divided by 9?

What is eleven lots of 9?

Eleven 6s are?

What is nine squared?

Eleven groups of 7 make?

Share 108 into 9 groups. How many is in each group?

They should be able to answer these questions in any order, including missing number questions e.g. 9 × ◯ = 54 or ◯ ÷ 9 = 11.

The children will be expected to recall answers to facts out of order instantly (within 5 seconds)

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact family of the day. If you would like more ideas, please speak to your child's teacher.

Look for patterns & Tricks – These times tables are full of patterns for your child to find. How many can they spot? There are some really great ways of checking the 9 times table. Add each digit together and they always total 9! A great way to check if the multiple is correct e.g. 6 x 9 = 54 (add each digit of 54 – 5+4 = 9!)

Use the finger trick to check! – Children will be expected to learn the facts off by heart, but checking using a finger trick for the 9 times table can be a great way of building confidence. Watch this video to see how: https://www.youtube.com/watch?v=jEIeFV4oMp4

Use your ten times table and adapt – Multiply a number by 10 and subtract the original number (e.g. 7 × 10 – 7 = 70 – 7 = 63). What do you notice?
What happens if you add your original number instead? (e.g. 7 × 10 + 7 = 70 + 7 = 77)

Use what you know! – Children should already know many of these facts by learning their other multiplication tables. Focus on the new facts to be learnt highlighted in bold.

Buy one get three free – If your child knows one fact (e.g. 3 × 9 = 27), can they tell you the other three facts in the same fact family? E.g.: 3 x 9 = 27, 9 x 3 = 27, 27 ÷ 9 = 3, 27 ÷ 3 = 9.

Songs and Chants – Listen to fun multiplication songs and chants online such as: https://www.youtube.com/watch?v=154VoUQbgvc or https://www.youtube.com/watch?v=p9AxbcO4Kp4 You could even create your own song! If your child creates their own song, this can make the times tables even more memorable.
Chant the times table in and out of order …six nines are fifty-four, seven nines are sixty-three…

Play games – Use the White Rose '1 minute maths' app
Use the Times Table Rock-Stars App
Play 'hit the button'. Available for free online or as a paid app. https://www.topmarks.co.uk/maths-games/hit-the-button

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Key Instant Recall Facts

Year 4 – Spring 1

I know the multiplication and division facts for the 7 times table.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

7 × 1 = 7	1 × 7 = 7	7 ÷ 7 = 1	7 ÷ 1 = 7
7 × 2 = 14	2 × 7 = 14	14 ÷ 7 = 2	14 ÷ 2 = 7
7 × 3 = 21	3 × 7 = 21	21 ÷ 7 = 3	21 ÷ 3 = 7
7 × 4 = 28	4 × 7 = 28	28 ÷ 7 = 4	28 ÷ 4 = 7
7 × 5 = 35	5 × 7 = 35	35 ÷ 7 = 5	35 ÷ 5 = 7
7 × 6 = 42	6 × 7 = 42	42 ÷ 7 = 6	42 ÷ 6 = 7
7 × 7 = 49	**7 × 7 = 49**	**49 ÷ 7 = 7**	**49 ÷ 7 = 7**
7 × 8 = 56	8 × 7 = 56	56 ÷ 7 = 8	56 ÷ 8 = 7
7 × 9 = 63	9 × 7 = 63	63 ÷ 7 = 9	63 ÷ 9 = 7
7 × 10 = 70	10 × 7 = 70	70 ÷ 7 = 10	70 ÷ 10 = 7
7 × 11 = 77	11 × 7 = 77	77 ÷ 7 = 11	77 ÷ 11 = 7
7 × 12 = 84	**12 × 7 = 84**	**84 ÷ 7 = 12**	**84 ÷ 12 = 7**

Key Vocabulary

What is 6 multiplied by 7?
What is 7 times 12?
What is 56 divided by 7?
What is seven lots of 9?
twelve 7s are?
What is seven squared?
twelve groups of 7 make?
Share 84 into 7 groups. How many is in each group?

They should be able to answer these questions in any order, including missing number questions e.g. 7 × ◯ = 28 or ◯ ÷ 12 = 7.

The children will be expected to recall answers to facts out of order instantly (within 5 seconds)

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact family of the day. If you would like more ideas, please speak to your child's teacher.

Songs and Chants – Listen to fun multiplication songs and chants online such as: https://www.youtube.com/watch?v=WdF_vFAxwas or https://www.youtube.com/watch?v=PABb8HhmteM You could even create your own song! If your child creates their own song, this can make the times tables even more memorable.
Chant the times table in and out of order …six sevens are forty-two, seven sevens are forty-nine…

Order of difficulty – Ask your child to order these facts from the easiest to the most challenging. Can they explain why some facts are easier to remember? Then focus on practising the most challenging facts.

Use what you know! – Children should already know many of these facts by learning their other multiplication tables. Focus on the new facts to be learnt highlighted in bold. In this case the children should only need to learn 7x7=49, 7x12=84 and 12x12=144.

Buy one get three free – If your child knows one fact (e.g. 12 × 7 = 84), can they tell you the other three facts in the same fact family? E.g.: 12 x 7 = 84, 7 x 12 = 84, 84 ÷ 7 = 12, 84 ÷ 12 = 7.

Play games – Use the White Rose '1 minute maths' app
Use the Times Table Rock-Stars App
Play 'hit the button'. Available for free online or as a paid app. https://www.topmarks.co.uk/maths-games/hit-the-button

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Key Instant Recall Facts

Year 4 – Spring 2

I know the multiplication and division facts for the 12 times table.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

12 × 1 = 12	1 × 12 = 12	12 ÷ 12 = 1	12 ÷ 1 = 12
12 × 2 = 24	2 × 12 = 24	24 ÷ 12 = 2	24 ÷ 2 = 12
12 × 3 = 36	3 × 12 = 36	36 ÷ 12 = 3	36 ÷ 3 = 12
12 × 4 = 48	4 × 12 = 48	48 ÷ 12 = 4	48 ÷ 4 = 12
12 × 5 = 60	5 × 12 = 60	60 ÷ 12 = 5	60 ÷ 5 = 12
12 × 6 = 72	6 × 12 = 72	72 ÷ 12 = 6	72 ÷ 6 = 12
12 × 7 = 84	**7 × 12 = 84**	**84 ÷ 12 = 7**	**84 ÷ 7 = 12**
12 × 8 = 96	8 × 12 = 96	96 ÷ 12 = 8	96 ÷ 8 = 12
12 × 9 = 108	9 × 12 = 108	108 ÷ 12 = 9	108 ÷ 9 = 12
12 × 10 = 120	10 × 12 = 120	120 ÷ 12 = 10	120 ÷ 10 = 12
12 × 11 = 132	11 × 12 = 132	132 ÷ 12 = 11	132 ÷ 11 = 12
12 × 12 = 144	**12 × 12 = 144**	**144 ÷ 12 = 12**	**144 ÷ 12 = 12**

They should be able to answer these questions in any order, including missing number questions e.g. 12 × ◯ = 84 or ◯ ÷ 12 = 7.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact family of the day. If you would like more ideas, please speak to your child's teacher.

Songs and Chants – Listen to fun multiplication songs and chants online such as: https://www.youtube.com/watch?v=WdF_vFAxwas or https://www.youtube.com/watch?v=PABb8HhmteM You could even create your own song! If your child creates their own song, this can make the times tables even more memorable. Chant the times table in and out of order …six sevens are forty-two, seven sevens are forty-nine…

Order of difficulty – Ask your child to order these facts from the easiest to the most challenging. Can they explain why some facts are easier to remember? Then focus on practising the most challenging facts.

Use what you know! – Children should already know many of these facts by learning their other multiplication tables. Focus on the new facts to be learnt highlighted in bold. In this case the children should only need to learn 7x7=49, 7x12=84 and 12x12=144.

Buy one get three free – If your child knows one fact (e.g. 12 × 7 = 84), can they tell you the other three facts in the same fact family? E.g.: 12 x 7 = 84, 7 x 12 = 84, 84 ÷ 7 = 12, 84 ÷ 12 = 7.

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Use the Times Table Rock-Stars App
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https://www.topmarks.co.uk/maths-games/hit-the-button

Key Vocabulary

What is 6 multiplied by 12?

What is 7 times 12?

What is 84 divided by 12?

What is twelve lots of 9?

twelve 6s are?

What is twelve squared?

twelve groups of 7 make?

Share 144 into 12 groups. How many is in each group?

Key Instant Recall Facts

Year 4 – Summer 1

I know the multiplication and division facts for all times tables up to 12 × 12.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

It is imperative that ALL children should be able to rapidly recall ALL multiplication and division facts up to 12 x 12.

This is a chance for children to consolidate their multiplication and division knowledge as well as increase the speed and accuracy of their recall of facts.

The children should also know that any number multiplied by 0 is equal to 0.

×	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Key Vocabulary

What is 6 multiplied by 9?

What is 11 times 8?

What is 72 divided by 9?

What is eleven lots of 9?

Eleven 6s are?

What is nine squared?

Eleven groups of 7 make?

Share 108 into 9 groups. How many is in each group?

They should be able to answer these questions in any order, including missing number questions e.g. 7 × ◯ = 28 or ◯ ÷ 6 = 7.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact family of the day. If you would like more ideas, please speak to your child's teacher.

Speed Challenge – Take two packs of playing cards and remove the kings. Turn over two cards and ask your child to multiply the numbers together (Ace = 1, Jack = 11, Queen = 12). How many questions can they answer correctly in 2 minutes? Practise regularly and see if they can beat their high score.

Songs and Chants – Listen to fun multiplication songs and chants online such as ones in this playlist: https://www.youtube.com/watch?v=9C4EN7mFHCk&list=PLT7bdKR_x4puC5TuNMedpbNcw6m0OSwkt You could even create your own song! If your child creates their own song, this can make the times tables even more memorable.
Chant the times table in and out of order …six sevens are forty-two, seven sevens are forty-nine…

Order of difficulty – Ask your child to order these facts from the easiest to the most challenging. Can they explain why some facts are easier to remember? Then focus on practising the most challenging facts.

Buy one get three free – If your child knows one fact (e.g. 12 × 7 = 84), can they tell you the other three facts in the same fact family? E.g.: 12 x 7 = 84, 7 x 12 = 84, 84 ÷ 7 = 12, 84 ÷ 12 = 7.

Play games – Use the White Rose '1 minute maths' app
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Play 'hit the button'. Available for free online or as a paid app. https://www.topmarks.co.uk/maths-games/hit-the-button

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Key Instant Recall Facts

Year 4 – Summer 2

I know the multiplication and division facts for the 25, 50 and 100 times table.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

25 × 1 = 25	**25 ÷ 25 = 1**	50 × 1 = 50	50 ÷ 50 = 1	100 × 1 = 100	100 ÷ 100 = 1
2 × 25 = 50	**50 ÷ 2 = 25**	50 × 2 = 100	100 ÷ 50 = 2	2 × 100 = 200	200 ÷ 2 = 100
25 × 3 = 75	**75 ÷ 25 = 3**	3 × 50 = 150	150 ÷ 50 = 3	100 × 3 = 300	300 ÷ 3 = 100
25 × 4 = 100	**100 ÷ 25 = 4**	50 × 4 = 200	200 ÷ 4 = 50	100 × 4 = 400	400 ÷ 100 = 4
5 × 25 = 125	**125 ÷ 25 = 5**	50 × 5 = 250	250 ÷ 50 = 5	5 × 100 = 500	500 ÷ 100 = 5
25 × 6 = 150	**150 ÷ 6 = 25**	6 × 50 = 300	300 ÷ 6 = 50	100 × 6 = 600	600 ÷ 100 = 6
7 × 25 = 175	**175 ÷ 25 = 7**	50 × 7 = 350	350 ÷ 7 = 50	100 × 7 = 700	700 ÷ 100 = 7
25 × 8 = 200	**200 ÷ 25 = 8**	50 × 8 = 400	400 ÷ 50 = 8	8 × 100 = 800	800 ÷ 8 = 100
9 × 25 = 225	**225 ÷ 25 = 9**	50 × 9 = 450	450 ÷ 50 = 9	100 × 9 = 900	900 ÷ 9 = 100
25 × 10 = 250	**250 ÷ 10 = 25**	50 × 10 = 500	500 ÷ 50 = 10	**100 × 10 = 1,000**	1,000 ÷ 100 = 10
11 × 25 = 275	**275 ÷ 25 = 11**	11 × 50 = 550	550 ÷ 11 = 50	**100 × 11 = 1,100**	1,100 ÷ 100 = 11
25 × 12 = 300	**300 ÷ 12 = 25**	50 × 12 = 600	600 ÷ 50 = 12	**100 × 12 = 1,200**	1,200 ÷ 100 = 12
25 x 25 = 625	**625 ÷ 25 = 25**	**50 × 50 = 2,500**	**2,500 ÷ 50 = 50**	**100 × 100 = 10,000**	**10,000** ÷ 100 = 100

They should be able to answer these questions in any order, including missing number questions e.g. 25 × ◯ = 225 or ◯ ÷ 25 = 7.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact family of the day. If you would like more ideas, please speak to your child's teacher.

Songs and Chants – Listen to fun multiplication songs and chants online such as: https://www.youtube.com/watch?v=WdF_vFAxwas or https://www.youtube.com/watch?v=PABb8HhmteM You could even create your own song! If your child creates their own song, this can make the times tables even more memorable. Chant the times table in and out of order …six sevens are forty-two, seven sevens are forty-nine…

Order of difficulty – Ask your child to order these facts from the easiest to the most challenging. Can they explain why some facts are easier to remember? Then focus on practising the most challenging facts.

Use what you know! – Children should already know many of these facts by learning their other multiplication tables. Focus on the new facts to be learnt highlighted in bold. In this case the children should only need to learn 7x7=49, 7x12=84 and 12x12=144.

Buy one get three free – If your child knows one fact (e.g. 12 × 7 = 84), can they tell you the other three facts in the same fact family? E.g.: 12 x 7 = 84, 7 x 12 = 84, 84 ÷ 7 = 12, 84 ÷ 12 = 7.

Play games – Use the White Rose '1 minute maths' app
Use the Times Table Rock-Stars App
Play 'hit the button'. Available for free online or as a paid app.
https://www.topmarks.co.uk/maths-games/hit-the-button

Key Vocabulary

What is 25 multiplied by 12?

What is 7 times 25?

What is 275 divided by 25?

What is twenty-five lots of 9?

Twenty-five 6s are?

What is twenty-five squared?

Twenty-five groups of 7 make?

Share 225 into 25 groups. How many is in each group?

Year 5 & 6 Key Instant Recall Facts (KIRF): Overview of the year

Autumn 1	Year 5	I can revise and know the multiplication and division facts up to 12 x 12.
	Year 6	I can revise and know the multiplication and division facts up to 12 x 12 & I can revise and know the multiplication and division facts for the 25, 50, 75 and 100 times table.
Autumn 2	Year 5	I can recall metric conversions and convert units of measure.
	Year 6	I can convert between decimals, fractions and percentages.
Spring 1	Year 5	I can identify prime numbers up to 50. I can identify prime numbers up to 100.
	Year 6	I can identify prime numbers up to 100 I can identify prime numbers up to 200
Spring 2	Year 5	I know key facts about geometry and shape (Yr5)
	Year 6	I know key facts about geometry and shape (Yr6)
Summer 1	Year 5	I know the multiplication and division facts for the 75 times table (Aswell as revising the 25, 50 and 100 times table facts.)
	Year 6	Consolidation
Summer 2	Year 5	I can recall square numbers up to 12^2 and their square roots. I can recall cube numbers up to 12^2
	Year 6	Consolidation

Key Instant Recall Facts

Year 5 – Autumn 1

I can revise and know the multiplication and division facts up to 12 x 12.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

It is imperative that ALL children should be able to rapidly recall ALL multiplication and division facts up to 12 x 12.

This is a chance for children to consolidate their multiplication and division knowledge as well as increase the speed and accuracy of their recall of facts.

The children should also know that any number multiplied by 0 is equal to 0.

X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Key Vocabulary

What is 6 multiplied by 9?

What is 11 times 8?

What is 72 divided by 9?

What is eleven lots of 9?

Eleven 6s are?

What is nine squared?

Eleven groups of 7 make?

Share 108 into 9 groups. How many is in each group?

They should be able to answer these questions in any order, including missing number questions e.g. $7 \times \bigcirc = 28$ or $\bigcirc \div 6 = 7$.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact family of the day. If you would like more ideas, please speak to your child's teacher.

Learn the unknown facts!
By this stage many of the multiplication facts will be known. Write out those facts that cause problems and learn them! These can be trick facts like square numbers e.g. 7x7=49. Say these facts out-loud in a silly voice. Eg cowboy, high pitch etc. It can help to recall the tricky left over facts.

Speed Up! – Speed matters! Use online apps or gat an adult to quiz you on multiplication and division facts. See how many you can answer in 30 seconds and then try and beat your record!

Songs and Chants – Listen to fun multiplication songs and chants online such as ones in this playlist: https://www.youtube.com/watch?v=9C4EN7mFHCk&list=PLT7bdKR_x4puC5TuNMedpbNcw6m0OSwkt You could even create your own song! If your child creates their own song, this can make the times tables even more memorable.
Chant the times table in and out of order …six sevens are forty-two, seven sevens are forty-nine…

Order of difficulty – Ask your child to order these facts from the easiest to the most challenging. Can they explain why some facts are easier to remember? Then focus on practising the most challenging facts.

Buy one get three free – If your child knows one fact (e.g. $12 \times 7 = 84$), can they tell you the other three facts in the same fact family? E.g.: $12 \times 7 = 84$, $7 \times 12 = 84$, $84 \div 7 = 12$, $84 \div 12 = 7$.

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Key Instant Recall Facts

Year 5 – Autumn 2

I can recall metric conversions and convert units of measure.

Converting Mass

×1000

kg ⇄ g

÷1000

1000g = 1kg

$\frac{1}{10}$kg = 0.1kg = 100g

$\frac{1}{4}$kg = 0.25kg = 250g

$\frac{1}{2}$kg = 0.5kg = 500g

$\frac{3}{4}$kg = 0.75kg = 750g

Converting Length

×1000 ×100 ×10

km ⇄ m ⇄ cm ⇄ mm

÷1000 ÷100 ÷10

1000 metres = 1 kilometre

100cm = 1m

10mm = 1cm

$\frac{1}{10}$km = 0.1km = 100m

$\frac{1}{4}$km = 0.25km = 250m

$\frac{1}{2}$km = 0.5km = 500m

$\frac{3}{4}$km = 0.75km = 750m

Converting Capacity

×1000

l ⇄ ml

÷1000

1000ml = 1 litre

$\frac{1}{10}$l = 0.1l = 100ml

$\frac{1}{4}$l = 0.25l = 250ml

$\frac{1}{2}$l = 0.5l = 500ml

$\frac{3}{4}$l = 0.75l = 750ml

$\frac{1}{100}$l = 0.01l = 10ml

Children should be able to convert units of measure eg:

3000g is equal to how many kg?

How many metres in $1\frac{1}{2}$ km?

How many grams are equal to 1.25Kg?

If I have 3500ml, how would this be written in Litres?

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact of the day. If you would like more ideas, please speak to your child's teacher.

Look at the prefixes – Can your child work out the meanings of *kilo-*, *centi-* and *milli-*? What other words begin with these prefixes?

Be practical – Do some baking and convert the measurements in the recipe and have fun!

How far? – Calculate some distances using unusual measurements. How tall is your child in mm? How far away is London in metres?

Key Vocabulary

mass
gram
kilogram
Capacity
volume
Millilitre
centilitre
litre
millimetre
centimetre
kilometre

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Key Instant Recall Facts

Year 5 – Spring 1

I can identify prime numbers up to 50.
I can identify prime numbers up to 100.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

A prime number is a number with no factors other than itself and one.

The following numbers are prime numbers:
2, 3, 5, 7, 11, 13, 17, 19, 23, 27, 29, 31, 37, 41, 43, 47

The next step is to recall prime numbers to 100:
53, 59, 61, 67, 71, 73, 79, 83, 89, 97.
Can you identify any prime numbers greater than 100?

A composite number is divisible by a number other than 1 or itself.
The following numbers are composite numbers:
4, 6, 8, 9, 10, 12, 14, 15, 16, 18, 20, 22, 24, 25, 26, 27, 28, 30, 32, 34, 35, 36, 38, 39, 40, 42, 44, 45, 46, 48, 49, 50

Key Vocabulary

Term	Definition	Example
factor	a number that divides exactly into another number	factors of 12 = 1, 2, 3, 4, 6, 12
common factor	factors of two numbers that are the same	common factors of 8 and 12 = 1, 2, 4
prime number	a number with only 2 factors: 1 and itself	2, 3, 5, 7, 11, 13, 17, 19...
composite number	a number with more than two factors	12 (it has 6 factors)
prime factor	a factor that is prime	prime factors of 12 = 2, 3
multiple	a number in another number's times table	multiples of 9 = 9, 18, 27, 36...
common multiple	multiples of two numbers that are the same	common multiples of 4 and 6 = 12, 24...
square numbers	the result when a number has been multiplied by itself	25 (5^2 = 5x5) 49 (7^2 = 7x7)
cube numbers	the result when a number has been multiplied by itself 3 times	8 (2^3 = 2x2x2) 27 (3^3 = 3x3x3)

Children should be able to explain how they know that a number is prime or composite. E.g. 39 is composite because it is a multiple of 3 and 13. 23 is a prime number as it has no factors other than itself and one.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact of the day. If you would like more ideas, please speak to your child's teacher.

Note - 1 can only be divided by one number, 1 itself, so with this **definition 1 is not considered a prime number**. 1 is also not a composite number.

Vocabulary It's really important that your child uses mathematical vocabulary accurately. Can they give definitions for the key words and give examples? Choose a number between 2 and 20. How many correct statements can your child make about this number using the vocabulary above?

Make - Create a set of cards for the numbers from 2 to 50. How quickly can your child sort these into prime and composite numbers? How many even prime numbers can they find? How many odd composite numbers?

Play – There are some superb games online such as this one, where children have to 'pick' the primes. https://www.transum.org/Maths/Game/Primes/Pick.asp

Key Instant Recall Facts

Year 5 – Spring 2

I know key facts about geometry and shape (Yr 5)

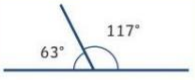
Children should know key facts about geometry and shape.

Identifying Angles

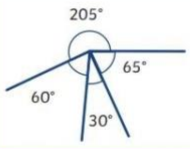
Acute Angles
Any angle that measures less than 90° is called an **acute** angle.

Obtuse Angles
Any angle that measures greater than 90° and less than 180° is called an **obtuse** angle.

Reflex Angles
Any angle that measures greater than 180° is called a **reflex** angle.

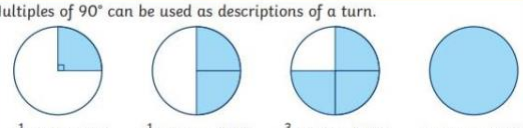


Angles on a straight line always total 180°.

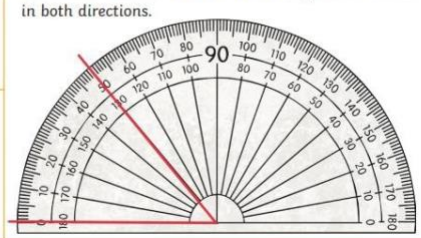


Angles around a point always total 360°.

Multiples of 90° can be used as descriptions of a turn.

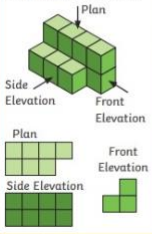


Measuring and Drawing Angles
To measure angles, we use a protractor. Look carefully at how the numbers on the scale count from 0° to 180° in both directions.

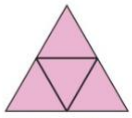


Representations

Cube models can be drawn as 2D representations using different elevations.



A shape net is a 2D drawing of an unfolded 3D shape. When you are drawing or reasoning about shape nets, think carefully about where the edges of the faces meet.

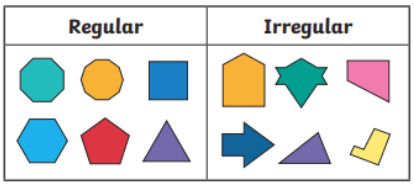


Shape net of a tetrahedron.

Area Formulas

The area is the inside of a closed shape. Children should also be able to recall the formula for finding the area of different shapes including squares, rectangles and right-angled triangles.

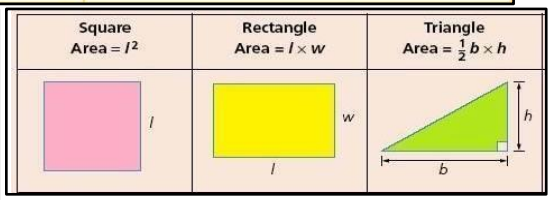
Regular and Irregular Polygons



A polygon is any two-dimensional shape formed with straight lines.

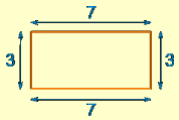
In a regular polygon, all the sides and angles are equal.

In an irregular polygon, the sides and angles are not equal.



Perimeter

This is the distance around the outside edge of a 2D shape



Properties of 3D Shapes

Name	Surfaces		Edges		Vertices	Picture
	Flat	Curved	Flat	Curved		
cube	6	0	12	0	8	
cuboid	6	0	12	0	8	
square-based pyramid	5	0	8	0	5	
tetrahedron	4	0	6	0	4	
triangular prism	5	0	9	0	6	
pentagonal prism	7	0	15	0	10	
hexagonal prism	8	0	18	0	12	
octagonal prism	10	0	24	0	16	
octahedron	8	0	12	0	6	

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact of the day. If you would like more ideas, please speak to your child's teacher.

It is very important that your child uses mathematical vocabulary accurately. They must use language such as height, length, base, width and radius when recalling the appropriate formulae.

Shape hunt - Spot shapes when you are out and about or in the house. How many cuboids can you find? How many circles can you see on the walk to school?

Online games Use online activities to rehearse the shape names and properties - https://www.topmarks.co.uk/carroll-diagrams/2d-shapes This game involves sorting the shapes according to their properties.
https://www.ictgames.com/mobilePage/shiftingShapes/index.html Move the draggable torch to reveal a hidden shape.

Key Vocabulary

angle right angle acute obtuse reflex protractor horizontal vertical parallel perpendicular polygon regular irregular two-dimensional three-dimensional flat face curved surface edge vertex apex

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Key Instant Recall Facts

Year 5 – Summer 1

I know the multiplication and division facts for the 75 times table (Aswell as revising the 25, 50 and 100 times table facts.)

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

75 × 1 = 75	75 ÷ 75 = 1	Revise 25, 50 and 100 multiplication and division facts	25 × 10 = 250
75 × 2= 150	150 ÷ 75 = 2		11 × 25 = 275
75 × 3 = 225	225 ÷ 75 = 3		25 × 12 = 300
75 × 4 = 300	300 ÷ 75 = 4	Some key facts to revise:	
75 × 5 = 375	375 ÷ 75 = 5	25 × 1 = 25	25 x 25 = 625
75 × 6 = 450	450 ÷ 75 = 6	2 × 25 = 50	625 ÷ 25 = 25
75 × 7 = 525	525 ÷ 75= 7	25 × 3 = 75	50 × 50 = 2,500
75 × 8 = 600	600 ÷ 75 = 8	25 × 4 = 100	2,500 ÷ 50 = 50
75 × 9 = 675	675 ÷ 75 = 9	5 × 25 = 125	100 × 10 = 1,000
75 × 10 = 750	750 ÷ 75= 10	25 × 6 = 150	100 × 11 = 1,100
75 × 11 = 825	825 ÷ 75= 11	7 × 25 = 175	100 × 12 = 1,200
75 × 12 = 900	900 ÷ 75 = 12	25 × 8 = 200	100 × 100 = 10,000
75 x 75 = 5,625	5,625 ÷ 75 = 75	9 × 25 = 225	10,000 ÷ 100 = 100

They should be able to answer these questions in any order, including missing number questions e.g. 75 × ◯ = 525 or ◯ ÷ 75 = 7.

The children will be expected to recall answers to facts out of order instantly (within 5 seconds)

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact family of the day. If you would like more ideas, please speak to your child's teacher.

Write out the times table facts!
Write the facts outr in order and say thm over an over again
75, 150, 225, 300, 375, 450, 525, 600, 675, 750, 825, 900

Songs and Chants – Listen to fun multiplication songs and chants online such as:
https://www.youtube.com/watch?v=WdF_vFAxwas or https://www.youtube.com/watch?v=PABb8HhmteM
You could even create your own song! If your child creates their own song, this can make the times tables even more memorable.
Chant the times table in and out of order …six sevens are forty-two, seven sevens are forty-nine…

Order of difficulty – Ask your child to order these facts from the easiest to the most challenging. Can they explain why some facts are easier to remember? Then focus on practising the most challenging facts.

Use what you know! – Children should already know many of these facts by learning their other multiplication tables. Focus on the new facts to be learnt highlighted in bold. In this case the children should only need to learn 7x7=49, 7x12=84 and 12x12=144.

Buy one get three free – If your child knows one fact (e.g. 12 × 7 = 84), can they tell you the other three facts in the same fact family? E.g.: 12 x 7 = 84, 7 x 12 = 84, 84 ÷ 7 = 12, 84 ÷ 12 = 7.

Play games – Use the White Rose '1 minute maths' app
Use the Times Table Rock-Stars App
Play 'hit the button'. Available for free online or as a paid app. https://www.topmarks.co.uk/maths-games/hit-the-button

Key Vocabulary

What is 75 multiplied by 12?

What is 7 times 75?

What is 825 divided by 75?

What is seventy-five lots of 9?

Seventy-five 6s are?

What is seventy-five squared?

Seventy-five groups of 7 make?

Share 450 into 75 groups. How many is in each group?

Key Instant Recall Facts

Year 5 – Summer 2

I can recall square numbers up to 12^2 and their square roots.
I can recall the first 5 cube numbers

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

$1^2 = 1 \times 1 = 1$	$\sqrt{1} = 1$
$2^2 = 2 \times 2 = 4$	$\sqrt{4} = 2$
$3^2 = 3 \times 3 = 9$	$\sqrt{9} = 3$
$4^2 = 4 \times 4 = 16$	$\sqrt{16} = 4$
$5^2 = 5 \times 5 = 25$	$\sqrt{25} = 5$
$6^2 = 6 \times 6 = 36$	$\sqrt{36} = 6$
$7^2 = 7 \times 7 = 49$	$\sqrt{49} = 7$
$8^2 = 8 \times 8 = 64$	$\sqrt{64} = 8$
$9^2 = 9 \times 9 = 81$	$\sqrt{81} = 9$
$10^2 = 10 \times 10 = 100$	$\sqrt{100} = 10$
$11^2 = 11 \times 11 = 121$	$\sqrt{121} = 11$
$12^2 = 12 \times 12 = 144$	$\sqrt{144} = 12$

Some more square numbers:

25 x 25 = 625

50 x 50 = 2,500

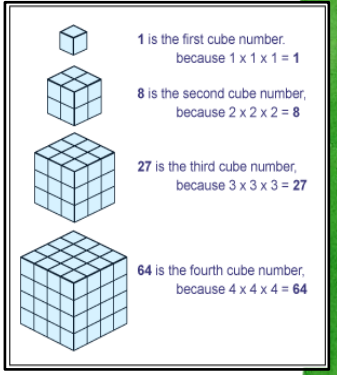
75 x 75 = 5,625

100 x 100 = 10,000

1000 x 1000 = 1,000,000

A cube number is any number multiplied by itself three times
e.g.: **n x n x n.**
It can be written as **n^3**
The first 5 cube numbers are:

1 x 1 x 1 = 3
2 x 2 x 2 = 8
3 x 3 x 3 = 27
4 x 4 x 4 = 64
5 x 5 x 5 = 125



Children should also be able to recognise whether a number less than 150 is a square number or not.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact of the day. If you would like more ideas, please speak to your child's teacher.

Cycling Squares – At http://nrich.maths.org/1151 there is a challenge involving square numbers. Can you complete the challenge and then create your own examples?

Songs and Chants – Listen to fun multiplication songs and chants online such as: https://www.youtube.com/watch?v=aJXnJ2aOA0E You could even create your own song! If your child creates their own song, this can make the times tables even more memorable.

Play games – Use the White Rose '1 minute maths' app
Use the Times Table Rock-Stars App
Play 'hit the button'. Available for free online or as a paid app.
https://www.topmarks.co.uk/maths-games/hit-the-button

Key Vocabulary

What is 8 squared?

What is 7 multiplied by itself?

What is the square root of 144?

Is 81 a square number? How do you know?

What is a squared number?

What is a cubed number?

64 is a cube number because...

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Key Instant Recall Facts

Year 6 – Autumn 1

I can revise and know the multiplication and division facts up to 12 x 12 & I can revise and know the multiplication and division facts for the 25, 50, 75 and 100 times table.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

It is imperative that ALL children should be able to rapidly recall ALL multiplication and division facts up to 12 x 12.

This is a chance for children to consolidate their multiplication and division knowledge as well as increase the speed and accuracy of their recall of facts.

The children should also know that any number multiplied by 0 is equal to 0.

X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

x	25	50	75	100
1	25	50	75	100
2	50	100	150	200
3	75	150	225	300
4	100	200	300	400
5	125	250	375	500
6	150	300	450	600
7	175	350	525	700
8	200	400	600	800
9	225	450	675	900
10	250	500	750	1000
11	275	550	825	1100
12	300	600	900	1200
Squared	625	2,500	5,625	10,000

They should be able to answer these questions in any order, including missing number questions e.g. 7 × ◯ = 28 or ◯ ÷ 6 = 7.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact family of the day. If you would like more ideas, please speak to your child's teacher.

Learn the unknown facts!
By this stage many of the multiplication facts will be known. Write out those facts that cause problems and learn them! These can be trick facts like square numbers e.g. 7x7=49. Say these facts out-loud in a silly voice. Eg cowboy, high pitch etc. It can help to recall the tricky left over facts.

Speed Up! – Speed matters! Use online apps or gat an adult to quiz you on multiplication and division facts. See how many you can answer in 30 seconds and then try and beat your record!

Songs and Chants – Listen to fun multiplication songs and chants online such as ones in this playlist: https://www.youtube.com/watch?v=9C4EN7mFHCk&list=PLT7bdKR_x4puC5TuNMedpbNcw6m0OSwkt
You could even create your own song! If your child creates their own song, this can make the times tables even more memorable.
Chant the times table in and out of order …six sevens are forty-two, seven sevens are forty-nine…

Order of difficulty – Ask your child to order these facts from the easiest to the most challenging. Can they explain why some facts are easier to remember? Then focus on practising the most challenging facts.

Buy one get three free – If your child knows one fact (e.g. 12 × 7 = 84), can they tell you the other three facts in the same fact family? E.g.: 12 x 7 = 84, 7 x 12 = 84, 84 ÷ 7 = 12, 84 ÷ 12 = 7.

Play games – Use the White Rose '1 minute maths' app
Use the Times Table Rock-Stars App
Play 'hit the button'. Available for free online or as a paid app. https://www.topmarks.co.uk/maths-games/hit-the-button

Key Vocabulary

What is 6 multiplied by 9?

What is 11 times 8?

What is 72 divided by 9?

What is eleven lots of 9?

Eleven 6s are?

What is nine squared?

Eleven groups of 7 make?

Share 108 into 9 groups. How many is in each group?

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Key Instant Recall Facts

Year 6 – Autumn 2

I can convert between decimals, fractions and percentages.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

$\frac{1}{2} = 0.5$	0.6 = 60%	$\frac{1}{100} = 0.01$
$\frac{1}{4} = 0.25$	0.25 = 25%	$\frac{7}{100} = 0.07$
$\frac{3}{4} = 0.75$	0.48 = 48%	$\frac{21}{100} = 0.21$
$\frac{1}{10} = 0.1$	0.5 = 50%	$\frac{75}{100} = 0.75$
$\frac{1}{5} = 0.2$	$\frac{5}{10} = \mathbf{50\%}$	$\frac{99}{100} = 0.99$
$\frac{3}{5} = 0.6$	$\frac{6}{10} = \mathbf{60\%}$	$\frac{75}{100} = 75\%$
$\frac{9}{10} = 0.9$	$\frac{9}{10} = \mathbf{90\%}$	$\frac{99}{100} = 99\%$

Key Vocabulary

How many tenths is 0.8?

How many tenths is 1.8?

Write 0.8 as a percentage.

How many hundredths is 0.12?

Write 0.75 as a fraction?

Write 75% of 1 as a fraction.

Write $\frac{1}{4}$ as a decimal?

Write $\frac{1}{4}$ as a percentage.

Write 20% of 1 as a decimal

Children should be able to convert between decimals, percentages and fractions for $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$ and any number of tenths and hundredths.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: start with tenths before moving on to hundredths. If you would like more ideas, please speak to your child's teacher.

Play games - Make some cards with pairs of equivalent fractions and decimals. Use these to play the memory game or snap. Or make your own dominoes with fractions on one side and decimals on the other. Some could also have percentages.

Play some online games matching fractions to decimals. This fun game is great for connecting fractions, percentages and decimals: https://nrich.maths.org/1249

Discuss fractions, decimals and percentages in everyday life e.g.: Three quarters of the class handed in their homework. This is 75 % it is 0.75 of the whole class. If Harry scored 80% of all the goals this season and the team scored 10 goals, How many goals did he score? What fraction is this?

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Key Instant Recall Facts

Year 6 – Spring 1

I can identify prime numbers up to 100

I can identify prime numbers up to 200

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

A prime number is a number with no factors other than itself and one.

The following numbers are prime numbers:

2, 3, 5, 7, 11, 13, 17, 19, 23,
27, 29, 31, 37, 41, 43, 47, 53,
59, 61, 67, 71, 73, 79, 83, 89, 97.

The next step is to recall prime numbers to 200:

101, 103, 107, 109, 113, 127, 131, 137, 139, 149, 151, 157, 163, 167, 173, 179, 181, 191, 193, 197, 199,

Can you identify any prime numbers greater than 200?

A composite number is divisible by a number other than 1 or itself.

The following numbers are composite numbers:

4, 6, 8, 9, 10, 12, 14, 15, 16, 18, 20,
22, 24, 25, 26, 27, 28, 30, 32, 34, 35, 36,
38, 39, 40, 42, 44, 45, 46, 48, 49, 50

Key Vocabulary

Term	Definition	Example
factor	a number that divides exactly into another number	factors of 12 = 1, 2, 3, 4, 6, 12
common factor	factors of two numbers that are the same	common factors of 8 and 12 = 1, 2, 4
prime number	a number with only 2 factors: 1 and itself	2, 3, 5, 7, 11, 13, 17, 19...
composite number	a number with more than two factors	12 (it has 6 factors)
prime factor	a factor that is prime	prime factors of 12 = 2, 3
multiple	a number in another number's times table	multiples of 9 = 9, 18, 27, 36...
common multiple	multiples of two numbers that are the same	common multiples of 4 and 6 = 12, 24...
square numbers	the result when a number has been multiplied by itself	25 (5^2 = 5x5) 49 (7^2 = 7x7)
cube numbers	the result when a number has been multiplied by itself 3 times	8 (2^3 = 2x2x2) 27 (3^3 = 3x3x3)

Children should be able to explain how they know that a number is composite.

E.g. 39 is composite because it is a multiple of 3 and 13.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact of the day. If you would like more ideas, please speak to your child's teacher.

Note - 1 can only be divided by one number, 1 itself, so with this **definition 1 is not considered a prime number**. 1 is also not a composite number.

Vocabulary It's really important that your child uses mathematical vocabulary accurately. Can they give definitions for the key words and give examples? Choose a number between 2 and 20. How many correct statements can your child make about this number using the vocabulary above?

Make - Create a set of cards for the numbers from 2 to 50. How quickly can your child sort these into prime and composite numbers? How many even prime numbers can they find? How many odd composite numbers?

Play – There are some superb games online such as this one, where children have to 'pick' the primes. https://www.transum.org/Maths/Game/Primes/Pick.asp

Key Instant Recall Facts

Year 6 – Spring 2

I know key facts about geometry and shape (Yr 6)

Children should know key facts about geometry and shape.

Angles in Regular Polygons

As the number of sides of a polygon increases by one, the total of the interior angles increases by 180°. When n = number of sides, this formula can be used to find the size of each angle in a **regular polygon**:

Sum of Interior Angles = (n − 2) × 180°

Each Angle = $\frac{(n-2)\times 180^\circ}{n}$

Pentagon
n = 5
(5 - 2) × 180° = 540°
540° ÷ 5 = 108°

Hexagon
n = 6
(6 - 2) × 180° = 720°
720° ÷ 6 = 120°

Properties of 3D Shapes

3D shapes have three dimensions – **length**, **width** and **depth**.

A **polyhedron** is a 3D shape with flat faces. Spheres, cylinders and cones are not polyhedrons as they have curved surfaces.

Cube  6 square faces, 12 edges, 8 vertices	**Tetrahedron**  4 triangular faces, 6 edges, 4 vertices	**Sphere**  1 curved surface, 0 edges, 0 vertices
Cuboid  6 faces, 12 edges, 8 vertices	**Octahedron**  8 faces, 12 edges, 6 vertices	**Triangular prism**  5 faces, 9 edges, 6 vertices
Square-based pyramid  5 faces, 8 edges, 5 vertices	**Cone**  1 circular face, 1 curved surface, 1 curved edge, 1 apex	**Cylinder**  2 circular faces, 1 curved surface, 2 curved edges, 0 vertices

Angle Types

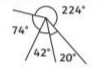
Acute Angles Any angle that measures less than 90° is called an **acute** angle.

Obtuse Angles Any angle that measures greater than 90° and less than 180° is called an **obtuse** angle.

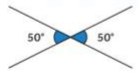
Reflex Angles Any angle that measures greater than 180° is called a **reflex** angle.

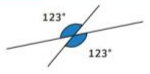
Calculating Angles

Angles on a straight line always total 180°.

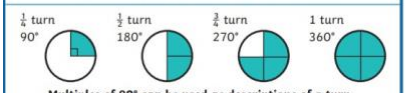


Angles around a point always total 360°.



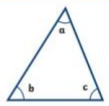


Opposite angles that share a vertex are equal.

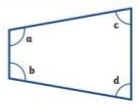


Multiples of 90° can be used as descriptions of a turn.

Angles in a Triangle



a + b + c = 180°



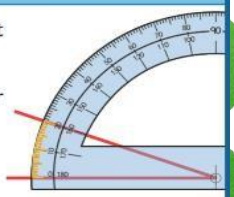
a + b + c + d = 360°

Using a Protractor

Place the cross or circle at the point of the angle you are measuring.

Read from the zero on the outer scale of your protractor.

Count the degree lines carefully.

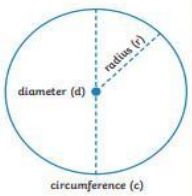


Parts of Circles

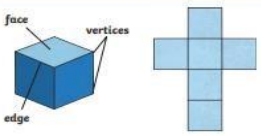
A circle is a 2D shape. The perimeter of a circle is called the **circumference** (c). The distance across the circle, passing through the centre, is called the **diameter** (d).

The distance from the centre of the circle to the circumference is called the **radius** (r).

r × 2 = d **$\frac{d}{2}$ = r**



Nets of 3D Shapes



A shape net shows which 2D shapes can be folded and joined to make a 3D shape. When you are drawing a net, or solving a problem involving a shape net, think carefully about where the edges of the faces meet.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact of the day. If you would like more ideas, please speak to your child's teacher.

It is very important that your child uses mathematical vocabulary accurately. They must use language such as height, length, base, width and radius when recalling the appropriate formulae.

Shape hunt - Spot shapes when you are out and about or in the house. How many cuboids can you find? How many circles can you see on the walk to school?

Online games Use online activities to rehearse the shape names and properties - https://www.topmarks.co.uk/carroll-diagrams/2d-shapes This game involves sorting the shapes according to their properties. https://www.ictgames.com/mobilePage/shiftingShapes/index.html Move the draggable torch to reveal a hidden shape.

Key Vocabulary

angle right angle acute obtuse reflex protractor horizontal vertical parallel perpendicular polygon regular irregular two-dimensional three-dimensional flat face curved surface edge vertex vertices apex radius diameter circumference