Key Instant Recall Facts
Year 6 - Autumn 1

I know all the factor pairs for numbers to 100.

Children should now know all multiplication and division facts up to 12 × 12. When given a product in one of these times tables, they should be able to state the factor pairs which multiply to make this number: the aim is for instant recall. Below are some examples:

24 = 24 x 1

24 = 12 x 2

24 = 8 x 3

24 = 6 x 4

The factors of 24 are:

1, 2, 3, 4, 6, 8, 12, 24

17 = 17 x 1

The factors of 17 are:

1, 17

84 = 84 x 1

84 = 42 x 2

84 = 28 x 3

84 = 21 x 4

84 = 14 x 6

84 = 12 x 7

The factors of 84 are:

1, 2, 3, 4, 6, 7, 12, 14, 21, 28, 42

Factors are the whole numbers (integers) you multiply together to give a product.

Useful Questions

Can you find a **factor pair** for 28?

Is 6 a **factor** of 72? How do you know?

What **multiple** would you get from **multiplying** 5 and 6?

Find two numbers whose **product** is 20.

Find all the **factors** of 15

Top Tips:

The secret to success is to practise little and often -could you practise on the way to school or during a car journey?

You don't need to practise them all at once – perhaps have product of the day.

Make it fun!

- Think of the question – One player thinks of a factor pair to multiply (e.g. 4 × 12) and states the answer. The other player guesses the original factor pair.
- Timed Games: How well are you doing? How many questions can you answer in 2 minutes? Can you beat your own record?
- http://www.conkermaths.org/cmweb.nsf/products/conkerkirfs.html Choose factors game
- http://www.snappymaths.com/multdiv/multfact/interactive/factorsint/f actorsint.htm
- http://www.hoodamath.com/games/factorfeeder.html
- http://www.math-play.com/Factors-Millionaire/Factors-Millionaire.html

Deepen and apply

- https://nrich.maths.org/5468 Factors and multiples problem
- Captain Conjecture says, 'Factors come in pairs, so all numbers have an even number of factors.' Do you agree? Explain your reasoning.
- http://nrich.maths.org/84 Sweets in a box investigation
- A number has exactly eight factors, two of which are 21 and 35. What is the number?
- http://nrich.maths.org/1011 Abundant Numbers investigation

  http://nrich.maths.org/7468 Factor track investigation

Key Instant Recall Facts
Year 6 – Autumn 2

I can apply place value to times tables.

By the end of this term, children should be able to quickly find answers to questions like the ones below, applying their knowledge of times tables and place value.

From 4 x 7 = 28	From 8 = 4 x 2	8 ÷ 2 = 4
0.4 x 7 = 2.8	0.8 = 0.4 x 2	0.8 ÷ 2 = 0.4
0.4 x 0.7 = 0.28	0.08 = 0.4 x 0.2	0.08 ÷ 2 = 0.04
0.04 x 7 = 0.28	0.08 = 0.04 x 2	80 ÷ 2 = 40
40 x 7 = 280	80 = 40 x 2	800 ÷ 20 = 40
40 x 70 = 2800	800 = 40 x 20	8000 ÷ 20 = 400
400 x 70 = 28,000	8000 = 400 x 20	80,000 ÷ 200 = 400
400 x 700 = 280,000	80,000 = 400 x 200	

Children should be able to answer the questions in any order, including with the calculations written either side of the equals sign and missing number questions,

e.g. 300 × ☐ = 1200 40 = ☐ ÷ 11 7000 = ☐ ÷ 12 ☐6 = x 12

Useful Questions

What is 120 **multiplied by** 6?

What is 0.7 **times** 60?

What is the **product** of 0.5 and 0.7?

What are 700 **lots of** 11?

What is 8400 **divided by** 12?

Top Tips:

The secret to success is to practise little and often - could you practise on the way to school or during a car journey? This relies heavily upon a sound knowledge of all the times table fact, so if there are particular facts your child finds difficult focus on those and adjust the place value.

Use what you already know: Look for the times table facts you know, work that part out and then adjust the place value,

e.g. 0.6 x 900 If I know that 6 x 9 = 54, then I know that 0.6 x 9 = 5.4 (10 times smaller) and 0.6 x 900 = 540 (100 times bigger)

Use fact families: For example, to find 5.6 ÷ 0.8

If I know that 8 x 7 = 56, then I know that 5.6 = 0.8 x 7 (10 times smaller) so I know that 5.6 ÷ 0.8 = 7.

Make it fun!

- Play number ping pong! Start by saying 'ping', child replies with 'pong'. Repeat with times tables facts i.e. say '6' and they reply '7.2' (for multiplying by 1.2)
- Test the Parent – Your child can make up their own tricky division questions for you, e.g. What is 13.2 divided by 12? They need to be able to multiply to create these questions.
- Timed Games: How well are you doing? How many questions can you answer in 2 minutes? Can you beat your own record?
- Use any of the games for the times tables and make it 10 or 100 times bigger or smaller.

Deepen and apply

- 12,000 x 0.9 = 10,800. How many different number stories can you write to fit this equation?
- If I know that 7 x 9 = 63, how many other facts can I work out by adjusting the place value?
- ☐ x 70 = ☐ x 0.7 How many ways can you make this true?
- Captain Conjecture says that multiplying a number by 1.2 is the same as multiplying it by 12 and then dividing it by 10. Do you agree? Can you explain why?

Key Instant Recall Facts
Year 6 – Spring 1

I can identify the prime numbers up to 100.

By the end of this term, children should know which numbers are prime and which are composite.

Prime numbers:

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

A **prime number** has exactly two factors: 1 and itself.

Composite numbers (up to 50):

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

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

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

E.g. 15 is composite because it is a multiple of 3 and 5.

Useful Vocabulary

Factor **Product** **Prime number**

Composite number **Multiple**

Top Tips:

The secret to success is to practise little and often - could you practise on the way to school or during a car journey? You don't need to practise them all at once – perhaps have a fact of the day, or a fact family of the day.

It's really important that your child uses mathematical vocabulary accurately. Choose a number between 2 and 20. How many correct statements can your child make about this number using the vocabulary above?

Make it fun!

- Make a set of cards for the numbers from 2 to 100. 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?
- http://www.transum.org/Software/Game/Connect4/
- http://www.sheppardsoftware.com/mathgames/numbers/fruit_shoot_prime.htm
- Colour the prime numbers on a 100 square. See this website for how to do this: http://www.teachingideas.co.uk/maths/prime.htm What do they notice about their positions?
- Timed Games: How well are you doing? How many questions can you answer in 2 minutes? Can you beat your own record?

Deepen and apply

- https://nrich.maths.org/5468 Factors and multiples problem
- http://nrich.maths.org/1153 Penta primes investigation
- http://nrich.maths.org/1150 Two primes make one square investigation
- Is it always, sometimes or never true that prime numbers are next to a multiple of 6? Explain your answer.
- Use 3 and 5 or 2 and 3 as factors to make some numbers. What do you notice about these numbers? What if you used some other prime factors? Why?

Key Instant Recall Facts
Year 6 – Spring 2

I can use fraction, decimal and percentage equivalents.

This is revision from Year 5. Once children are fully confident with the equivalences, they should apply them to finding percentage of amounts, e.g. finding 50% by dividing by 2. Below are some examples – there is often more than one way to calculate so children are expected to find the most efficient (quick and accurate) way.

Find	Equivalent to	Calculate
50%	0.5 = $\frac{1}{2}$	÷ 2
25%	0.25 = $\frac{1}{4}$	÷ 4
75%	0.75 = $\frac{3}{4}$	÷ 4, x 3
10%	0.1 = $\frac{1}{10}$	÷ 10
20%	0.2 = $\frac{1}{5}$ = $\frac{2}{10}$	÷ 5 or ÷ 10, x 2
1%	0.01 = $\frac{1}{100}$	÷ 100
5%	0.05 = $\frac{5}{100}$ = $\frac{1}{20}$	÷ 100, x 5 or ÷ 10, ÷ 2
6%	0.06 = $\frac{6}{100}$	÷ 100, x 6 or 5% + 1%
15%	0.15 = $\frac{15}{100}$	÷ 100, x 15 or 10% + 5%
100%	1 = $\frac{100}{100}$	The whole
99%	0.99 = $\frac{99}{100}$	100% - 1%

Useful Questions

How many **tenths** is 0.8?

How many **fifths** is 0.8?

How many **hundredths** is 0.12?

Write 0.75 as a **fraction**.

What is 80% of £60?

What **percentage** is four fifths?

Write $\frac{3}{4}$ as a **percentage** and a **decimal**.

What's the most efficient way to find 7% of 20?

Top Tips:

The secret to success is to practise little and often - could you practise on the way to school or during a car journey? You don't need to practise them all at once – perhaps have a fact of the day, or a fact of the day.

Make it fun!

- Count up and down in tenths and hundredths, counting out loud, then change between fractions and percentages as well.
- Play games - Make some cards with pairs of equivalent fractions, decimals and percentages. Use these to play the memory game or snap. Or make your own dominoes with fractions or decimals one side and percentages on the other.
- http://www.sheppardsoftware.com/mathgames/percentage/MatchingPercentFraction.htm
- https://mathsframe.co.uk/en/resources/resource/120/match-fractions-decimals-and-percentages
- https://www.mathplayground.com/matching_fraction_percent.html
- https://nrich.maths.org/1249
- https://www.mathplayground.com/Decention/index.html
- http://www.sheppardsoftware.com/mathgames/percentage/MatchingPercentNumber.htm

Deepen and apply

- Put these numbers in the correct order, starting with the largest:

3/5, 0.63, 6/100, 0.063, 61%, 6/10 Explain your thinking.

- http://www.sheppardsoftware.com/mathgames/percentage/BalloonPopPercentFraction_1.htm
- Can you use your knowledge of fraction, decimals and percentages to solve the following?
  - What is 99% of £300?
  - Jemimah had a box of sweets and ate $\frac{1}{20}$ of them. What percentage did she have left?
  - On a school bus with 45 children 20% were girls. What fraction were boys? How many girls and boys were there?
- https://nrich.maths.org/1118 Would you rather...?
- Which is longer 30% of 500g of chocolate or $\frac{1}{3}$ of 450g? Explain your reasons.
- Put the following amounts in order, starting with the largest.

12%, $\frac{1}{8}$, 0.1, 0.08 Explain your reasoning.

- I bought a bag in a sale with 25% off. The original price was £30. How much did I pay?
- With %20 off, I paid £400 for my flight. How much would the full price have been?
- Write your own problems to solve which include fractions, decimals and percentages?