

Number Facts

Ready to Progress

NF	<u>1NF-1</u> Develop fluency in addition and subtraction facts within 10. →	<u>2NF-1</u> Secure fluency in addition and subtraction facts within 10, through continued practice. →	<u>3NF-1</u> Secure fluency in addition and subtraction facts that bridge 10, through continued practice.			
	<u>1NF-2</u> Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers. →		<u>3NF-2</u> Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number. →	<u>4NF-1</u> Recall multiplication and division facts up to 12×12 , and recognise products in multiplication tables as multiples of the corresponding number. →	<u>5NF-1</u> Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.	
				<u>4NF-2</u> Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and interpret remainders appropriately according to the context.		
			<u>3NF-3</u> Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10). →	<u>4NF-3</u> Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100). →	<u>5NF-2</u> Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).	

Example Assessment Questions

Taken from DFE Maths Guidance 2020

Compiled by Michelle Knott (ECM Trust & South Yorkshire Maths Hub)

Number Facts

1NF-1

2NF-1

3NF-1

<u>1NF-1</u> Develop fluency in addition and subtraction facts within 10. →	<u>2NF-1</u> Secure fluency in addition and subtraction facts within 10, through continued practice. →	<u>3NF-1</u> Secure fluency in addition and subtraction facts that bridge 10, through continued practice.			
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Year 1 – Number Facts

Ready to Progress Criterion:

1NF–1 Develop fluency in addition and subtraction facts within 10.

1NF–1 Example assessment questions

1. I cycled 4km to get to my friend's house, and then cycled another 3km with my friend. How far have I cycled?
2. There are 9 children. 6 of them have scooters and the rest do not. How many of the children do not have scooters?
3. Sarah had £6. Then she spent £3. How much money does she have left?
4. I have 1 metre of red ribbon. I have 5 metres of blue ribbon. How many metres of ribbon do I have altogether?

The 66 addition facts within 10 are shown on the grid below. The number of addition facts to be learnt is reduced when commutativity is applied and pupils recognise that $3 + 2$, for example, is the same as $2 + 3$. Pupils must also have automatic recall of the corresponding subtraction facts, for example $5 - 3$ and $5 - 2$.

+	0	1	2	3	4	5	6	7	8	9	10
0	$0+0$	$0+1$	$0+2$	$0+3$	$0+4$	$0+5$	$0+6$	$0+7$	$0+8$	$0+9$	$0+10$
1	$1+0$	$1+1$	$1+2$	$1+3$	$1+4$	$1+5$	$1+6$	$1+7$	$1+8$	$1+9$	
2	$2+0$	$2+1$	$2+2$	$2+3$	$2+4$	$2+5$	$2+6$	$2+7$	$2+8$		
3	$3+0$	$3+1$	$3+2$	$3+3$	$3+4$	$3+5$	$3+6$	$3+7$			
4	$4+0$	$4+1$	$4+2$	$4+3$	$4+4$	$4+5$	$4+6$				
5	$5+0$	$5+1$	$5+2$	$5+3$	$5+4$	$5+5$					
6	$6+0$	$6+1$	$6+2$	$6+3$	$6+4$						
7	$7+0$	$7+1$	$7+2$	$7+3$							
8	$8+0$	$8+1$	$8+2$								
9	$9+0$	$9+1$									
10	$10+0$										

Pupils should learn to compose and partition numbers within 10 ([1AS–1](#)) before moving on to formal addition and subtraction. Although [1NF–1](#) (this criterion) and [1AS–2](#) are presented as separate ready-to-progress criteria, they depend upon one another and should be developed, in tandem, throughout year 1.

As part of their work on [1AS–1](#), pupils are likely to already have memorised some number bonds within 10 (for example, number bonds to 5, to 10 and some doubles facts). However, at this stage, most pupils won't remember all of their number facts by rote learning, so they should also be taught to derive additive facts within 10 from previously memorised facts or knowledge. Examples of appropriate strategies include the following.

Year 2 – Number Facts

Ready to Progress Criterion:

2NF–1 Secure fluency in addition and subtraction facts within 10, through continued practice.

In year 1, pupils should have learnt to add and subtract fluently within 10 (**1NF–1**). However, pupils may not still be fluent by the beginning of year 2, so this fluency should now be secured and maintained. Pupils should practise additive calculation within 10 until they have automatic recall of the additive facts. Fluency in these facts is required for pupils to succeed with addition and subtraction across 10 (**2AS–1**) and for additive calculation with larger numbers (**2AS–3** and **2AS–4**).

The 66 addition facts within 10 are shown on the grid below. The number of addition facts to be learnt is reduced when commutativity is applied and pupils recognise that $3 + 2$, for example, is the same as $2 + 3$. Pupils must also have automatic recall of the corresponding subtraction facts, for example $5 - 3$ and $5 - 2$.

+	0	1	2	3	4	5	6	7	8	9	10
0	$0+0$	$0+1$	$0+2$	$0+3$	$0+4$	$0+5$	$0+6$	$0+7$	$0+8$	$0+9$	$0+10$
1	$1+0$	$1+1$	$1+2$	$1+3$	$1+4$	$1+5$	$1+6$	$1+7$	$1+8$	$1+9$	
2	$2+0$	$2+1$	$2+2$	$2+3$	$2+4$	$2+5$	$2+6$	$2+7$	$2+8$		
3	$3+0$	$3+1$	$3+2$	$3+3$	$3+4$	$3+5$	$3+6$	$3+7$			
4	$4+0$	$4+1$	$4+2$	$4+3$	$4+4$	$4+5$	$4+6$				
5	$5+0$	$5+1$	$5+2$	$5+3$	$5+4$	$5+5$					
6	$6+0$	$6+1$	$6+2$	$6+3$	$6+4$						
7	$7+0$	$7+1$	$7+2$	$7+3$							
8	$8+0$	$8+1$	$8+2$								
9	$9+0$	$9+1$									
10	$10+0$										

2NF–1 Assessment guidance

Assessment guidance: For pupils to have met criterion **2NF–1**, they need to be able to add and subtract within 10 without counting forwards or backwards in ones on their fingers, on a number line or in their heads. Pupils need to be able to automatically recall the facts. Teachers should assess pupils in small groups – simply providing the correct answers to calculations in a written test does not demonstrate that a pupil has met the criterion.

Year 3 – Number Facts

Ready to Progress Criterion:

3NF–1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice.

+	0	1	2	3	4	5	6	7	8	9	10
0	0+0	0+1	0+2	0+3	0+4	0+5	0+6	0+7	0+8	0+9	0+10
1	1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9	1+10
2	2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	2+9	2+10
3	3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7	3+8	3+9	3+10
4	4+0	4+1	4+2	4+3	4+4	4+5	4+6	4+7	4+8	4+9	4+10
5	5+0	5+1	5+2	5+3	5+4	5+5	5+6	5+7	5+8	5+9	5+10
6	6+0	6+1	6+2	6+3	6+4	6+5	6+6	6+7	6+8	6+9	6+10
7	7+0	7+1	7+2	7+3	7+4	7+5	7+6	7+7	7+8	7+9	7+10
8	8+0	8+1	8+2	8+3	8+4	8+5	8+6	8+7	8+8	8+9	8+10
9	9+0	9+1	9+2	9+3	9+4	9+5	9+6	9+7	9+8	9+9	9+10
10	10+0	10+1	10+2	10+3	10+4	10+5	10+6	10+7	10+8	10+9	10+10

3NF–1 Example assessment questions

1. Mr Kahn drove 8km to get to his friend's house, and then drove another 3km with his friend to get to the gym. How far did Mr Kahn drive?
2. There are 12 children. 5 of them can ride a bicycle and the rest cannot. How many of the children cannot ride a bicycle?
3. Maja had £17. Then she spent £9. How much money does she have left?
4. I have 6 metres of red ribbon and 6 metres of blue ribbon. How many metres of ribbon do I have altogether?
5. Hazeem is growing a sunflower and a bean plant. So far, his sunflower plant is 14cm tall and his bean plant is 8cm tall. How much taller is the sunflower plant than the bean plant?

Assessment guidance: For pupils to have met criterion **3NF–1**, they need to be able to add and subtract within and across 10 without counting forwards or backwards in ones on their fingers, on a number line or in their heads. Pupils need to be able to automatically recall the facts within 10, and be able to mentally apply strategies for calculation across 10, with accuracy and speed. Teachers should assess pupils in small groups – simply providing the correct answers to the example questions above does not demonstrate that a pupil has met the criterion.

Number Facts

1NF-2

3NF-2

4NF-1

5NF-1

<u>1NF-2</u> Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers. →		<u>3NF-2</u> Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number. →	<u>4NF-1</u> Recall multiplication and division facts up to 12×12 , and recognise products in multiplication tables as multiples of the corresponding number. →	<u>5NF-1</u> Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.	
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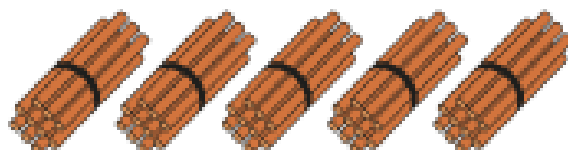
Year 1 – Number Facts

Ready to Progress Criterion:

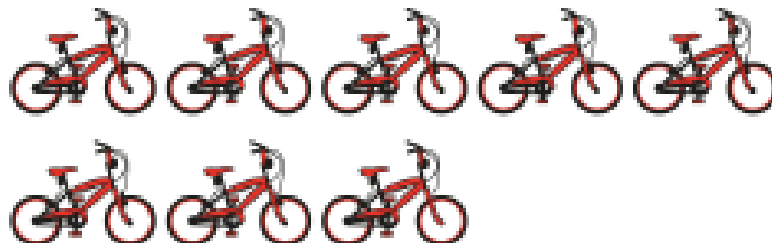
1NF–2 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers.

1NF–2 Example assessment questions

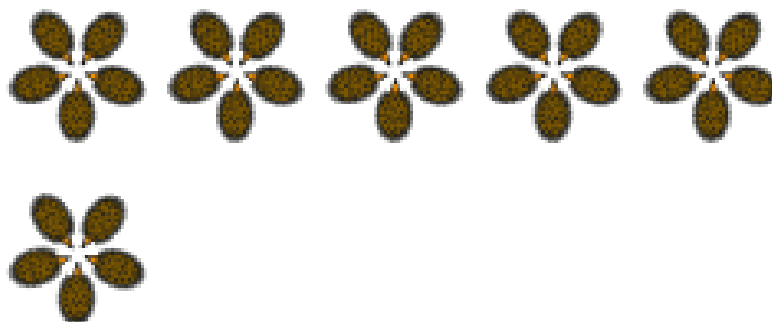
1. **Task:** Provide each pupil with an even number of counters up to 20, then ask pupils to:
 - a. put the counters into groups of 2
 - b. count in multiples of 2 find out how many counters there are
2. These sticks are grouped into bundles of 10. How many sticks are there altogether?



3. How many wheels are there altogether? Count in groups of 2.



4. There are 5 hedgehogs in each group. How many hedgehogs are there altogether?



5. There are 5 dots on each token. How many dots are there altogether?



Year 1 – Number Facts (continued)

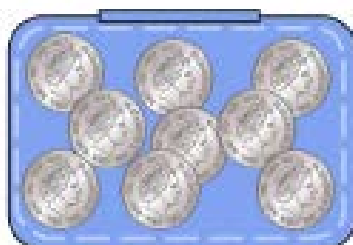
Ready to Progress Criterion:

1NF–2 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers.

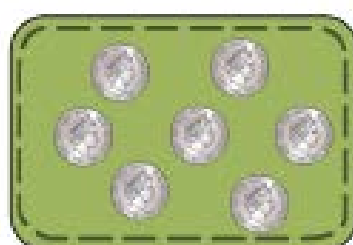
6. How much money is in each purse?



2p coins



10p coins



5p coins

7. Task: Provide each pupil with 2p, 5p and 10p coins (real or otherwise), then ask pupils to show how to pay for:

- the drum with 2p coins
- the boat with 5p coins
- the dinosaur with 10p coins



Assessment guidance: To assess whether pupils can recite the number sequences, teachers must listen to each pupil count. This can be done through specifically planned tasks, or by carefully watching and listening to an individual pupil during daily counting as part of class routines.

The example questions and tasks above can be used to assess whether pupils can enumerate objects in groups of 2, 5 or 10. However, simply providing the correct answers to the example questions does not demonstrate that a pupil has met this part of the criterion – teachers should assess pupils in small groups to ensure that they are counting in multiples of 2, 5 or 10 rather than in ones.

Year 3 – Number Facts

Ready to Progress Criterion:

3NF–2 Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.

The national curriculum requires pupils to recall multiplication table facts up to 12×12 , and this is assessed in the year 4 multiplication tables check. In year 3, the focus should be on learning facts in the 10, 5, 2, 4 and 8 multiplication tables.

3NF–2 Example assessment questions

1. A spider has 8 legs. If there are 5 spiders, how many legs are there altogether?
2. A book costs £5. How much do 6 books cost?
3. 18 socks are put into pairs. How many pairs are there?
4. Felicity wants to buy a scooter for £80. If she pays with £10 notes, how many notes does she need?
5. Circle the numbers that are multiples of 4.

14

24

40

34

16

32

25

Assessment guidance: The multiplication tables check in year 4 will assess pupils' fluency in all multiplication tables. At this stage, teachers should assess fluency in facts within the 10, 5, 2, 4 and 8 multiplication tables. Once pupils can automatically recall multiplication facts, and have covered criterion 3MD–1, they should be able to apply their knowledge to contextual questions like those shown here. Teachers should ensure that pupils answer these questions using automatic recall of the appropriate multiplication facts – for question 1, for example, if a pupil counts up in multiples of 8, or draws 5 spiders and counts the legs in ones, the pupil has not met this criterion.

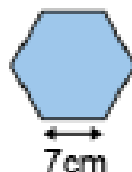
Year 4 – Number Facts

Ready to Progress Criterion:

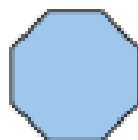
4NF–1 Recall multiplication and division facts up to 12×12 , and recognise products in multiplication tables as multiples of the corresponding number.

4NF–1 Example assessment questions

1. A regular hexagon has sides of 7cm. What is its perimeter?



2. A regular octagon has a perimeter of 72cm. What is the length of each of the sides?



3. It takes Latoya 8 minutes to walk to school. It takes Tatsuo 3 times as long. How long does it take Tatsuo to walk to school?
4. An egg box contains 6 eggs. I need 54 eggs. How many boxes should I buy?
5. 8 children spend a day washing cars and earn £40 altogether. If they share the money equally how much do they each get?
6. Circle the numbers that are multiples of 3.

16 18 23 9 24

Assessment guidance: The multiplication tables check will assess pupils' fluency. Once pupils can automatically recall multiplication facts, they should be able to apply their knowledge to questions like those shown here.

Year 5 – Number Facts

Ready to Progress Criterion:

5NF–1 Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.

5NF–1 Assessment guidance

Assessment for this criterion should focus on whether pupils have fluency in multiplication facts and division facts. Pupils can be assessed through a time-limited written check.

The multiplication facts to 9×9 , and related division facts, are particularly important as these are the facts required for formal written multiplication and division. The 36 multiplication facts that are required for formal written multiplication are as follows.

$2 \times 2 = 4$							
$3 \times 2 = 6$	$3 \times 3 = 9$						
$4 \times 2 = 8$	$4 \times 3 = 12$	$4 \times 4 = 16$					
$5 \times 2 = 10$	$5 \times 3 = 15$	$5 \times 4 = 20$	$5 \times 5 = 25$				
$6 \times 2 = 12$	$6 \times 3 = 18$	$6 \times 4 = 24$	$6 \times 5 = 30$	$6 \times 6 = 36$			
$7 \times 2 = 14$	$7 \times 3 = 21$	$7 \times 4 = 28$	$7 \times 5 = 35$	$7 \times 6 = 42$	$7 \times 7 = 49$		
$8 \times 2 = 16$	$8 \times 3 = 24$	$8 \times 4 = 32$	$8 \times 5 = 40$	$8 \times 6 = 48$	$8 \times 7 = 56$	$8 \times 8 = 64$	
$9 \times 2 = 18$	$9 \times 3 = 27$	$9 \times 4 = 36$	$9 \times 5 = 45$	$9 \times 6 = 54$	$9 \times 7 = 63$	$9 \times 8 = 72$	$9 \times 9 = 81$

Number Facts

4NF-2

			<u>4NF-2</u> Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and Interpret remainders appropriately according to the context.		
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Year 4 – Number Facts

Ready to Progress Criterion:

4NF–2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and interpret remainders appropriately according to the context.

4NF–2 Example assessment questions

1. Which of these division calculations have the answer of 3 r 2?

$23 \div 7$

$17 \div 5$

$32 \div 6$

$7 \div 2$

$14 \div 4$

$30 \div 8$

2. I have 60 metres of bunting for the school fair. What length of bunting will be left over if I cut it into lengths of 8 metres?
3. It takes 7 minutes to make a pom-pom. How many complete pom-poms can Malik make in 30 minutes?
4. 23 apples are shared equally between 4 children. How many whole apples does each child get?
5. Ruby writes:

$37 \div 5 = 6 \text{ r } 7$

Explain what mistake Ruby has made, and write the correct answer.

6. Decide whether each calculation has a remainder or not. Explain how you can do this without doing each calculation?

	Has a remainder? (Yes or No)
$48 \div 7$	
$48 \div 8$	
$48 \div 9$	
$56 \div 7$	
$56 \div 8$	
$56 \div 9$	

Number Facts

3NF-3

4NF-3

5NF-2

		<u>3NF-3</u> Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10). →	<u>4NF-3</u> Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100) →	<u>5NF-2</u> Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth). →	
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Year 3 – Number Facts

Ready to Progress Criterion:

3NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).

3NF–3 Example assessment questions

1. A garden table costs £80 and 2 garden chairs each cost £60. How much do the 2 chairs and the table cost altogether?
2. 130 people are expected at a concert. So far 70 people have arrived. How many more people are due to arrive?
3. A family ticket for a safari park is £40. 3 families go together. How much do the 3 family tickets cost altogether?
4. Fill in the missing numbers.

$$30 + \square = 110$$

$$7 \times 60 = \square$$

Meeting this criterion also requires pupils to be able to fluently multiply whole numbers by 10 (**3NF–2**).

Year 4 – Number Facts

Ready to Progress Criterion:

4NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100)

4NF–3 Example assessment questions

1. I need 1kg of flour to make some bread. I have 800g. How many more grams of flour do I need?
2. A builder can buy bricks in pallets of 600. How many pallets should she buy if she needs 1,800 bricks?
3. Dexter ran round a 400m running track 6 times. How far did he run?
4. I mix 700ml of orange juice and 600ml of lemonade to make a fruit drink for a party. What volume of fruit drink have I made in total?
5. A farmer had 1,200m of fencing to put up round his fields. He put up the same amount of fencing each day, and it took him 6 days to put up all the fencing. How many metres of fencing did he put up each day?
6. Fill in the missing numbers.

$$300 + \square = 1,100$$

$$4,200 \div 600 = \square$$

Year 5 – Number Facts

Ready to Progress Criterion:

5NF–2 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).

5NF–2 Example assessment questions

1. Circle the numbers that sum to 0.13

0.1 0.5 0.05 0.8 0.08 0.3

2. Are these calculations correct? Mark each correct calculation with a tick (✓) and each incorrect calculation with a cross (✗). Explain your answers.

$$0.05 + 0.05 = 0.010$$

$$0.04 + 0.06 = 0.1$$

$$0.13 + 0.7 = 0.2$$

$$0.61 + 0.49 = 1$$

$$0.73 + 0.27 = 1$$

$$0.4 + 0.5 = 0.45$$

3. I live 0.4km away from school. Every day I walk to school in the morning and home again in the afternoon.
- How far do I walk each day?
 - How far do I walk in 5 days?
4. Some children are making bunting for the school fair. If each child makes 0.4m of bunting, and there are 12 children, how many metres of bunting do they make altogether?
5. A chef needs 2.4kg of potatoes for a recipe. If one potato weighs about 0.3kg, approximately how many potatoes does the chef need?
6. A bottle contains 0.7 litres of fruit drink. Maria need 5 litres of drink for a party. How many bottles does she need to buy?
7. I need 0.5kg of brown flour and 0.7kg of white flour for a recipe. What is the total mass of flour that I need?
8. What is the total volume of liquid in these measuring beakers, in litres?

