Year Group 1

Key Additive Facts to learn.

Pupils should learn groups of facts in Dark Green/Bold.

- They should use representations such as 10 frames and counters and part whole models to see the parts and the corresponding related facts.
- The use of representations and explicitly modelling relationships will help them to understand that addition and subtraction are inverse, and that addition is also commutative.
- They should also use Knowledge of odd and even to predict sum or differences.
- Use knowledge of near doubles when numbers are close.

Some facts may be repeated with different sets as a different relationship is explored but due to commutativity and inverse, not all facts need to be learnt but pupils need to know and be taught, how to use them to derive new ones.

Children should spend time in Y1 partitioning all single digit numbers in 2 parts and then more than 2 parts and thinking about how these are related to recorded addition and subtraction facts using the knowledge above.

	Set A 3 facts	**Set B**	**Set C**	**Set D**	**Set E**	**Set F**	**Set G**
Core facts to learn **REPEATED FACTS** Have been repeated already in another list	Number bonds to 5 **0 + 5 = 5** **1 + 4 = 5** **2 + 3 = 5**	Adding/ subtracting 1 **0 + 1 = 1** **1 + 1 = 2** **2 + 1= 3** **3 + 1 = 4** **4 + 1 = 5** **5 + 1 = 6** **6 + 1 = 7** **7 + 1 = 8** **8 + 1 = 9** **9 + 1 =10***	Adding/ subtracting 0 **0 + 0 = 0** **1 + 0 = 1 *** **2 + 0 = 2** **3 + 0 = 3** **4 + 0 = 4** **5 + 0 = 5 *** **6 + 0 = 6** **7 + 0 = 7** **8 + 0 = 8** **9 + 0 = 9**	Doubles to 5 **1 + 1 = 2** **2 + 2 = 4** **3 + 3 = 6** **4 + 4 = 8** **5 + 5 = 10**	Bonds to 10 **0 + 10 = 10** **1 + 9 = 10** **2 + 8 + 10** **3 + 7 = 10** **4 + 6 = 10** **5 + 5 = 10**	Adding/ subtracting 2 to/from even numbers **0 + 2= 2** **2 + 2 = 4** **4 + 2 = 6** **6 + 2 = 8** **8 + 2 = 10**	Adding/ subtracting 2 to/from odd numbers **1 + 2 = 3** **3 + 2 = 5** **5 + 2 = 7** **7 + 2 = 9**

Derived facts	5 – 0 = 5 5 – 1 = 4 5 – 2 = 3 5 – 4 = 1 5 – 3 = 2	1 + 2 = 3 1 + 3 = 4 1 + 4 = 5 1 + 5 = 6 1 + 6 = 7 1 + 7 = 8 1 + 8 = 9 1+ 9 = 10 1 + 10 = 11 2 – 1 = 1 3 – 1 = 2 3 – 2 = 1 4 – 1 = 3 4 – 3 = 1 5 – 1 = 4 5 - 4 = 1 6 – 1 = 5 6 – 5 = 1 7 – 1 = 6 7 – 6 = 1 8 – 1 = 9 8 – 9 = 1	0 + 1 = 0 + 2 = 0 + 3 = 0 + 4 = 0 + 5 = 0 + 6 = 0 + 7 = 0 + 8 = 0 + 9 = 1 – 0 = 1 2 – 0 = 2 3 – 0 = 3 4 – 0 = 4 5 – 0 = 5 6 – 0 = 6 7 – 0 = 7 8 – 0 = 9 9 – 0 = 9	Halves to 10 10 – 5 = 5 8 – 4 = 4 6 – 3 = 3 4 – 2 = 2 2 – 1 = 1	10 + 0 = 10 9 + 1= 10 8 + 2 + 10 7 + 3 = 10 6 + 4 = 10	10 – 2 = 8 8 – 2 = 6 6 – 2 = 4 4 – 2 = 2 2 – 2 = 0	9 – 2 = 7 7 – 2 = 5 5 – 2 = 3 3 – 2 = 1

Additional Guidance

Children should also have exposure to missing number calculations with the missing number in different positions to strengthen their understanding.

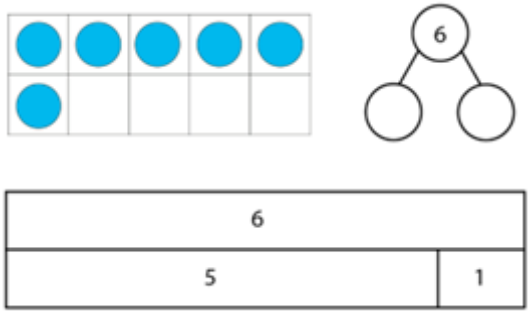
e.g. **6 + 4 = ☐** **10 - 4 = ☐** **☐ = 10 + 4**

6+ ☐ = 10 **10 - ☐ = 6**

☐ + 6 = 10 **☐ - 4 = 6**

They should be also apply the facts to real life contexts including money and measures.

Bar Models and part whole models and tens frames help pupils to see the relationships and the consistent structures and arrangements help pupils to see the numbers quickly.



The NCETM have some useful Teacher Guidance to support subject Knowledge development. Under REPRESENTATIONS you will find sets of slides that you can use in your teaching to work alongside the TEACHER GUIDE.

https://www.ncetm.org.uk/teaching-for-mastery/mastery-materials/primary-mastery-professional-development/number-addition-and-subtraction/

Year Group 2

Key Additive Facts to learn.

Pupils should learn groups of facts in Dark Green/Bold.

- They should use representations such as 10 frames and counters and part whole models to see the parts and the corresponding related facts.
- The use of representations and explicitly modelling relationships will help them to understand that addition and subtraction are inverse, and that addition is also commutative.
- They should also use Knowledge of odd and even to predict sum or differences.
- Use knowledge of near doubles when numbers are close.

Some facts may be repeated with different sets as a different relationship is explored but due to commutativity and inverse, not all facts need to be learnt but pupils need to know and be taught, how to use them to derive new ones.

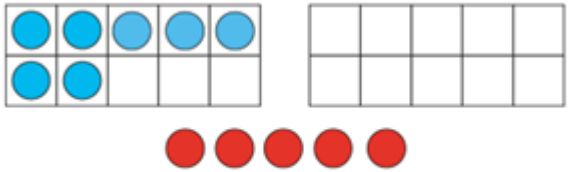
	Set A	Set B	Set C	Set D	Set E	Set F	Set G
2	Number bonds within 10 (include revision of Y1 facts) **5 + 3 = 8** **3 + 5 = 8** **3 + 4 = 7** **4 + 3 = 7** 7 – 4 = 3 7 – 3 = 4 8 – 5 = 3 8 – 3 = 5	Doubles to 10 (Building on doubles to 5 from Year 1) **6 + 6 = 12** **7 = 7 = 14** **8 + 8 = 16** **9 + 9 = 18** **10 + 10 = 20** 20 – 10 = 10 18 – 9 = 9 16 – 8 = 8 14 – 7 = 7 12 – 6 = 6	Near Doubles **5 + 6 = 11** **6 + 7 = 13** **7 + 8 = 15** **8 + 9 = 17** 6 + 5 = 11 7 + 6 = 13 8 + 7 = 15 9 + 8 = 17	Adding 1 digit to 10 ('teen' Numbers) **10 + 1= 11** **10 + 2 = 12** **10 + 3 = 13** **10 + 4= 14** **10 + 5 = 15** **10 + 6 = 16** **10 + 7 = 17** **10 + 8 = 18** **10 + 9 = 19** 19 – 9 = 10 18 – 8 = 10 17 – 7 = 10 16 – 6 = 10 15 – 5 = 10 14 – 4 = 10 13 – 3 = 10 12 – 2 = 10 11 – 1 = 10 19 – 10 = 9 18 – 10 = 8 17 – 10 = 7 16 – 10 = 6	Using number bonds to 10 (bonds to 20) **1 + 19 = 20** **2 + 18 = 20** **3 + 17 = 20** **4 + 16 = 20** **5 + 15 = 20** 19 + 1 = 20 18 + 2 = 20 17 + 3 = 20 16 + 4 = 20 15 + 5 = 20 20 – 19= 1 20 – 1 = 19 20 – 2 = 18 20 – 18 = 2 20 – 3 = 17 20 – 17 = 3 20 – 4 = 16 20 – 16 = 4 20 – 5 = 15 20 – 15 = 5	Number bonds to and within 20 (including those already covered) **7 + 4 = 11** **7 + 5 = 12** **8 + 3 = 11** **8 + 4 = 12** **8 + 5 = 13** **8 + 6 = 14** Talk about those that are near a ten. 4 + 7 = 11 5 + 7 = 12 3 + 8 = 11 4 + 8 = 12 5 + 8 = 13 6 + 8 = 14 Use the facts to solve corresponding subtraction facts.	Adding near 10 (9 or 11) **9 + 3 = 12** **9 + 4 = 13** **9 + 5= 14** **9 + 6 = 15** **9 + 7= 16** 3 + 9 = 12 4 + 9 = 13 5 + 9 = 14 6 + 9 = 15 7 + 9 = 16 16 – 9 = 7 15 – 9 = 6 14 – 9 = 5 13 – 9 = 4 12 – 9 = 3 Pupils should also be able to use knowledge of adding 10 to add 10 and 1 more for 11. This requires strong place value knowledge.

				15 – 10 = 5 14 – 10 = 4 13 – 10 = 3 12 – 10 = 2 11 – 10 = 1		11 – 4 = 7 11 – 7 = 4 12 – 5 = 7 2 – 7 = 5 11- 3 = 8 11 – 8 = 3 12 – 4 = 8 12 – 8 = 4 13 – 8 = 5 13 – 5 = 8 14 – 6 = 8 14 – 8 = 6	place value knowledge.

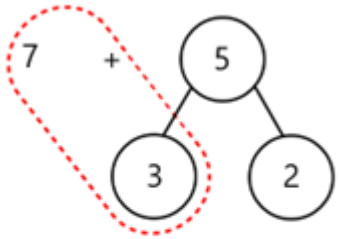
Additional Guidance

Children should also have exposure to missing number calculations with the missing number in different positions to strengthen their understanding and recording using blank or structured number lines in larger efficient steps where possible.

The same models can be used for subtraction also.

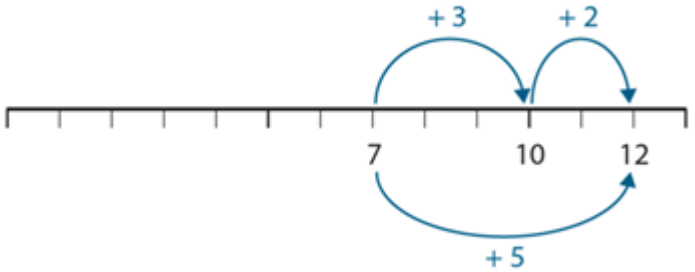


7 + 5 = 7 + 3 + 2= 10 + 2



7 + 3 = 10

10 + 2 = 12



When bridging 10, pupils should be taught to partition numbers flexibly to 'make a ten'.

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Times table & additive facts to learn by year group

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

	New Facts
Year 2	33
Year 3	24
Year 4	18
Total Core Facts	75

Times table & additive facts to learn by year group

Year 1 facts

+	0	1	2	3	4	5	6	7	8	9	10
0	0	1	2	3	4	5	6	7	8	9	10
1		2	3	4	5	6	7	8	9	10	11
2			4	5	6	7	8	9	10	11	12
3				6	7	8	9	10	11	12	13
4					8	9	10	11	12	13	14
5						10	11	12	13	14	15
6							12	13	14	15	16
7								14	15	16	17
8									16	17	18
9										18	19
10											20

Year 2 facts