Year 6 - Bridge Through a Multiple of 10

When to choose this strategy

When adding takes us past a multiple of 10, add enough to reach it first. Then add the rest.

Worked example

96,000 + 8,000

100,000 + 4,000 = 104,000

1. We can add 4,000 to reach 100,000 from 96,000. Split 8,000 into 4,000 and 4,000. Start at 96,000 and add 4,000 to reach 100,000.

2. Add the remaining 4,000 to get 104,000. Check that 4,000 and 4,000 make the original 8,000.

> **Remember:** The first jump uses part of the number you are adding. Add only the part that is left.

Check understanding

586,000 + 30,000
Which multiple of 10 will you reach first? How much of the number is left to add?

Expected answer 586,000 + 30,000 = 616000

Year 6 - Bridge Through a Multiple of 10

When to choose this strategy

When subtracting takes us past a multiple of 10, subtract enough to reach it first. Then subtract the rest.

Worked example

103,000 − 7,000

$$100,000 - 4,000 = 96,000$$

1. We can subtract 3,000 to reach 100,000 from 103,000. Split 7,000 into 3,000 and 4,000. Start at 103,000 and subtract 3,000 to reach 100,000.

2. Subtract the remaining 4,000 to get 96,000. Check that 3,000 and 4,000 make the original 7,000.

> **Remember:** The first jump uses part of the number you are subtracting. Subtract only the part that is left.

Check understanding

613,000 − 30,000
Which multiple of 10 will you reach first? How much is left to subtract?

Expected answer 613,000 − 30,000 = 583000

Year 6 - Change an Addend When Close to a Clear Multiple

When to choose this strategy

When a number is close to a multiple of 10, 100 or 1,000, use the nearby multiple and then adjust.

Worked example

64,782 + 19,998



1. The addend, the number we add, is 19,998. It is close to 20,000, an easier number to work with. Add 20,000 to 64,782 to get 84,782.

2. We added 2 too much, so subtract 2. The sum is 84,780.

3. So 64,782 + 19,998 = 84,780. We used 20,000 and then adjusted by 2.

> **Remember:** If you added too much, subtract the extra. If you added too little, add the amount still needed.

Check understanding

142,042 + 31,998
What multiple will you add first? How will you adjust the total?

Expected answer 142,042 + 31,998 = 174040

Year 6 - Change the Subtrahend When Close to a Clear Multiple

When to choose this strategy

When a number is close to a multiple of 10, 100 or 1,000, use the nearby multiple and then adjust.

Worked example

64,782 − 19,998

64, 782 − 19, 998 = 44, 784

1. The subtrahend, the number we subtract, is 19,998. It is close to 20,000, an easier number to work with. Subtract 20,000 from 64,782 to get 44,782.

2. We took away 2 too much, so add 2. The difference is 44,784.

3. So 64,782 − 19,998 = 44,784. We used 20,000 and then adjusted by 2.

> **Remember:** If you took away too much, add the extra back. If you took away too little, subtract the amount still needed.

Check understanding

142,042 − 31,998
What multiple will you subtract first? How much will you add back or still need to subtract?

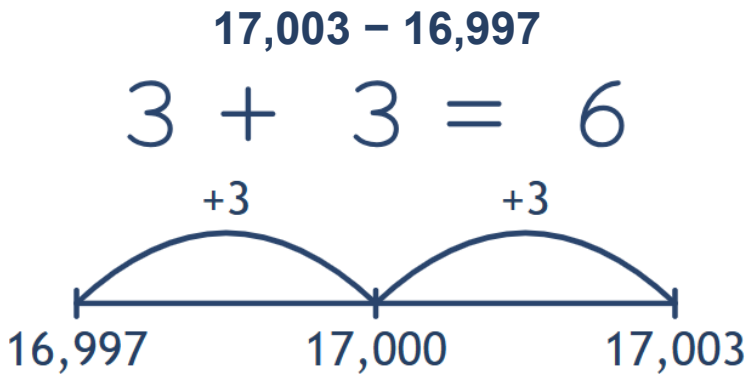
Expected answer 142,042 − 31,998 = 110044

Year 6 - Count Up to Find the Difference

When to choose this strategy

When the numbers are close, count up from the smaller one to find the gap. A nearby multiple of 10 can make the jumps easier.

Worked example



1. 17,003 and 16,997 are close together, so count up to find the difference. We count up from 16,997 to 17,000. That jump is 3.

2. Then we count up from 17,000 to 17,003. That jump is 3.

3. We add the jumps to find how far apart the numbers are. The difference is 6.

> **Remember:** The difference is the total of the jumps between the two numbers.

Check understanding

£8.00 − £6.49
Where will you start counting up? How do your jumps give the difference?

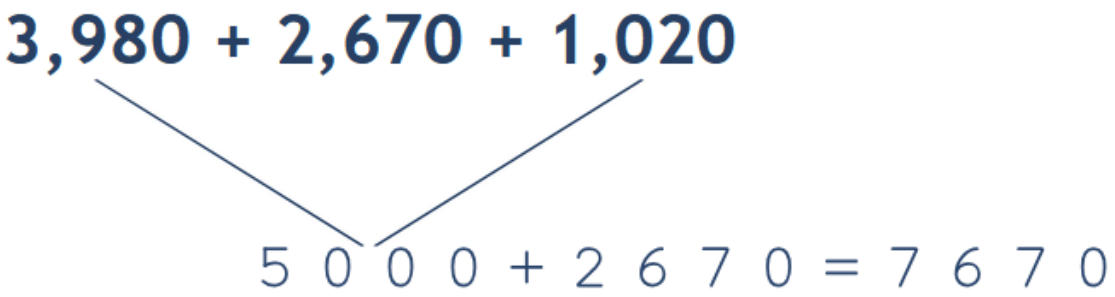
Expected answer £8.00 − £6.49 = 1.51

Year 6 - Choose a Pair to Add Three Numbers

When to choose this strategy

When adding three numbers, look at all three before choosing a pair. Use number bonds or doubles to make the next step easier. The useful pair can be anywhere in the question. Use the remaining number once after the first calculation.

Worked example



1. Choose 3,980 and 1,020 because 3,980 plus 1,020 makes 5,000, which is easy to add to. Keep 2,670 for the next step.

2. First, add 3,980 and 1,020 to get 5,000. Show the two numbers we chose and record their sum.

3. Next, 5000 + 2670 = 7670. We have used all three original numbers once.

4. Now, we check using subtraction, the inverse. 7670 − 2670 − 1020 = 3980. We get back to the addend we started with.

> **Remember:** Use each of the three numbers once. After adding your pair, add the remaining number.

Check understanding

7,600 + 12,100 + 2,400
Which pair gives you a helpful total? What will you add to that total?

Expected answer 7,600 + 12,100 + 2,400 = 22100

Year 6 - Use a Related Fact

When to choose this strategy

Use a known fact with hundreds or thousands. Keep the place value of the answer.

Worked example

42,000 + 16,000



1. 42,000 is 42 thousands. 16,000 is 16 thousands. Use the known fact 42 + 16 = 58.

2. The result is 58 thousands, which is 58,000.

> **Remember:** Name the unit in the answer. For example, seven tens is seventy.

Check understanding

70,000 + 16,000
Which fact will you use? What place value does your answer have?

Expected answer 70,000 + 16,000 = 86000

Year 6 - Use a Related Fact

When to choose this strategy

Use a known fact with hundreds or thousands. Keep the place value of the answer.

Worked example

42,000 − 16,000

$$42,000 - 16,000 = 26,000$$

1. 42,000 is 42 thousands. 16,000 is 16 thousands. Use the known fact 42 − 16 = 26.

2. The result is 26 thousands, which is 26,000.

> **Remember:** Name the unit in the answer. For example, three tens is thirty.

Check understanding

70,000 − 16,000
Which subtraction fact helps? How do you turn that fact into the answer?

Expected answer 70,000 − 16,000 = 54000

Year 6 - Partition to Add Without Exchanges

When to choose this strategy

When the digits add without an exchange, partition the number you add. Add one part at a time.

Worked example

4,206 + 2,003



1. The matching digits in 4,206 and 2,003 add to less than 10 in each place, so we can add without exchanging. Partition 2,003 into 2,000 and 3. When we partition to work mentally, we start with the largest place value. Add 2,000 to 4,206 to get 6,206.

2. Then add 3 to 6,206. The sum is 6,209. Check that the two parts make 2,003.

> **Remember:** Add each part once. Start with the largest place value.

Check understanding

5,379 + 4,020
How will you partition the number you add? Which part will you add first?

Expected answer 5,379 + 4,020 = 9399

Year 6 - Partition to Subtract Without Exchanges

When to choose this strategy

When there is enough to subtract in each place, partition the number you subtract. Subtract one part at a time.

Worked example

62,430 − 2,400

60, 430 − 400 = 60, 030

1. In each place, the digit in 62,430 is large enough to subtract the matching digit in 2,400 without exchanging. Partition 2,400 into 2,000 and 400. When we partition to work mentally, we start with the largest place value. Subtract 2,000 from 62,430 to get 60,430.

2. Then subtract 400 from 60,430. The difference is 60,030. Check that the two parts make 2,400.

> **Remember:** Check that each place has enough to subtract. Start with the largest part when you partition the number you subtract.

Check understanding

6,910 − 3,100
How will you partition the number you subtract? Which part will you subtract first?

Expected answer 6,910 − 3,100 = 3810

Year 6 - Use a Near Double

When to choose this strategy

When the two numbers are one apart, double the smaller number and add 1.

Worked example

1,250 + 1,251



1. 1,251 is one more than 1,250. Start with double 1,250, which is 2,500.

2. Add the extra 1 from 1,251 to 2,500. The sum is 2,501.

> **Remember:** Add 1 to the double of the smaller number because the larger number is 1 more.

Check understanding

3,200 + 3,201
Which number will you double? Why will you add 1?

Expected answer 3,200 + 3,201 = 6401

Year 6 - Use a Related Fact

When to choose this strategy

Use a multiplication or division fact with hundreds or thousands. Keep track of the unit you are counting.

Worked example

20,000 × 3

$$20,000 \times 3 = 60,000$$

1. 20,000 is 20 thousands. Use the known fact 20 × 3 = 60.

2. The result is 60 thousands, which is 60,000.

> **Remember:** Keep the unit from the known fact. For example, twelve tens is one hundred and twenty.

Check understanding

8,000 × 7
Which multiplication fact will you use? What place value does the answer have?

Expected answer 8,000 × 7 = 56000

Year 6 - Use a Related Fact

When to choose this strategy

Use a multiplication or division fact with hundreds or thousands. Keep track of the unit you are counting.

Worked example

15,000 ÷ 3



1. 15,000 is 15 thousands. Use the known fact 15 ÷ 3 = 5.

2. The result is 5 thousands, which is 5,000.

> **Remember:** Keep track of what one group contains when you divide the tens or hundreds.

Check understanding

63,000 ÷ 7

Which place-value unit gives you a related division fact? What is one group worth?

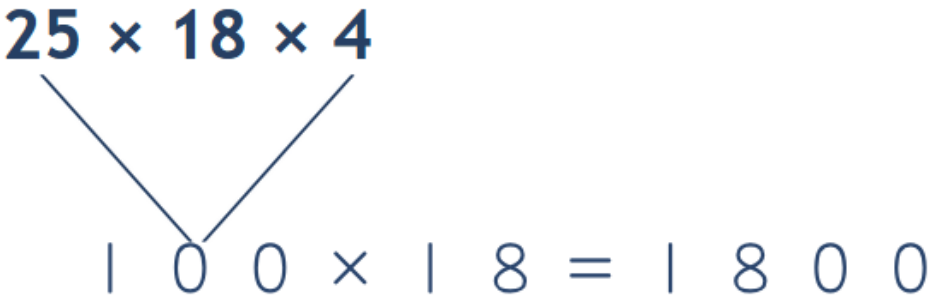
Expected answer 63,000 ÷ 7 = 9000

Year 6 - Choose a Pair to Multiply Three Numbers

When to choose this strategy

When multiplying three numbers, look at all three before choosing a pair. Use multiplication facts to make the next step easier. The useful pair can be anywhere in the question. Use the remaining number once after the first calculation.

Worked example



1. Choose 25 and 4 because 25 times 4 makes 100, which is easy to multiply by. Keep 18 for the next step.

2. First, multiply 25 by 4 to get 100. Show the two numbers we chose and record their product.

3. Next, 100 is 1 hundred. We know 1 × 18 = 18, so the product is 18 hundreds. 100 × 18 = 1800. We have used all three original numbers once.

4. Now, we check using division, the inverse. 1800 ÷ 18 ÷ 4 = 25. We get back to the factor we started with.

> **Remember:** Multiply the product of your pair by the remaining factor.

Check understanding

8 × 12 × 125
Which pair gives a product that is easy to multiply by? Which factor will you use next?

Expected answer 8 × 12 × 125 = 12000

Year 6 - Double Twice

When to choose this strategy

To multiply by 4, double twice. This is helpful when both doubles are easy to find.

Worked example

23 × 4



1. Four is two times two, so we can double twice. Double 23 first to get 46.

2. Now double 46, the result of the first step, to get 92.

> **Remember:** Double the result of the first doubling.

Check understanding

32 × 4

What is the first double? Which number will you double next?

Expected answer 32 × 4 = 128

Year 6 - Halve Twice

When to choose this strategy

To divide by 4, halve twice. This is helpful when both halves are easy to find.

Worked example

84 ÷ 4

42 ÷ 2 = 21

1. Four is two times two, so we can halve twice. Halve 84 first to get 42.

2. Now halve 42, the result of the first step, to get 21. Check that four equal shares of 21 make 84.

> **Remember:** Halve the result of the first halving.

Check understanding

36 ÷ 4

What is the first half? Which number will you halve next?

Expected answer 36 ÷ 4 = 9

Year 6 - Use a Factor Pair

When to choose this strategy

Split one factor into two smaller factors when multiplying by them in turn is easier.

Worked example

18 × 6



1. 6 is 2 times 3. Double 18 first to get 36.

2. Then multiply 36 by 3. Multiplying by 2 and then by 3 is the same as multiplying by 6. The product is 108.

> **Remember:** The two smaller factors must multiply to make the original factor.

Check understanding

13 × 6

Which factor will you split? What will you multiply by first and then second?

Expected answer 13 × 6 = 78

Year 6 - Multiply by 5 Using 10

When to choose this strategy

Five is half of ten. Multiply by 10 and halve the product.

Worked example

48 × 5

480 ÷ 2 = 240

1. Five groups are half as many as ten groups. Multiply 48 by 10 first to get 480.

2. Now halve 480. Five groups of 48 make 240.

> **Remember:** Halve the product you get after multiplying by 10.

Check understanding

34 × 5

What will you get after multiplying by 10? Why do you halve that amount?

Expected answer 34 × 5 = 170

Year 6 - Close to a Multiple

When to choose this strategy

If one factor is close to a multiple of 10, use that multiple first. Then add or subtract the extra groups.

Worked example

39 × 7



1. 39 is close to 40. Use 40 groups of 7 first to get 280.

2. We counted one group of 7 too many. Subtract 7 to get 273.

> **Remember:** Each extra or missing group is worth the other factor.

Check understanding

19 × 6

Which multiple will you use? What is one group worth, and how will you use it to adjust?

Expected answer 19 × 6 = 114

Year 6 - Change the Minuend When Close to a Clear Multiple

When to choose this strategy

If the minuend, the starting number, is close to an easy multiple, start at the multiple and subtract the same number. Then correct the difference.

Worked example

398 − 175

225 − 2 = 223

1. The minuend, the number we start with, is 398. It is close to 400, an easier number to work with. Start at 400 and still subtract 175 to get 225.

2. We started with 2 too much, so subtract 2. The difference is 223.

> **Remember:** Keep the number you subtract the same. If you started too high, subtract the extra. If you started too low, add the difference back.

Check understanding

297 − 146
What easier number will you start from? How will you correct the difference?

Expected answer 297 − 146 = 151

Year 6 - Same Sum

When to choose this strategy

When one number is close to a multiple, move the same amount from one addend to the other. The sum stays the same.

Worked example

236 + 399

235 + 400 = 635

1. 399 is close to 400. Move that amount from one addend to the other to keep the same sum. Add 1 to 399. Then subtract 1 from 236.

2. Now add 400 to 235. The sum is 635.

> **Remember:** Add to one addend and subtract that exact amount from the other.

Check understanding

384 + 499
How much will you move, and from which addend to which?

Expected answer 384 + 499 = 883

Year 6 - Same Difference

When to choose this strategy

When one number is close to a multiple, add the same amount to both numbers or subtract it from both. The gap stays the same.

Worked example

403 − 198

405 − 200 = 205

1. 198 is close to 200. Change both numbers by the same amount in the same direction to keep the same difference. Add 2 to 198. Then add 2 to 403.

2. Now subtract 200 from 405. The difference is 205.

> **Remember:** Change both numbers by the same amount in the same direction.

Check understanding

384 − 299
What change will you make to both numbers? Why will the difference stay the same?

Expected answer 384 − 299 = 85

Year 6 - Make an Easier Multiplication

When to choose this strategy

Halve one factor and double the other when this makes an easier multiplication. To multiply by 25, try dividing the other factor by 4 and multiplying by 100.

Worked example

16 × 35



1. We can turn 35 into 70, which is easier to multiply by. Halve 16 and double 35. Changing the factors in opposite directions by the same scale factor keeps the product the same.

2. Multiply 8 by 70. The product is 560.

> **Remember:** Multiply one factor by the scale factor and divide the other by it.

Check understanding

48 × 25

How could you make one factor easier? What matching change will you make to the other factor?

Expected answer 48 × 25 = 1200

Year 6 - Make an Easier Division

When to choose this strategy

Multiply or divide both numbers by the same amount to make an easier division. For division by 5, double both numbers and divide by 10.

Worked example

96 ÷ 16



1. We can change the divisor from 16 to 8, which is easier to divide by. Divide both numbers by 2. The quotient stays the same because both numbers change by the same scale factor.

2. Divide 48 by 8. The quotient is 6.

> **Remember:** Multiply both numbers by the same factor, or divide both by the same factor.

Check understanding

168 ÷ 12
How could you change both numbers to give yourself an easier divisor?

Expected answer 168 ÷ 12 = 14

Year 6 - Change an Addend When Close to a Whole Number (Decimals)

When to choose this strategy

If a number is close to a whole number, add the whole number first. Then correct the answer.

Worked example

8.6 + 2.99



1. The addend, the number we add, is 2.99. It is close to 3, an easier number to work with. Add 3 to 8.6 to get 11.6.

2. We added 0.01 too much, so subtract 0.01. The sum is 11.59.

> **Remember:** Keep the adjustment in the right place value. An extra two hundredths is 0.02.

Check understanding

11.18 + 3.98
Which whole number will you add first? What decimal amount will you adjust by?

Expected answer 11.18 + 3.98 = 15.16

Year 6 - Change the Subtrahend When Close to a Whole Number (Decimals)

When to choose this strategy

If the number you subtract is close to a whole number, subtract the whole number first. Then correct the answer.

Worked example

8.6 − 2.99



1. The subtrahend, the number we subtract, is 2.99. It is close to 3, an easier number to work with. Subtract 3 from 8.6 to get 5.6.

2. We took away 0.01 too much, so add 0.01. The difference is 5.61.

> **Remember:** If you took away too much, add back the difference between the two amounts. Keep track of tenths and hundredths.

Check understanding

11.18 − 3.98
What whole number will you subtract first? What decimal amount will you adjust by?

Expected answer 11.18 − 3.98 = 7.2

Year 6 - Choose a Pair to Make 1

When to choose this strategy

When two decimals add to 1, add that pair first. Then add the third number.

Worked example

0.46 + 0.27 + 0.54

1 + 0.27 = 1.27

1. 0.46 is 46 hundredths and 0.54 is 54 hundredths. They make 100 hundredths, or 1 whole. Add that pair first.

2. Add the remaining 0.27 to 1. The sum is 1.27. Check that you used all three original numbers once.

> **Remember:** One whole is ten tenths or one hundred hundredths. Use the same unit when you look for the pair.

Check understanding

0.73 + 0.16 + 0.27
Which two decimals make one whole? What do you still need to add?

Expected answer 0.73 + 0.16 + 0.27 = 1.16

Year 6 - Use a Nearby Multiple to Divide

When to choose this strategy

When the number is close to ten groups of the divisor, start with ten groups. Work out how many groups need to be added or taken away.

Worked example

171 ÷ 19



1. 171 is close to ten groups of 19. Start with ten groups. Ten times 19 is 190.

2. 171 is one group of 19 fewer than 190. So there are 9 groups. Check that 9 times 19 gives 171.

> **Remember:** Adjust the number of groups. The divisor tells you how much is in each group.

Check understanding

144 ÷ 18
What are ten groups of the divisor worth? How many groups will you need to add or take away?

Expected answer 144 ÷ 18 = 8

Year 6 - Change the Subtrahend When Close to a Whole Number (Fractions)

When to choose this strategy

If the number you subtract is close to a whole number, subtract the whole number first. Then add back what you took away in excess or subtract the amount still to take away.

Worked example

4 2/7 − 1 6/7



1. The subtrahend, the number we subtract, is 1 6/7. It is close to 2, an easier number to work with. Subtract 2 from 4 2/7 to get 2 2/7.

2. We took away 1/7 too much, so add 1/7. The difference is 2 3/7.

> **Remember:** Adjust by the difference between the original fraction and the whole number used. Keep the size of the fractional parts the same.

Check understanding

5 4/6 − 3 5/6

Which whole number will you subtract first? How does the fraction tell you the adjustment?

Expected answer 5 4/6 − 3 5/6 = 1 5/6

Year 6 - Divide the Numerator When It Divides Exactly

When to choose this strategy

If the whole number divides exactly into the numerator, divide the numerator and keep the denominator.

Worked example

6/7 ÷ 3

$$\frac{6}{7} \div 3 = \frac{2}{7}$$

1. The numerator, 6, tells us there are 6 equal parts. Share them into 3 equal groups. Divide 6 by 3 to find how many parts are in one group.

2. Each group gets 2/7. The parts are the same size, so keep the denominator, 7.

> **Remember:** Share the parts equally. The denominator stays the same because the parts stay the same size.

Check understanding

6/11 ÷ 2

How many parts are in one group? What stays the same in the fraction?

Expected answer 6/11 ÷ 2 = 3/11

Year 6 - Recognise a Half or a Quarter

When to choose this strategy

Look for a half or a quarter written as a fraction, a decimal or a percentage. Halve once for a half. Halve twice for a quarter.

Worked example

25% of 84

$$42 \div 2 = 21$$

1. 25 per cent is equivalent to one quarter. Halve 84 to get 42.

2. Halve 42 again to get 21. Halving twice splits the whole into four equal parts. A quarter of 84 is 21.

> **Remember:** Halve once for one half. To find one quarter, halve the first half.

Check understanding

0.5 × 28
Which fraction do you recognise? How many times will you halve?

Expected answer 0.5 × 28 = 14

Year 6 - Subtract a Percentage from the Whole

When to choose this strategy

Use this when the percentage is close to 100 per cent. Find the small percentage left over, then subtract that amount from the whole.

Worked example

95% of 240

240 − 12 = 228

1. 95 per cent is 5 percentage points below 100 per cent. We need to find 5 per cent of 240. First, divide 240 by 10 to find 10 per cent. That gives 24.

2. Five per cent is half of ten per cent. Halve 24 to get 12.

3. 5 per cent of 240 is 12. Subtract 12 from 240 to get 228. Check that the two amounts add back to 240.

> **Remember:** Work out the amount for the percentage left over before subtracting it from the whole.

Check understanding

95% of 180
How much of 100 per cent is left over? What amount will you subtract?

Expected answer 95% of 180 = 171

Year 6 - Swap the Percentage and the Number

When to choose this strategy

Swap the percentage and the number if that makes a familiar percentage, like a half or a quarter.

Worked example

12% of 50



1. 50 per cent is equivalent to a half, so it is easier to find 50 per cent of 12. Swap the two numbers and put the percentage sign with 50.

2. Both calculations multiply 12 by 50 and divide by 100. Find a half of 12 to get 6.

> **Remember:** Put the percentage sign with the number that becomes the new percentage.

Check understanding

14% of 50
What percentage will you find after the swap? Why is it easier to work out?

Expected answer 14% of 50 = 7