MATHEMATICS
our numbers

Dealing with numbers: vocabulary

- + means ⟶ add: *5* ***plus*** *7* equals *or adds 12*.
- - means ⟶ subtract: *12* ***minus*** *8* equals *4*.
- X means ⟶ multiply: *6* ***multiplied*** *3* equals *18*.
- ÷ means ⟶ divide: 20 ***divided*** 4 equals 5.
- = means ⟶ **makes**, **is** or ***equal*** to.
- < means ⟶ **less** than: *10 is less than 12*.
- > means ⟶ **greater** than: *18 is greater than 16*.
- Addition, subtraction, multiplication and division.

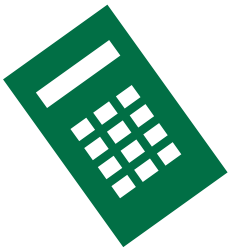
Addition	**Subtraction**
Add Increase Enlarge Combine Plus Together More Sum/find the sum of Total/find the total of	Subtract Deduct Take away/from Minus Less Fewer Reduce Decrease Take from Find the difference between
Multiplication	**Division**
Multiply Multiplied by Groups of Times Find the product of Lots of Times table Double/Triple/Quadruple...	Share equally Divide by Group Share Divide Partition Divide into Divisible by Find the quotient A half/a third/a quarter or fourth/...

Write mathematical sentences and ask a classmate to read them:

Work in pairs: say a word or expression and ask your partner the title of the box.

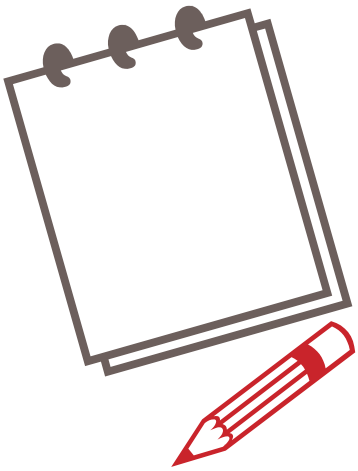
Calculation

- To **calculate** something means to work it out. When you have worked something out, you have done a calculation. When you do calculation on your head, you are doing **mental calculations**. If you need to write things down to work them out, you are doing written calculations. We can use calculators or, in some places, abacuses, to help us calculate or check calculations.



In some places, calculations are made with an abacus.

Very difficult calculations are worked out on a

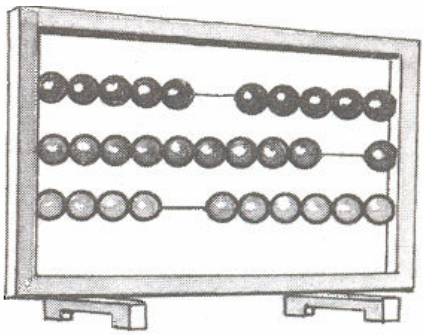


A hand calculator is used for making mathematical calculations .

A till or cash register or drawer for money is used in a shop, bank,

You can do mental calculations using your head.

You can work your calculations out with a



Addition

- Adding is putting two or more sets of quantities together: we add them together to work out how many objects are in total.
- 11+ 9 + 6= 26 → You say: “eleven plus nine plus six equals twenty-six”
  “eleven plus nine plus six is twenty-six”
  “eleven plus nine plus six makes twenty-six”.

Work this additions out and read them aloud:

a. 5 + 6 + 23 + 11 =
b. 24 + 58 + 15 + 12 + 8 =
c. 250 + 350 + 125 =
d. 346 + 123 + 432 + 25 + 15 =
e. 550 + 450 + 600 + 400 =
f. 1500 + 600 + 300 + 100 + 50 =
g. 2047 + 1102 + 938 + 66 + 17 =
h. 54.591 + 3207 + 704 + 79 =
i. 70.269 + 10.022 + 18 + 2 =
j. 6.814.357 + 125. 903 + 13.555 + 3044 + 879 =

Dictate quantities to a partner, then ask him/her to work them out; check totals with a calculator. If it is correct, then you exchange tasks, if it isn’t, you dictate again… you score one point when you get a correct addition. Agree forehand about the number of digits you are going to use in each round.

Player	Tally	Total score

And the winner is…

PRACTISE

Calculate and answer the questions:

1. What is the sum of the six first multiples of 2?

2. From the sum of 65 and 35 take 15.

3. Add 75 to the difference between 450 and 125.

4. Which number is nearer to 80.000; 79.600 or 81.900?

5. Make the largest number possible using these digits: 7 4 9 0 3 8.

6. Make the smallest number possible using these digits 7 4 9 0 3 8.

7. What is the value of the digit 9 in the number 80.954.

8. Write in figures: eighty-nine thousand seven hundred and fifty-six.

9. Make 6974 bigger by 861.

Add for the Planet!

Each ton of recycled paper saves 17 trees and 380 gallons of oil.

Can you express this quantity in kilos and litres?

Can you think of a few tips to reduce the paper waste in the school? We use different kinds of paper.

Subtraction

- Subtract is to take away.
- 14 - 5 = 9 → You say: "fourteen minus five equals (or makes, or is…) nine."

Work this subtractions out and read them aloud:

a. 11 - 6 =
b. 58 - 12 =
c. 250 - 125 =
d. 346 - 123 =
e. 550 - 400 =
f. 1500 - 700 =
g. 2075 - 1100 =
h. 54,500 - 3200 =
i. 70,950 - 10,435 =
j. 8,429,271 - 2,125,000 =

Dictate quantities to a partner, then ask him/her to work them out; check totals with a calculator. If it is correct, then you exchange tasks, if it isn't, you dictate again… you score one point when you get a correct result. Agree forehand about the number of digits you are going to use in each round.

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And the winner is…

PRACTISE

Answer the following questions:

1. By how much is 83,367 greater than 80,367?

2. How much bigger is 55,043 than 36,094?

3. How many minutes are there in 6 hours and 13 minutes?

4. How many more days has a year than a season?

5. Write all the numbers that can be made from 683 in size order (from smaller to largest).

6. Rearrange these numbers in size order, highest first:
   78 807 1009 708 1010 925 81

7. Which is more? 904,106 or 899,999?

8. Which is less? 1,000,321 or 1,321,000?

9. Rearrange these numbers from lowest to highest:
   78,645 709 8316 92,501 4412 710

10. From the sum of 854 plus 901 take away 215.

Write all the words used to say **big** and **small** in the questions above.

Big	Small

PRACTISE

Lake Chad has shrunk from 17,800 square kilometres to 3900 square kilometres in the last 20 years.

Answer the following questions:

1. Where is Lake Chad?

2. How many times bigger used to be Lake Chad 20 years ago than now?

3. In your opinion, why is it happening?

4. Can you think about other changes in other places that could be caused for the same, or similar, reason?

Multiplication

- Multiplying is adding several lots of quantities together.
- 14 x 4 = 56 → You say: “fourteen multiplied by four equals (or makes, or is…) fifty-six.”
  You also can say: “Find the product, … times… double, triple or treble, quadruple”.

5 4	Multiplicand
x 6	Multiplier
324	Product

Work this multiplications out and read them aloud:

a. 5 x 6 =
b. 8 x 10 =
c. 25 x 5 =
d. 3 x 3 =
e. 50 x 4 =
f. 1500 x 2 =
g. 75 x 4 =
h. 50 x 7 =
i. 240 x 100 =

Dictate quantities to a partner, then ask him/her to work them out; check totals with a calculator. If it is correct, then you exchange tasks, if it isn’t, you dictate again… you score one point when you get a correct result. Agree forehand about the number of digits you are going to use in each round.

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The Multiplication Tables

Some hints to help you with the multiplication tables:

- Remember that multiplication is repeated addition.
- Remember that multiplication is inverse division.
- Remember that the order of the numbers in multiplication tables does not matter.
- Look for twice known facts (6 x 3 = 18; 3 x 6 = 18) to help you remember results.
- Practice skip counting (counting in multiples) forward and backwards.
- Look for doubles, triples... tens...
- Observe double results for different numbers in the same table:

  6 x 2 = 12
  6 x 4 = 24
  6 x 8 = 48
  6 x 16 = 96...

- Look for near doubles, near tens... (one set more or one set less):

  6 x 9 = *?* → 6 X 10 = 60 → 60 – 6 = 54 → 6 X 9 = 54

- Look for patterns: which tables have even numbers as a result?
  which numbers are involved in the results of other tables

This is a multiplication square: you can use it to find patterns to work out calculations and tips to remember the multiplication tables. You can use it to check multiplications.

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

Practice your multiplication tables with a partner using the multiplication square to check the results.

PRACTISE

Answer the following questions:

1. Multiply in your head 4000 x 900. How have you done it?

2. 0,5 of a number is 65. What is the number?

3. A television programme started at 5,45pm. The programme lasted 2hours and 20 minutes: at what time did it finish?

4. A pencil costs €1.85. How much would you pay for 18 pencils? If you pay with two €20 notes, what change would you get?

5. 3 out of every 5 children in a club have play football. If 30 children play foot ball, how many children play football?

6. Paul has spent $^{2}/_{5}$ of his money, he has $^{1}/_{5}$ in his wallet, and the rest, €640 in the bank. How much money had he altogether?

7. If you get 17 out of 20 questions right: what will be the decimal fraction of the correct answers?

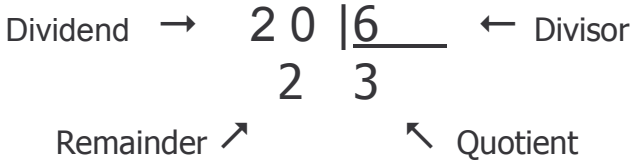
Play with a partner. Throw two or three dices each and multiply the numbers. Check each other's multiplications (you can use the multiplication square or a calculator if necessary). The player with the largest answer earns a point. The player who wins ten times is the winner of the game..

Division

- To divide something is to split it up into a number of equal parts.
- Division is the opposite of multiplication.
- 54 : 6 = 9 → You say: “Fifty-four divided by six equals (or makes, or is…) nine.”

Work this divisions out and read them aloud:

a. 9 : 3 =
b. 8 : 2 =
c. 75 : 5 =
d. 300 : 50 =
e. 944 : 8 =
f. 2500 : 5 =
g. 64 : 4 =
h. 27 : 9 =
i. 749 : 6 =



Dictate divisions to a partner, then ask him/her to work them out; check totals with a hand calculator. If it is correct, then you exchange tasks, if it isn’t, you dictate again… you score one point when you get a correct result. Agree forehand about the number of digits you are going to use in each round.

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PRACTISE

Answer the following tricky questions:

1. What is the sum of all the numbers here that are divisible by 5?
   5, 42, 30, 45, 420, 685, 1089

2. Find out how many times can you subtract 36 from 1008. Which is the easiest way to work it out?

3. ¼ of a number is 96. What is ⅓ of the same number?

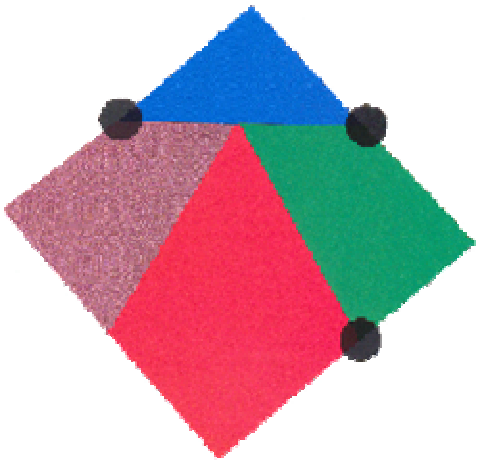
4. Richard weighs 75 kg. His son weighs 0.4 of Richard's weight. How heavy is his son?

5. Express 9 as a decimal fraction of 20.

6. What is 0.8 of 130?

7. Which of these is a prime number? 8, 9, 15, 19, 21, 27.

8. The difference between two numbers is 36. The smaller number is 368. What is the larger number?



THE HINGED SQUARE

Play with a partner:

If you leave the blue triangle fixed and swing the other pieces around their hinges, you can rearrange the pieces to form a new shape. Just by looking, can you guess what the new piece will be?

Mixing operations

Try to solve this operations in different ways and see if the answers vary:

a. 6x7–5→

b. 5+4x3→

c. 39–6+7→

d. 29–5x3→

e. 16+9+8→

f. 88÷4–2→

g. 88÷4x2→

h. 15x4÷3→

i. 18+3÷3→

j. 24–8÷2→

→ Why is it important to make sure you can do the operations in the right order?

The order is always this:

Brackets→Multiplication→Division→Addition→Subtraction

→(6 + 4) + 7 x 3 – 5 = 10 + 7 x 3 – 5 = 10 + 21 – 5 = 31 – 5 = 26

→6 x (5 + 7) – (81 ÷ 9 + 3) = 6 x 12 – (9 + 3) = 72 – 12 = 60

1. Use the rule to solve these operations:

   a. 9 + (4 – 2) x 6 – 3 =

   b. 67 + 18 – 36 ÷ 6 =

   c. (11 – 5) x (14 ÷ 7) + 8 =

   d. 5 x (8 + 7) – (24 ÷ 3 + 6) =

   e. (72 ÷ 8 + 6 x 3) ÷ 9 + 2 =

   f. 5 x 8 + 6 – (3 + 25 ÷ 5) =