The National
Numeracy Strategy

Calculator activities

The activities in this booklet make use of a calculator as a teaching and learning aid. They are intended to help children in Key Stage 2 to understand and practise the mathematical ideas and skills which the activities require.

The activities may be copied freely by schools in England taking part in the National Numeracy Strategy.

Words

Each person in the group should have a calculator.

One person reads out the numbers. The others enter them into their calculator, pressing the + key after each one.

Did everyone get the check number?

Set 1

Forty-three
Eight-six
Ninety
Eighteen
Thirty-nine
Fifty-seven

Check number: **333**

Set 2

One hundred and fifty-six
Two hundred and seven
Seven hundred and five
Three hundred and twelve
Six thousand, one hundred and forty
One thousand and eighty

Check number: **8600**

Triples

Use only these numbers and the + sign.

47 17 39 23 38

Complete these.

... + ... + ... = 109

... + ... + ... = 78

... + ... + ... = 124

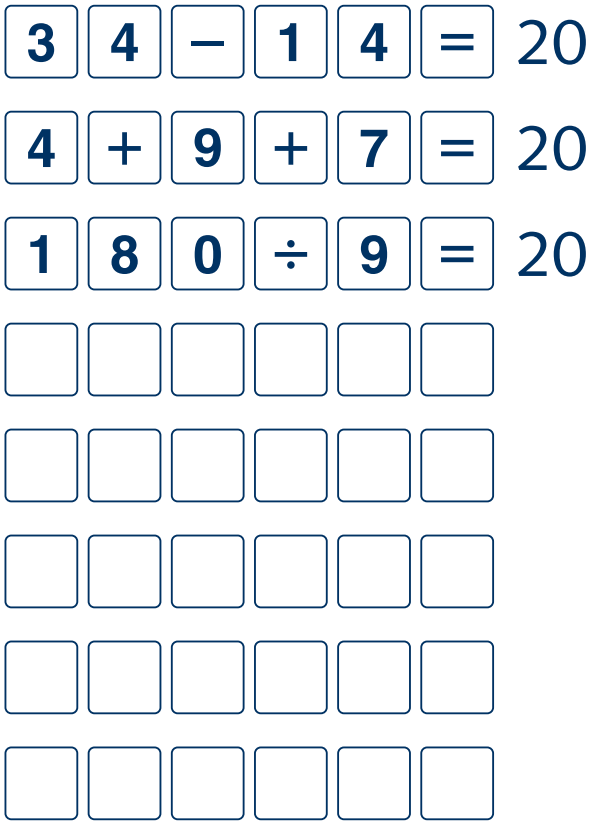
... + ... + ... = 103

... + ... + ... = 102

Six keys

Investigate with your calculator.

Use just six keys to get 20 in the display.



Choose another target.

Investigate ways of reaching it by pressing just five keys, or seven keys.

Boxes

Fill in the boxes. Use only these numbers: 149, 217, 269, 282, 306.

a. ☐ − ☐ = 68

b. ☐ − ☐ = 55

c. ☐ + ☐ = 588

d. ☐ − ☐ = 157

e. ☐ − ☐ = 65

f. ☐ + ☐ = 431

g. ☐ + ☐ = 486

h. ☐ − ☐ = 37

i. ☐ + ☐ = 523

j. ☐ + ☐ = 418

Calculator Nim

This is a game for two players with one calculator between them.

You may use only these keys.

Take turns to add a single-digit number to what is already in the calculator.

The winner is the player who makes the display show 30.

If you go over 30 you lose.

Variations

Choose a different target number.

Play the game using subtraction. In this case you must start by entering a number such as 60, and set a target of a smaller number, such as 25.

Make the target 200 or more, and add two-digit numbers.

Play the game using multiplication. In this case start by putting 1 in the display, and set a target such as 1000.

Bull's eye

Choose a starting number (for example, 17) and a target number (for example, 100).

Find which number to multiply the starting number by to give the target number, correct to an agreed degree of accuracy.

One, zero, five

Use only these keys on your calculator.

Make each of these numbers. Press as few keys as possible.

16, 37, 88, 638

Record how you did it.

Make 1000

Choose any four numbers from the grid and add them up.

275	382	81	174
206	117	414	262
483	173	239	138
331	230	325	170

Find as many ways as possible of making 1000.

Only one number

17 can be changed to 1 by using only the number 4 key, together with any of the operation keys. For example,

$$17 \times 4 = 68$$
$$- 4 = 64$$
$$\div 4 = 16$$
$$\div 4 = 4$$
$$\div 4 = 1$$

Find other numbers that can be changed to 1 using only the 4 key and any operation.

Try other number keys, e.g. 5 or 3.

$$17 - 5 = 12$$
$$- 5 = 7$$
$$- 5 = 2$$
$$\times 5 = 10$$
$$- 5 = 5$$
$$\div 5 = 1$$

$$17 \times 3 = 51$$
$$- 33 = 18$$
$$\div 3 = 6$$
$$- 3 = 3$$
$$\div 3 = 1$$

What did you discover?

Down on the farm

There are some rabbits and chickens in a field.

Together they have 35 heads and 94 feet.

How many rabbits?

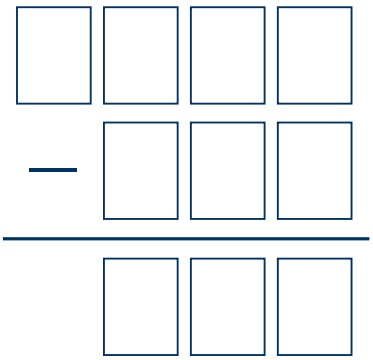
How many chickens?

Ten cards

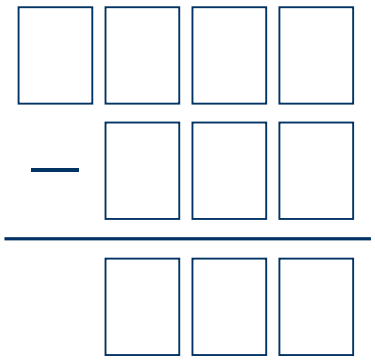
Use these ten cards.

0	1	2	3	4	5	6	7	8	9

Arrange the cards to make this answer correct. Use each card.



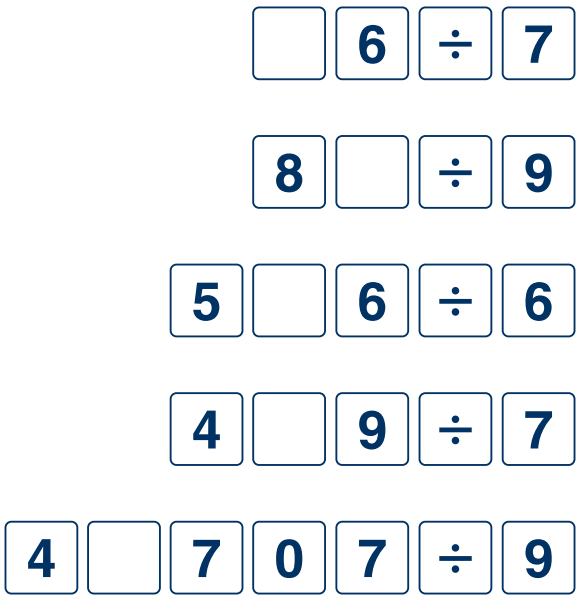
Find another way of making the correct answer using each card.



Whole numbers

Some of the digits in these divisions are missing.

The answer to each division is a whole number. Find the missing digits.



Largest and smallest

You may use each of these keys only once.

What is the largest number you can make?
What is the smallest number you can make?

Try with five other digits.

Try using 1, 2, 3, 4, 5, 6, or 1, 2, 3, 4, 5, 6, 7.

Can you find a rule for making the biggest product?

Only these keys

You may press only these keys, but as often as you like.

Find which of the numbers from 1 to 20 you can get.
What is the largest number you cannot get?

You may press only these keys, but as often as you like.

Find which of the numbers from 1 to 30 you can get.
What is the largest number you cannot get?

Try some other pairs of numbers.
Keep a record of the largest number you cannot make.
Can you find a rule?

Broken calculator

The calculator is broken.
Only the keys shown work.

Use just these keys.
Can you make every number from 1 to 25?

Now use just the keys 2, 4, 6, 8, and the ÷ and = keys.
Can you make all the numbers up to 32?

Elevenses

Choose a two-digit number	37	
Reverse it	73	
Add them together	110	This is divisible by 11.

Try a four-digit number…	1653	
Reverse it	3561	
Add them together	5214	Is this divisible by 11?

Try other two- or four-digit numbers.
Does it always work?

What about three-digit numbers?

Can you find a rule?

Missing digits

Each box represents a missing digit. Can you find out what it is?

a. $1\square 2 \times 14\square = 24\square 40$

b. $93 \times 8\square = 7\square\square 8$

c. $83\square \times \square 9 = 41013$

d. $\square\square 6 \times 84\square = 232668$

e. $3\square\square \times \square 7 = 14171$

Crossover

This is a game for two players.

Each player has a starting number.
One player adds to and the other subtracts from their total.

The totals move towards each other.
The aim is to avoid meeting or crossing over the other player's total.

The first to meet or cross over loses.

Example

Player A		**Player B**	
Start	13	Start	34
+ 6	19	− 3	31
+ 10	29	− 1	30
+ 0.5	29.5	− 0.1	29.9
+ 0.25	29.75	− 0.14	29.76

and so on.

Invaders

Put a six-digit number in the display.

You must change each digit to zero in as few turns as possible.

On each turn you can use only one number key, the zero key as often as you like, and the + key.

Example

Start number	Key presses	Display
123476	+ 4	123480
	+ 2 0	123500
	+ 5 0 0	124000
	+ 6 0 0 0	130000
	+ 7 0 0 0 0	200000
	+ 8 0 0 0 0 0	1000000

Variation

This time use decimals: for example, 451.326.
Use subtraction.
Shoot down the digits to zero in the order 1, 2, 3, 4, 5, 6.

Missing operations

Each box represents a missing operation (+, −, × or ÷).
Can you find out what it is?

a. (37 ☐ 21) ☐ 223 = 1000

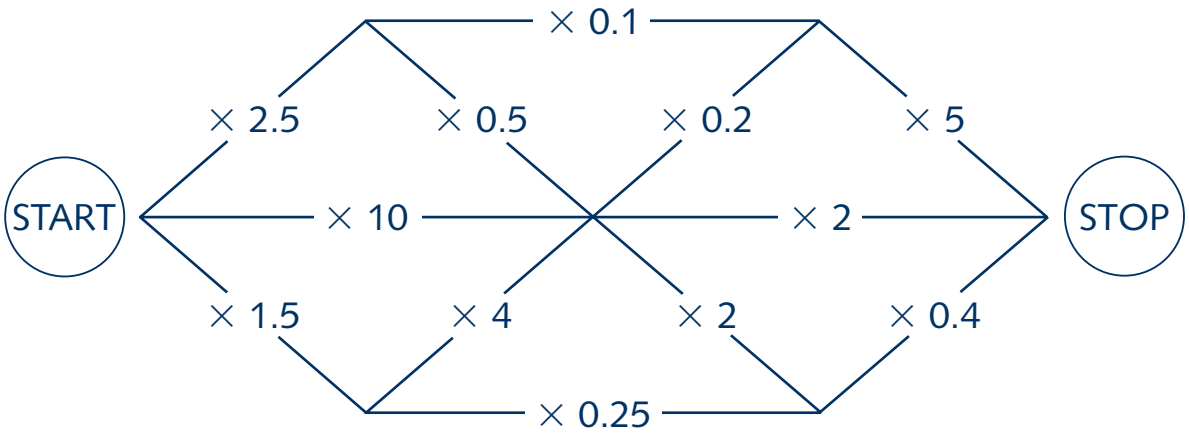
b. (756 ☐ 18) ☐ 29 = 1218

c. 27 ☐ (36 ☐ 18) = 675

d. 31 ☐ (87 ☐ 19) = 2108

Maze

Start with 1 in your calculator display.



Choose a route from START to STOP.
You can travel along each path once.
Multiply the number in your display by the number on the path.
The aim is to finish with 5 in the display.

Products

A game for two players or teams, each with their own coloured pen.

Take turns to choose two of these numbers.

7 16 27 31 46 56 67 71

Multiply them together. If you can, ring the answer on the grid.

506	1426	217	837	1136	3266
4757	1809	1242	3082	341	112
77	496	3752	432	176	2201
1917	736	737	189	2576	1072
616	322	896	781	3976	497
469	1512	1736	2077	392	297

The winner is the first team with four rings in a line in any direction.

Notes

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