

Two strikes

What do I need?

- Two dice

Who's it for?

Pupils in Years 6 to 9

What skills does it develop?

- Mental arithmetic
- Understanding risk
- Understanding probability
- Social skills

What happens?

This is a game for two or more players.

Explain to the players that the aim is to be the first to reach 100 points. They each have a turn at throwing the dice, but they can throw the dice as many times as they want during their turn, and choose when to stop. With each throw they add the score to the total for this turn. At the end of their turn they add the total for this turn to their running total.

The catch is that whenever a player throws a 1, this cancels out their score for the whole of this turn, and their turn ends. If they throw a double 1, they lose all the points they have gained so far, and their turn ends.

The winner is the first to reach 100 points.

Drop dead

What do I need?

- Five dice

Who's it for?

Pupils in Years 6 to 9

What skills does it develop?

- Mental arithmetic
- Understanding probability
- Understanding chance
- Social skills

What happens?

This is a game for two or more players with five dice. Explain to the players how the game works.

Each player has a turn consisting of the following steps:

- The player throws all the dice.
- If there is no 2 or 5 among the numbers thrown, the player adds up the numbers on all the dice and adds them to their total score. They then throw all the dice again.
- If the numbers thrown include a 2 or a 5, the player doesn't score anything. They put all the 2s and 5s to one side. They then throw the remaining dice.
- The turn carries on until the player throws a 2 or a 5 with the last die.

When everyone has had a turn, the winner is the player the highest score.

Fibonacci



What do I need?

- Photocopies of 'Try this'
- Pens/pencils and paper

Who's it for?

Pupils in Years 6 to 9

What skills does it develop?

- Generating and investigating sequences

What happens?

Talk to pupils about Fibonacci. Explain that he was probably the main link between Arabian mathematics and the beginnings of Western European mathematics, and that one of the things that we remember him for is his number series. Give out copies of 'Try this' and ask pupils to see if they can work out the rule that it follows (add two numbers to get the next). Once they have done this, they can work through all the other examples – some are harder than others!

Try this

Here is Fibonacci's series. Can you work out what number comes next?

1 1 2 3 5 8 13 21 34 55 89 ...

You can start with any two numbers – for example:

0.5 0.7 1.2 1.9 3.1 5 8.1 ...

Fill in the missing numbers in the Fibonacci series below.
(Remember that $a + a = 2a$ but that $a + 1 + 1 = a + 2$.)

1 5 10

2 5 9

3 5 12

4 6 21

5 0 10

6 a a

7 a b

8 a 1

9 a b

10

Use the last row to make up your own series.

Four field Kono



What do I need?

- A pencil
- Squared paper, with a grid that is four squares by four squares
- Sixteen counters (eight of one colour, eight of another)

Who's it for?

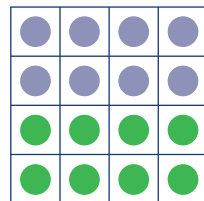
Pupils in Years 6 to 9

What skills does it develop?

- Strategy
- Social skills
- Making decisions

What happens?

This is a simple board game for 2 people. Draw the board below on the squared paper (2cm for each square). Each player has 8 counters. Set out the board as shown below.



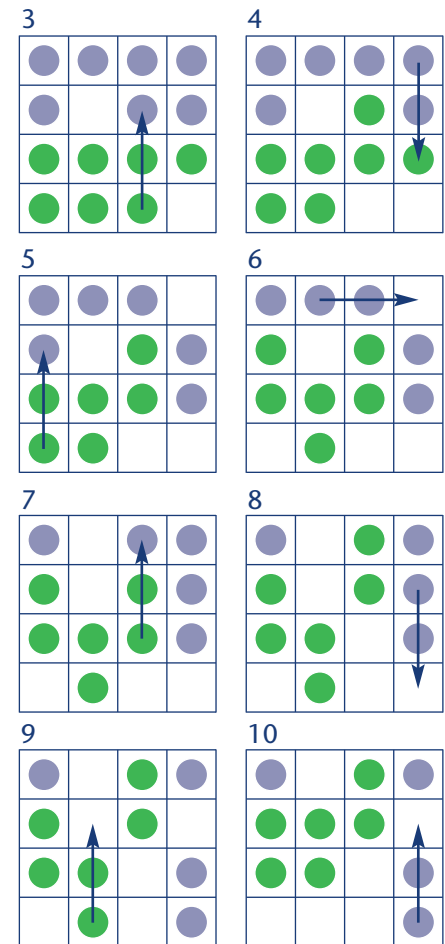
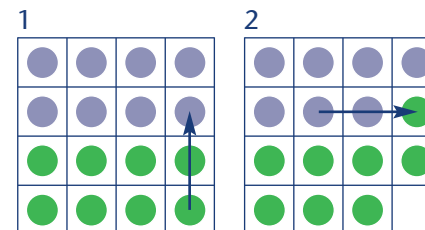
Explain that the aim is to capture as many of your opponent's pieces as possible.

Here are the rules:

- You capture your opponent's counters by landing on them.
- You move by jumping over your own piece.
- You can only jump over one counter at a time.
- You can only jump forwards, backwards or sideways.
- You cannot jump diagonally.
- If you cannot jump, you cannot move.

The winner is the one with the most pieces at the end.

Here is an example of a typical game of Four field Kono:



Green will win with the next move.

Catch a turkey



What do I need?

- A pencil
- Squared paper, with a grid that is four squares by four squares
- Three counters (two of one colour, one of another)

Who's it for?

Pupils in Years 6 to 9

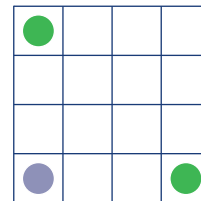
What skills does it develop?

- Strategy
- Social skills
- Making decisions

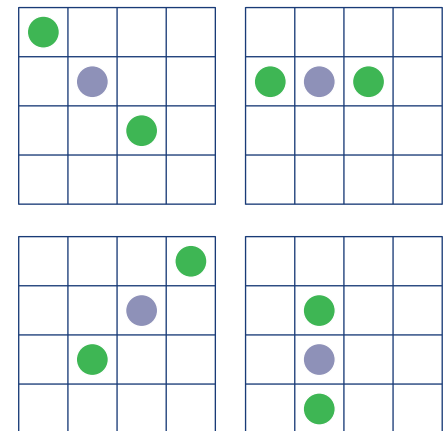
What happens?

This is a simple board game for two players. It is about two farmers trying to catch a turkey. One player has two green counters (the farmer). The other has a blue counter (the turkey). The counters can move one square in any direction.

This is the start position.



Players take it in turns to move, with the turkey starting. The farmer is aiming to 'catch' the turkey by getting one of their counters on each side of the turkey in any direction (straight or diagonal), as shown. The turkey is aiming to escape from the farmer.



The game finishes when the turkey is captured. During the game, the players count how many moves it takes the farmer to catch the turkey and this number of points is awarded to the turkey. At the end of one game, the players swap roles. The winner is the one with the most turkey points.

Number bingo



What do I need?

- Bingo cards with numbers appropriate to the age of the pupils. You could use card or a wipeboard and write the numbers on with a marker pen, or you could attach a sheet with the numbers written on them.
- A stopwatch or clock with a second hand

Here is an example of a bingo card you could use.

16	10	27	100
121	54	45	81

Who's it for?

This game has been devised for children at Key Stages 1 and 2, but you can adapt it to make it suitable for pupils of any age.

What skills does it develop?

This game is an exciting way to develop and practise:

- instant recall of multiplication facts in the appropriate tables
- consolidating facts such as square numbers, multiples, primes, odds and evens
- recognition and extension of number sequence.

What happens?

- Give out bingo cards to all children, or groups/pairs of children.
- Explain what you want them to do: when you call out a calculation (such as 9×6), the children should touch the number that is the answer.
- Call out a series of calculations, getting faster and faster each time and varying the operation.

Three's a crowd



What do I need?

- A board with a selection of two and three digit numbers
- A stopwatch or clock with a second hand

Here's an example of a number board you could use:

123	36	49	23	9	97	31
180	161	72	64	27	82	41
54	6	27	68	55	45	14

Who's it for?

This game has been devised for pupils at Key Stages 2 and 3, but you can adapt it to make it suitable for children of any age.

What skills does it develop?

This game is an exciting way to develop and practise:

- carrying out calculations with more than one step
- recognising number patterns
- checking results by using an appropriate method
- using language associated with number.

What happens?

- Give all children, or groups/pairs of children, a number board, as outlined under 'What do I need?'
- Explain to pupils the rule for working out whether a number is divisible by three or not.
- As you call out each number from the board, the children have to work out whether that number is divisible by three or not, and then cross it off.
- You can adapt this game in different ways. For example, you can use one large board for the whole group. Write a set of numbers on it and give one of the pupils a time limit in which they must try to identify all the numbers that are divisible by three. Repeat this with a new set of numbers and a different pupil. With a pupil who finds this easy, set a shorter time limit to make it more challenging.

Magical 37

What do I need?

A wipe-board with five or six calculations written on it, showing 37 being multiplied by different numbers, as shown below.

$$37 \times 3 = 111$$

$$37 \times 6 = 222$$

$$37 \times 9 = 333$$

$$37 \times 12 = 444$$

$$37 \times 15 = 555$$

Who's it for?

This activity has been devised for pupils at Key Stages 2 and 3, but you can adapt it to make it suitable for children of any age.

What skills does it develop?

This game is an exciting way to develop and practise:

- recognising and extending number sequences and patterns
- investigating and checking possibilities in order to solve a problem
- understanding and reading numbers
- using language related to number.

What happens?

- Explain to the children that this is a 'magic' pattern of numbers and answers that can be extended.
- Ask them to extend the pattern as far as 999.
- Allow them to discover what happens and then ask them to explain to you what they think might happen further on in the pattern.
- Ask them to explain any other patterns they can see within the one shown. For example, the sum of the digits in the answer to each of the calculations is the number being multiplied by 37 – for example:

$$1 + 1 + 1 = 3$$

$$2 + 2 + 2 = 6 \text{ and so on.}$$