Y6 & Y7 Statistics and Probability Starters

A Spire Maths Activity

https://spiremaths.co.uk/ia/
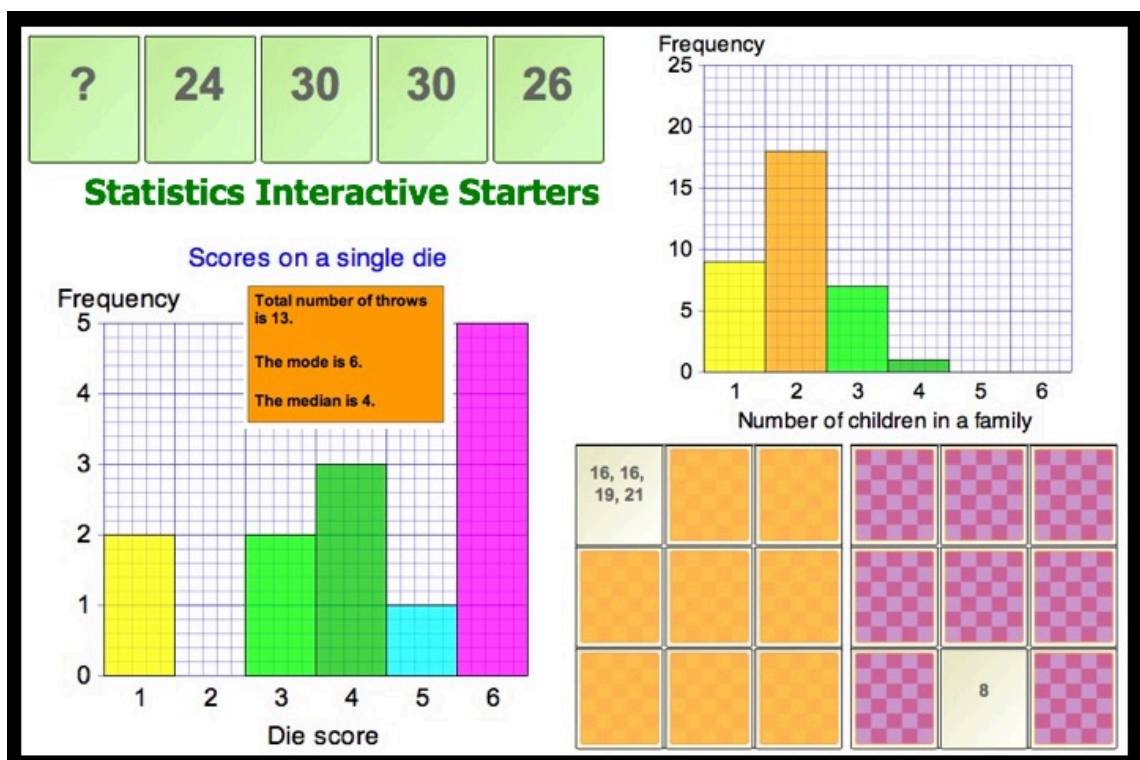
There are five Statistics and Probability Interactives: each with three levels. The titles of the interactives are given below. Brief teacher notes are given for each interactive.

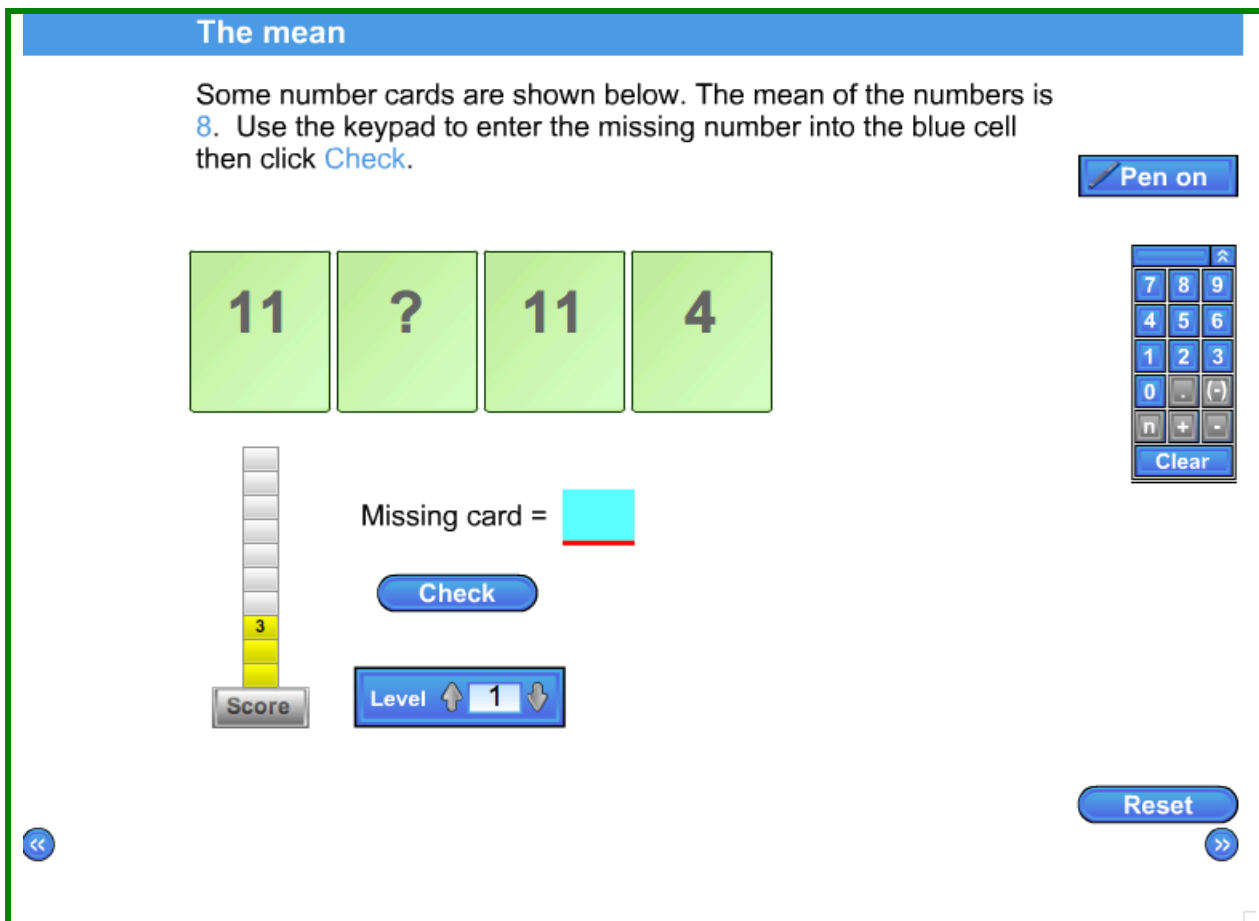**Unfortunately flash files will not work on iPads or iPhones.**

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The mean

OBJECTIVE(S):	Calculate statistics for small sets of discrete data: calculate the mean.
DESCRIPTION:	Given a set of numbers (with one unknown) and the mean of the set, pupils are asked to find the unknown number. The 3 levels are differentiated by the number and magnitude of the values used.

The mean

Some number cards are shown below. The mean of the numbers is 8. Use the keypad to enter the missing number into the blue cell then click Check.

Pen on

| 11 | ? | 11 | 4 |

7 8 9
4 5 6
1 2 3
0 . (-)
n + -
Clear

Missing card =

Check

3

Score

Level ⇧ 1 ⇩

Reset

A set of cards showing numbers (with one unknown) is presented on the screen and the mean of the numbers on all cards is given. Pupils are invited to calculate the value of the unknown number and enter their solution in the cell given using the keypad. A correct answer earns a 'tick' and a 'thermometer' scale moves up one place along a ten-point scale.
There are 3 levels differentiated by the nature and magnitude of the numbers involved. At level 2 all numbers are multiples of 10.
When common errors and misconceptions are evident from responses given, it is suggested that the 'pen' is used to work through responses in the workspace available on the screen.

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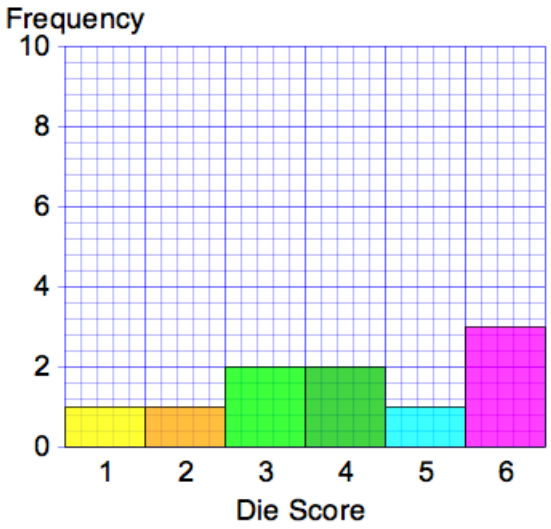
Reading a bar chart

OBJECTIVE(S):	Calculate statistics for small sets of discrete data: find the mode, median and a frequency count, and the modal class for grouped data.
DESCRIPTION:	A bar chart based on either scores on a die or number of children in a family. Pupils are asked to find the mean, mode or median of the data or to work out the number of pupils in the class. The 3 levels are differentiated by the scales on the axes and the numbers involved.

Reading a bar chart

Look at the bar chart and answer the question in the yellow box.
Use the keypad to enter your answer into the blue cell then click
Check.

Bar chart showing the results of a year 7 class
throwing a normal die once each

Frequency

How many pupils are there in the class?

Answer =

Check

Pen on

7 8 9
4 5 6
1 2 3
0 . (-)
n + -
Clear

New

Reset

Die Score

Level ⬆ 1 ⬇

Pupils are given a bar chart based on either scores on a normal six sided die or the number of children in a family. They are asked to find the mean, mode or median of the data or to give the number of pupils in the class. Mean work is based on simple calculations. The 3 levels are differentiated by the scales on the axes.

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Finding probabilities

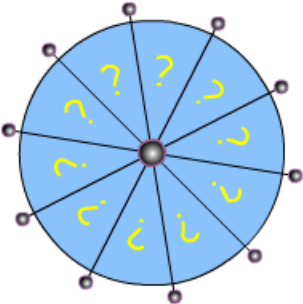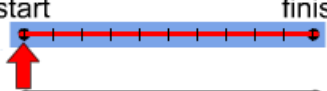|	
OBJECTIVE(S):	Use vocabulary and ideas of probability, drawing on experience.
DESCRIPTION:	A 'spin the wheel' starter where you are asked to complete a 'blank' fraction to give the probability of choosing red shapes from those given. Timer available. The 3 levels are differentiated by the number of shapes shown and the distribution of red shapes within the array..

Finding probabilities

What is the probability of choosing a red shape? Click in the blue cells and use the keypad to enter the probability in its simplest form. Then click Check.
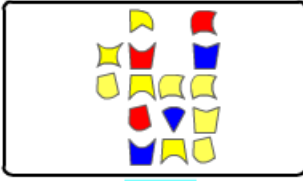
Correct, but you can simplify your answer.

Pen on

start   finish

Spin

7 8 9
4 5 6
1 2 3
0 . (-)
n + -
Clear

3
―――
15

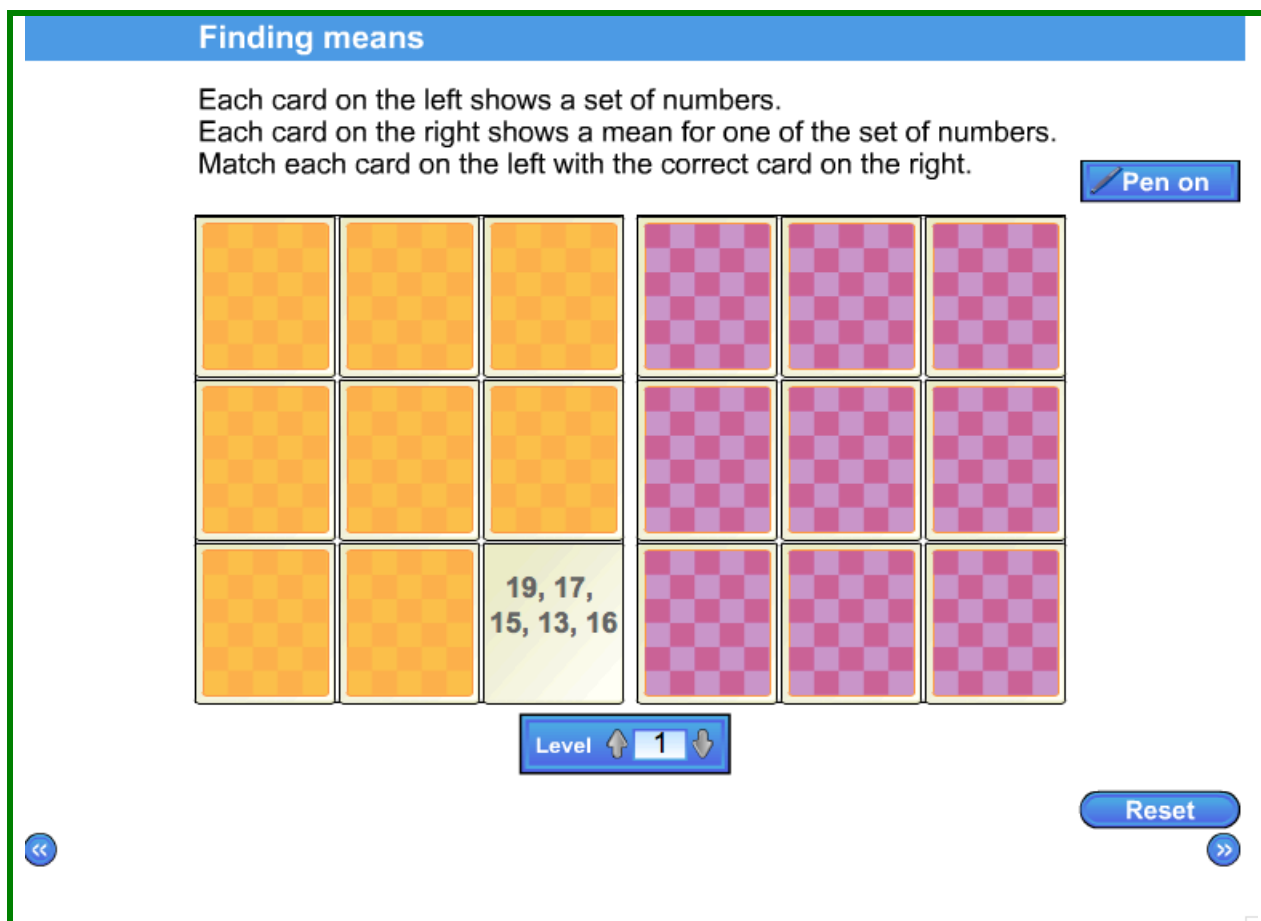Check

Show timer

Reset

Level ⬆ 1 ⬇

A wheel, a working space and a blank numerator and denominator of a fraction are presented on the screen. Clicking the spin button produces a random array of differently coloured shapes in the working space. You are invited to complete the fraction, using the keypad for entry, and thereby state what proportion of the random array of shapes are 'red'. A correct solution (which can be verified by clicking on 'Check') moves a pointer along a 10 point scale. 10 successive correct solutions produces a 'Congratulations' message.
Incorrect solutions are not verified and corrections have to be made before the spin button is activated and a new random array of shapes appears. Solutions are expected to be in their lowest form though correct equivalents are acknowledged.

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Finding means

OBJECTIVE(S):	Calculate statistics for small sets of discrete data: calculate the mean.
DESCRIPTION:	A two 3 x 3 array matching starter in which pupils have to find the mean of a revealed set of values. The 3 levels are differentiated by the magnitude and number of the values in the sets.

Finding means

Each card on the left shows a set of numbers.
Each card on the right shows a mean for one of the set of numbers.
Match each card on the left with the correct card on the right.

Pen on

19, 17,
15, 13, 16

Level 1

Reset

Nine pairs of matching cards, in two 3 x 3 arrays, are shown with faces hidden. Pupils are invited to 'Click' a card from the left hand array to turn it and reveal a set of numbers. The aim is to 'Click' a card from the right hand array to turn it and reveal the mean of the given set of numbers. Pairings can be validated using the 'Check' button. Whilst only one card from each array can be seen at any one time, any card can be turned at any stage. A correct pairing produces the message 'It's a match' and the corresponding cards disappear from the screen. When all cards are successfully paired a 'Match complete' message is displayed.
The 3 levels are differentiated by the magnitude and number of the values involved.
Pupils should be encouraged to discuss the different approaches to finding the mean value is such situations.

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Bar chart and statistics

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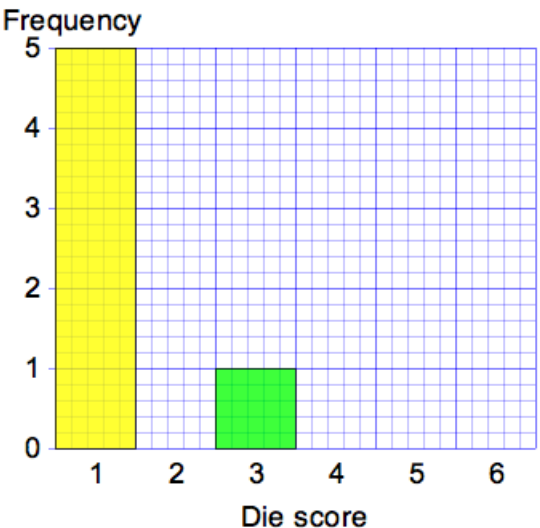|	
OBJECTIVE(S):	Calculate statistics for small sets of discrete data: find the mode, median and a frequency count.
DESCRIPTION:	A starter in which pupils are asked to construct simple bar charts to represent data (number of throws, mode and median).

Bar charts and statistics

Make a bar chart that has the properties in the orange box. Click on the x-axis and drag to create bars. Click Check to check your bar chart.

Pen on

Scores on a single die

Frequency

Total number of throws is 11.

The mode is 1.

The median is 3.

Check

Die score

New

Reset

Level 1

Graph paper for a bar chart (frequency v number on dice) to represent results from rolling a dice is shown on the screen. In addition, the number of throws, the mode and the median from the data are indicated in an orange box. Using drag and drop (from the x- axis), pupils are invited to construct an appropriate bar chart to represent the data given. (Dragging from the x-axis, for each of the numbers 1 to 6, produces a different coloured bar. Frequencies for each value can be adjusted but dragging has to be from the x- axis each time.)

The 3 levels are differentiated by the size of the sample (Level 1 up to 20, Level 2 up to 100 and Level 3 up to 200.)

It is important that pupils recognise that 'correct' solutions here are not unique. There is much to be gained from discussing different 'correct' solutions for the particular data given. In some cases a 'correct' solution prompts a message that whilst fitting the data, the suggested solution is most unlikely given the nature of a fair dice.

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