

## Probabilities with digit cards, words and dice

|                      |   |
|----------------------|---|
| <b>TYPE:</b>         | Main  |
| <b>OBJECTIVE(S):</b> | Use vocabulary and ideas of probability, drawing on experience; find and justify probabilities based on equally likely outcomes in simple contexts; simplify fractions by cancelling all common factors.  |
| <b>DESCRIPTION:</b>  | 3 screens. 1 shows 10 digit cards and asks for probabilities based on these. 2 is similar but with words. 3 is similar but with a normal dice.  |
| <b>OVERVIEW:</b>     | Using the probability scale to assign probabilities and finding probabilities with digit cards, words and dice.   |
| <b>EQUIPMENT:</b>    | Teacher notes include 2 photocopiable masters. The first includes the 10 digit cards and 5 probability scales with space to write down two events per scale. The second includes 6 probability scales with space to write down a word and an event. |

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| <b>TYPE:</b>         | Plenary  |
| <b>OBJECTIVE(S):</b> | Use vocabulary and ideas of probability, drawing on experience; find and justify probabilities based on equally likely outcomes in simple contexts; simplify fractions by cancelling all common factors. |
| <b>DESCRIPTION:</b>  | 2 screens. 1 animates solutions to 10 digit card probability questions. 2 is the vocabulary screen.  |
| <b>OVERVIEW:</b>     | Using the probability scale to assign probabilities and finding probabilities with digit cards, words and dice.  |
| <b>EQUIPMENT:</b>    | None specific.   |

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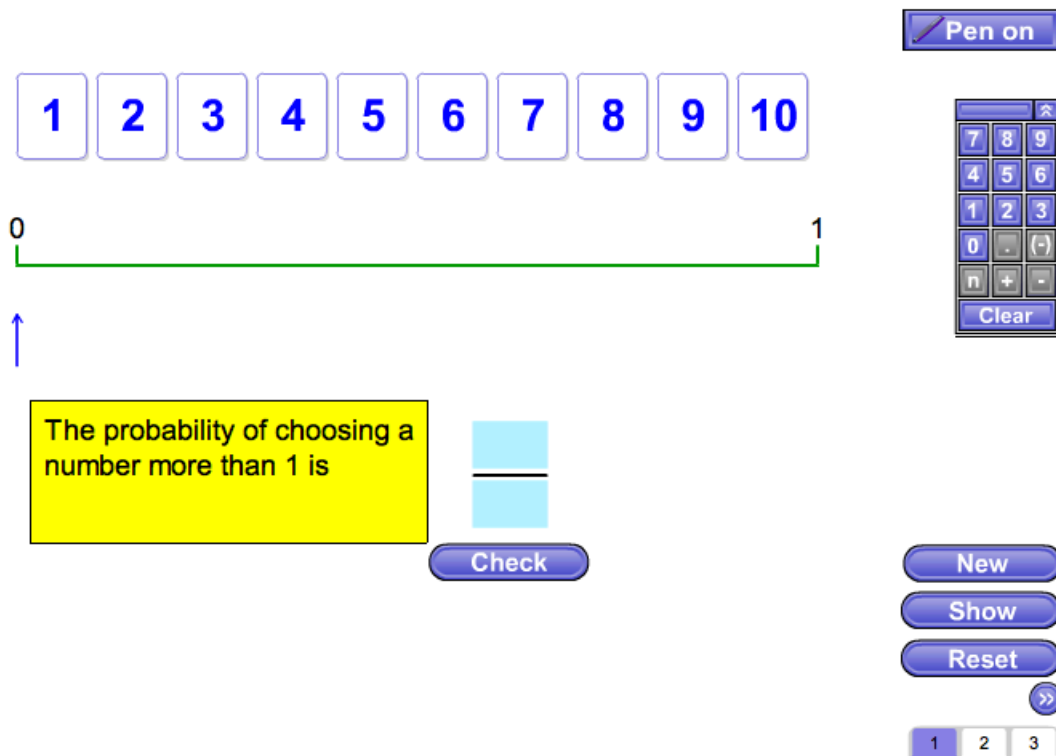
Spire Maths interactive files available in a flash format at: <https://spiremaths.co.uk/ia/>

**Unfortunately they will not work on iPads or iPhones.**

## Main Whiteboard and Screen information

### Probability and digit cards

Drag and drop the blue arrow to show the approximate probability for the event given in the yellow box.



### Screen 1: Probability and digit cards

Ten digit cards numbered 1 to 10 are shown on screen. You are then asked to find the probability of an event, such as randomly drawing a prime number, from the cards. You have to show the answer by dragging a blue arrow to the appropriate point on a probability scale and then use the keypad to enter the probability. If you do not enter the probability in its simplest form you are given a message "Correct, but you can simplify your answer." You are given some leeway on the probability scale so if you click 'Show' the blue arrow may move to the exact position.

Difficulties arise from the event as much as from the probability (e.g. knowing which numbers are prime).

Key points: informal notion of probability and link of this to the probability scale; it helps to establish ideas of probabilities on this line and link to the actual fraction; pupils use the digit cards to help with the probability; reducing fractions to their lowest terms may create minor problems.


**Probability and words**

Use the keypad to enter the probability, in its simplest form, into the empty blue cells. Click **Check** to see if you are correct.

The probability of choosing the letter **C** at random from the word **CARROT** is

**Check**

**Pen on**



**New**

**Show**

**Reset**

**<<** **>>**

1 2 3

## Screen 2: Probability and words


You are given a word and asked to find the probability of selecting a given letter from the word. You use the keypad to enter the probability. If you do not enter the probability in its simplest form you are given a message "Correct, but you can simplify your answer."

Key points: informal notion of probability should continue to be the focus; reducing fractions to their lowest terms may create minor problems.

**Probability and dice**


Use the keypad to enter into the empty blue cells the probability, in its simplest form, for the event given in the yellow box. Click **Check** to see if you are correct.

The probability of throwing a triangle number on the dice is



**Check**

**Pen on**



**New**  
**Show**  
**Reset**

1 2 3

### Screen 3: Probability and dice

You are asked to find the probability of an event based on throwing a normal cubical dice, such as throwing a triangle number. You use the keypad to enter the probability. If you do not enter the probability in its simplest form you are given a message "Correct, but you can simplify your answer."

Difficulties arise from the event as much as from the probability (e.g. knowing which numbers are the triangle numbers).

Key points: informal notion of probability should continue to be the focus; reducing fractions to their lowest terms may create minor problems.

## Plenary Whiteboard and Screen information

### Probability and digit cards

Click > to see the animation again.  
Click **New** for a new example.



Pen on

The probability of choosing  
a factor of 9 is

$$= \frac{3}{10}$$



New

Reset



1 2

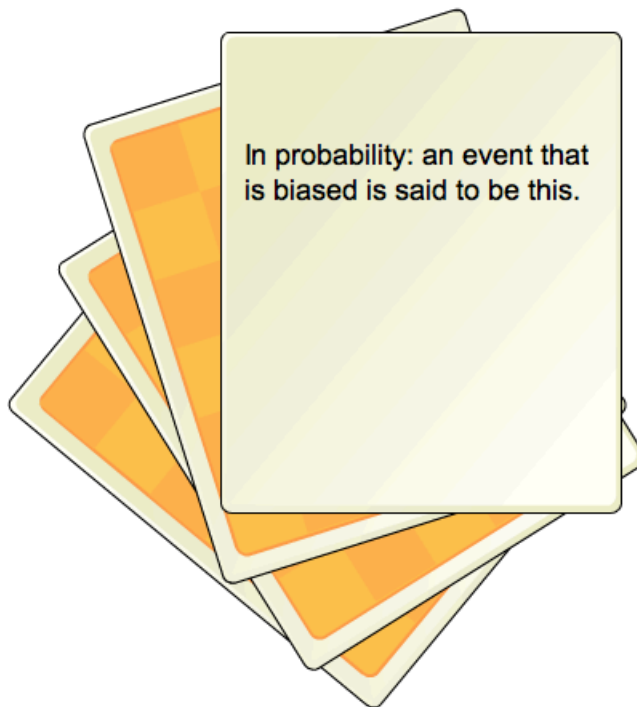
### Screen 1: Probability and digit cards

Ten digit cards numbered 1 to 10 are shown on screen. You are given an event, such as randomly drawing a prime number, from the cards and shown an animation of how to work out the probability, which includes shading the relevant cards and reducing the fraction to its lowest terms.

Key points: a more formal notion of probability can now be introduced; have pupils discuss events so that misconceptions can be addressed; reducing fractions to their lowest terms by dividing numerator and denominator by common factor (and to check for this).

## Vocabulary

Click on the top card to see a definition.  
Click on the card again to see the word.



Pen on

Word  
 Definition

Reset



1 2






### Screen 2: Vocabulary

Vocabulary present: Average, Certain, Chance, Doubt, Equally likely, Even chance, Fair, Fifty-fifty chance, Good chance, Impossible, Interval, Likelihood, Likely, Mean, Median, Modal class/group, Mode, No chance, Outcome, Poor, Possible, Probability, Probable, Random, Range, Risk, Statistic, Uncertain, Unfair, Unlikely.

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Draw an arrow on the scale to show the probability and write the exact probability next to it.

|  |  |  |  |  |          |  |  |  |  |
|--|--|--|--|--|----------|--|--|--|--|
| 1   2   3   4   5   6   7   8   9   10   |  |  |  |  |          |  |  |  |  |
| Event 1:   |  |  |  |  | Event 2: |  |  |  |  |
|    |  |  |  |  |          |  |  |  |  |
| Event 1:   |  |  |  |  | Event 2: |  |  |  |  |
|   |  |  |  |  |          |  |  |  |  |
| Event 1:   |  |  |  |  | Event 2: |  |  |  |  |
|  |  |  |  |  |          |  |  |  |  |
| Event 1:   |  |  |  |  | Event 2: |  |  |  |  |
|  |  |  |  |  |          |  |  |  |  |
| Event 1:   |  |  |  |  | Event 2: |  |  |  |  |
|  |  |  |  |  |          |  |  |  |  |

## Probability and words

Draw an arrow on the scale to show the probability and write the exact probability next to it.

|  |        |
|--|--------|
| Word:  | Event: |
|    |        |
| Word:  | Event: |
|    |        |
| Word:  | Event: |
|  |        |
| Word:  | Event: |
|  |        |
| Word:  | Event: |
|  |        |
| Word:  | Event: |
|  |        |