



Because maths matters!

Welcome to the MEI conference 2026

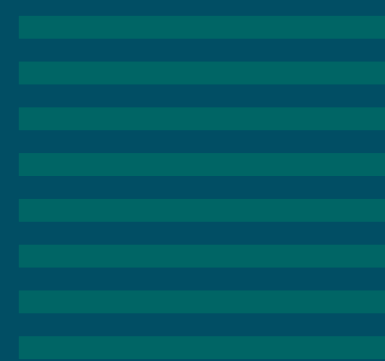
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CASIO[®]

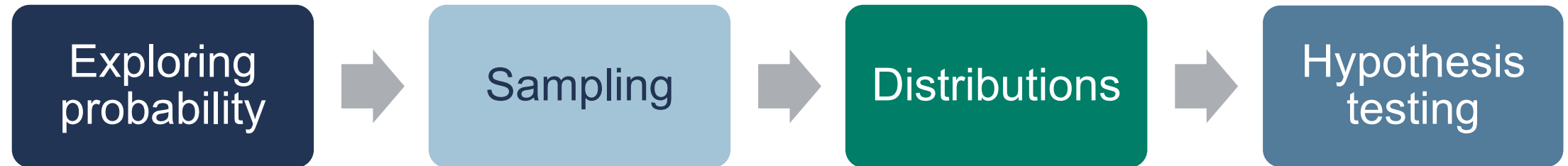
A large, solid green arrow pointing to the right, positioned behind the title text.

How technology can change the way your students think about probability

Tom Button and Jemma John

A series of horizontal lines in varying shades of green, located in the bottom right corner of the slide.

How technology can change the way your students think about probability



www.desmos.com/gallery/216342ab-fe3e-4f9d-b55c-7906cfcf3e5c



Exploring probability

What is probability?

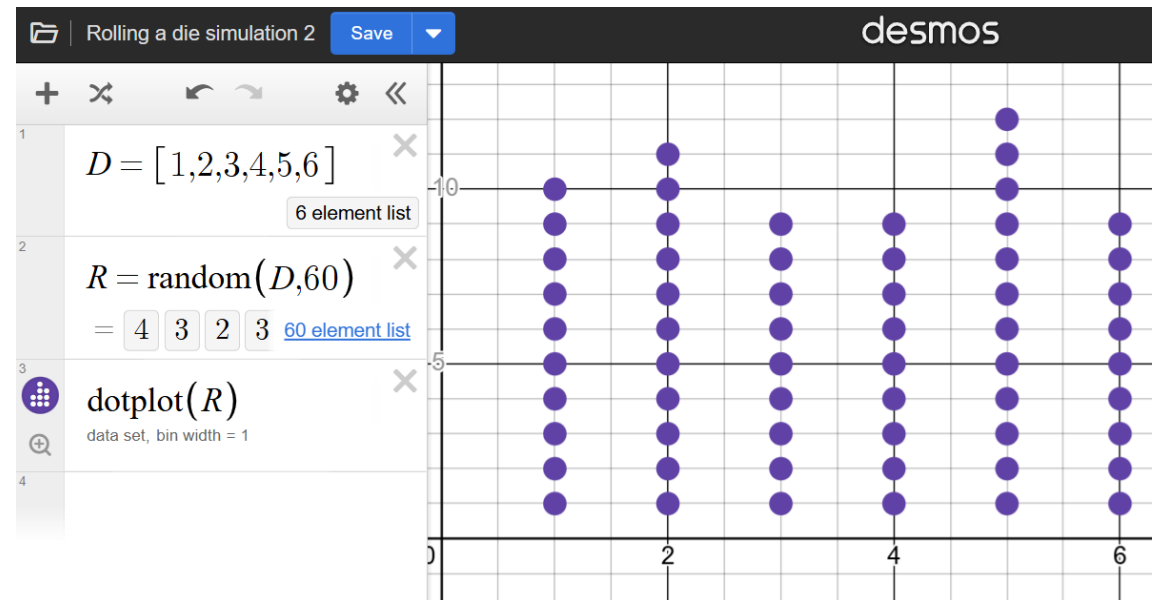


Simulating a random situation

Simulations can be used for random simulations such as:

- Single dice
- Sum of two dice
- Non-uniform spinner

You can also control the output using a “seed”



Task 1

Three fair, six-sided dice are numbered as follows:

A. 1, 1, 1, 2, 2, 2

B. 3, 3, 4, 4, 5, 5

C. 6, 7, 7, 8, 8, 8

The three dice are rolled once. What is the probability that the sum obtained is an odd number?

nrich.maths.org/problems/odd-dice

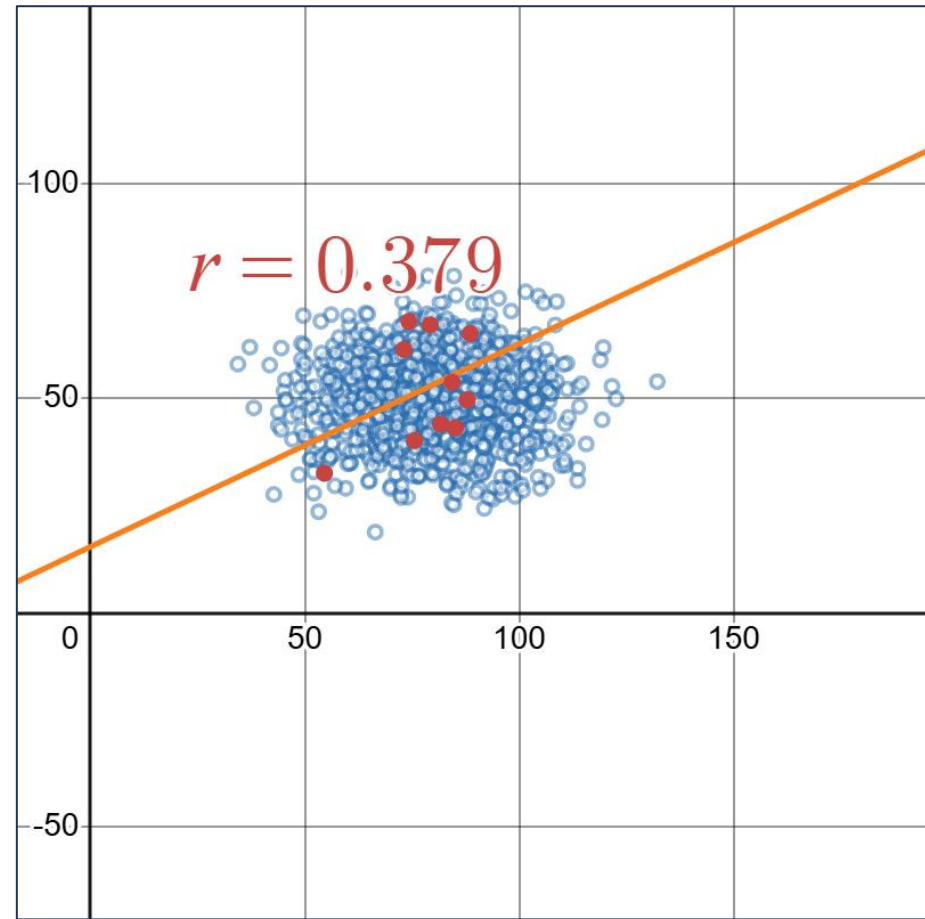
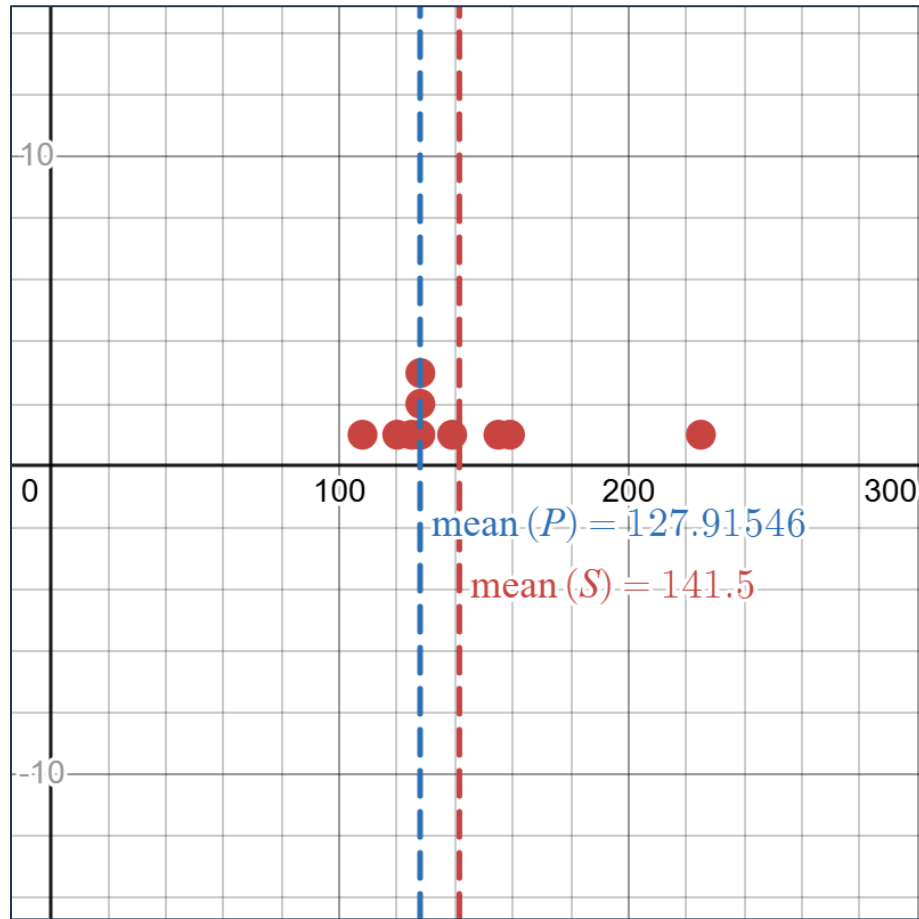


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Sampling

Finding the mean of a sample



Actions

To collect and store multiple samples from a list of data named **D**:

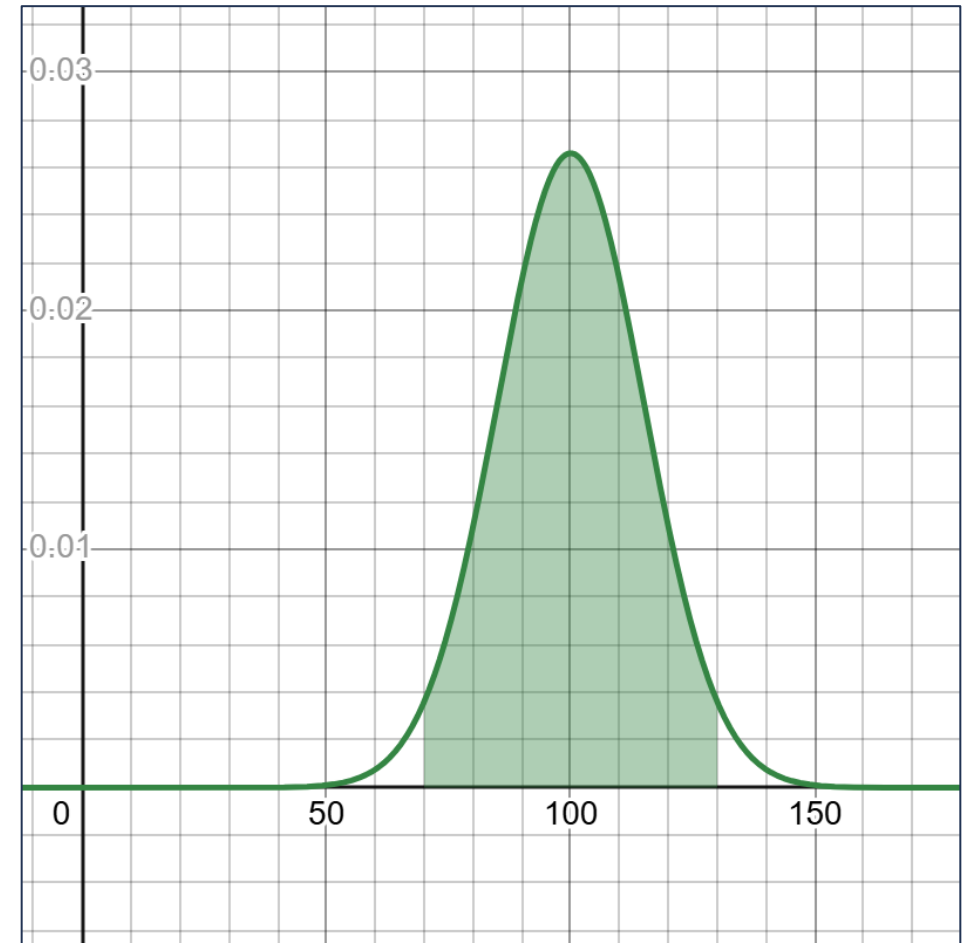
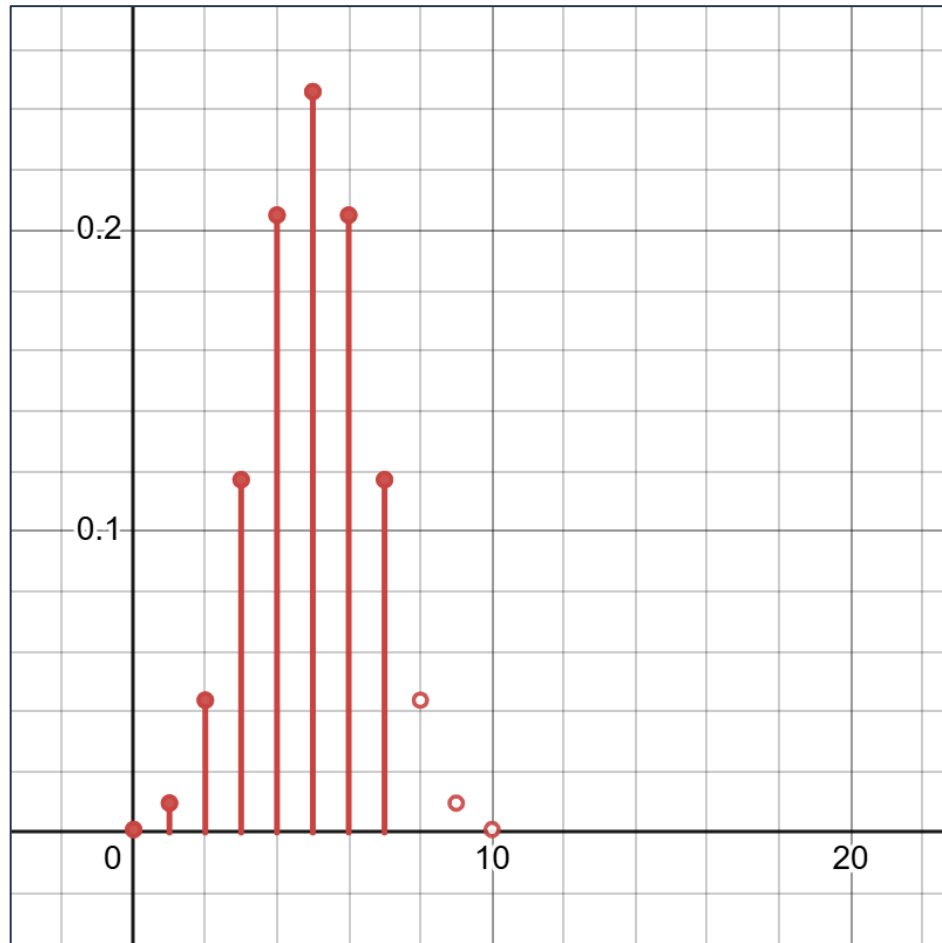
1. Take a random sample named **s** of size **n**: **s=random(D, n, k)**
Set **n**: 1-200, step 1; **k**: 1-100 (leave step blank)
2. Find the mean of the sample: **m=mean(s)**
3. Create a new empty list: **m1=[]**
4. Create an action: **a = m1 -> join(m1, m), k-> k+1**
5. Run your action until your **m1** list has at least 10 elements then draw a histogram:
histogram(m1,1)
6. Add a ticker (from the **+** menu) and set to: Run **a** every **100** ms
7. Create a reset action to allow you to start again: **r1 = m1 ->[], k-> round(random(),1))**

More help on actions: <https://help.desmos.com/hc/en-us/articles/4407725009165-Actions>



Distributions

Plotting standard distributions



Task 2

- Explore some of the files in the gallery
- How would you use these in your teaching?

Create a dynamic file to show the range of values for which a normal distribution is a good approximation to a binomial distribution

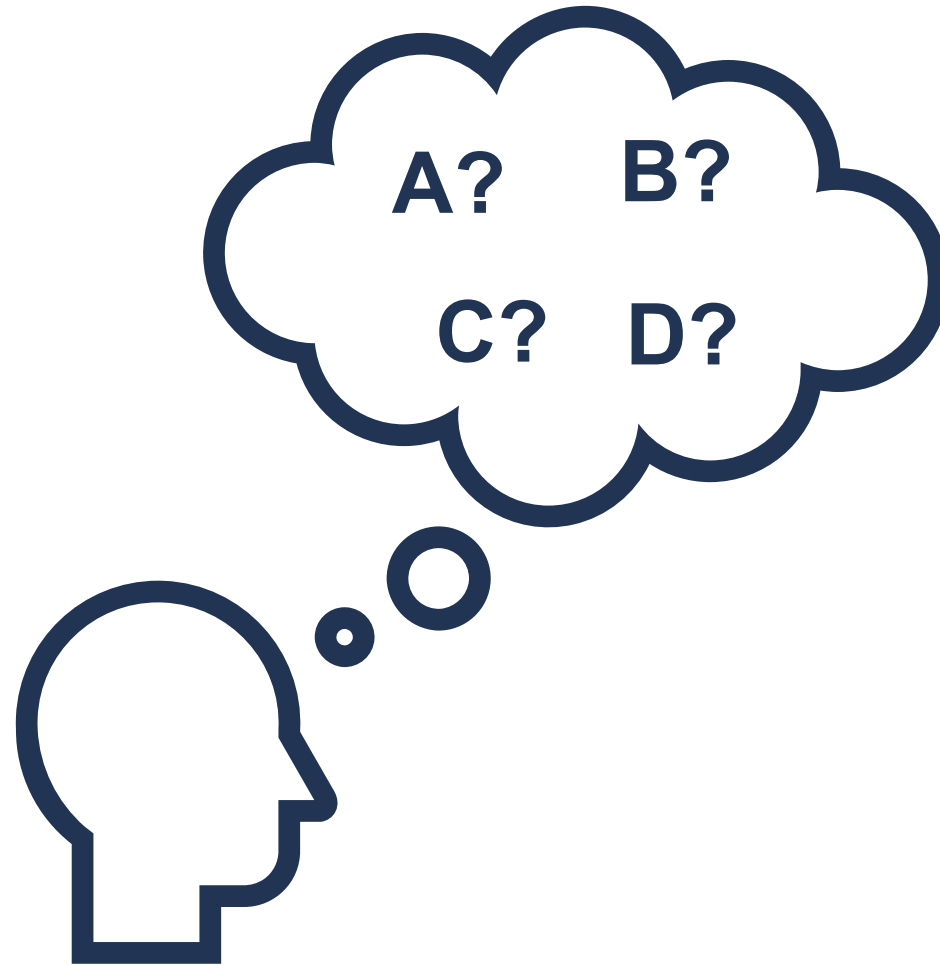
Follow the instructions for using actions to take and store the means of multiple samples



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Hypothesis testing

A practical introduction to hypothesis testing

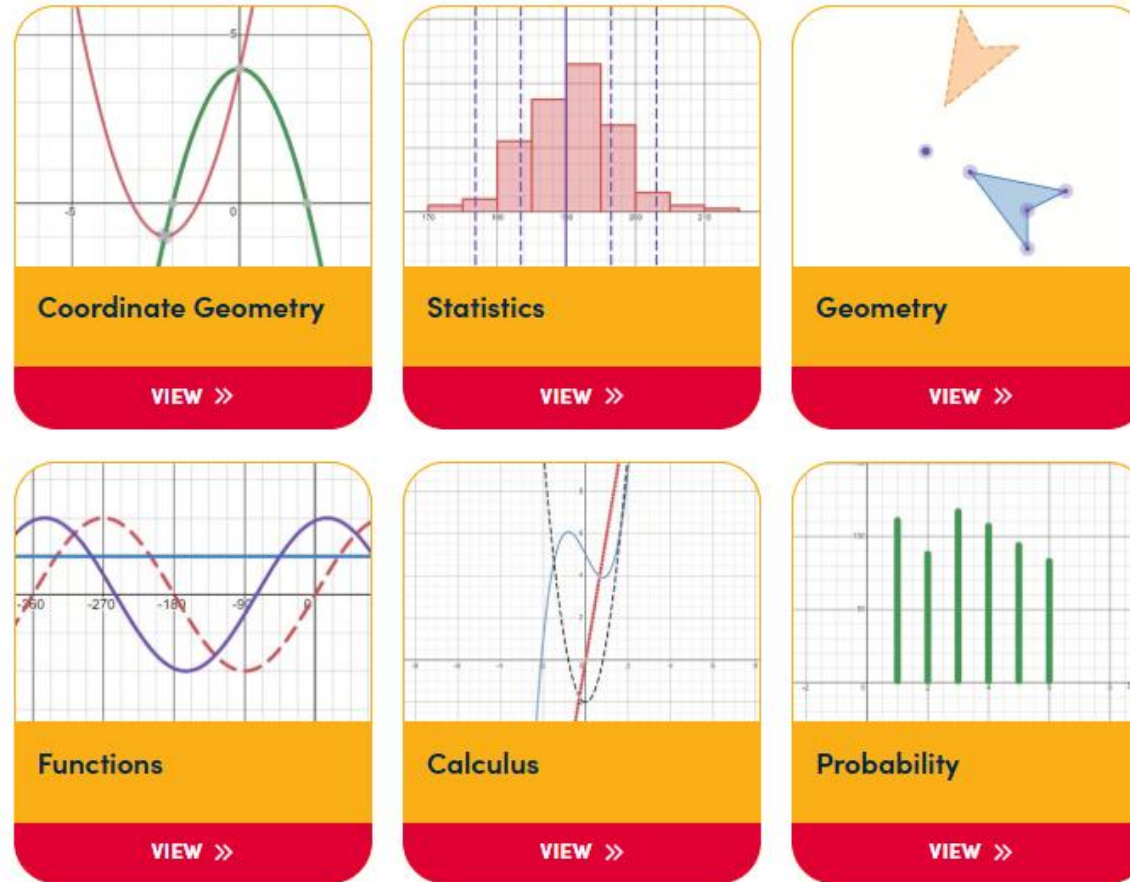


Reflections



How can technology change the way your students think about probability?

Further support



amsp.org.uk/teachers/teaching-with-desmos-webinars/