|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Batch** | **Result** | **Tally** | **Point up: Total so far** | **Point up: Experimental probability** |
| First 10 drops | Point up |  |  | = |
| Point down |  |
| Next 10 drops  (20 so far) | Point up |  |  | = |
| Point down |  |
| Next 10 drops  (30 so far) | Point up |  |  |  |
| Point down |  |
| Next 10 drops  (40 so far) | Point up |  |  |  |
| Point down |  |
| Next 10 drops  (50 so far) | Point up |  |  |  |
| Point down |  |
| Next 10 drops  (60 so far) | Point up |  |  |  |
| Point down |  |
| Next 10 drops  (70 so far) | Point up |  |  |  |
| Point down |  |
| Next 10 drops  (80 so far) | Point up |  |  |  |
| Point down |  |
| Next 10 drops  (90 so far) | Point up |  |  |  |
| Point down |  |
| Last 10 drops (100 in total) | Point up |  |  |  |
| Point down |  |

**Key Questions**

1. What do you notice about your results?

2. Compare your results with others. What do you notice?

3. What is your best estimate for the probability that the drawing pin lands point up? Write your answer as a decimal

4. How could you get an even better estimate for this probability?

5. What variables might have affected your results?

6. Describe what you could do to control these variables

**Another idea**

* Roll a dice ten times. Record the number of fives in the table below. Fill in **the relative frequency**.
* Roll the dice another ten times (twenty in total). Record the number of fives **so far**. Fill in the relative frequency again.
* Repeat this for 100 rolls. You **must** count carefully and not guess!

|  |  |  |  |
| --- | --- | --- | --- |
| **No. of rolls** | **No. of fives** | **Relative Frequency for no. of fives** |  |
| 10 |  | = |  |
| 20 |  | = |  |
| 30 |  | = |  |
| 40 |  |  |  |
| 50 |  |  |  |
| 60 |  |  |  |
| 70 |  |  |  |
| 80 |  |  |  |
| 90 |  |  |  |
| 100 |  |  |  |

* Now use a calculator to write each relative frequency as a decimal. Fill in column 4 with your answers. *You will probably find that your answers become very similar towards the end. Write down all the figures in the answer to keep the accuracy.*
* Now take the graph provided and carefully plot the number of throws against the relative frequency for that number of throws. Join the points with a curve.
* Write down anything that you notice about your graph. Try to give reasons for your observations.

