

## Experimental probability, predictions and review

### CURRICULUM ALIGNMENT

DAT.CHN.4a

use probability to make informed decisions and predictions.

DAT.CHN.4b

represent and express probability in different forms.

NUM.FRC.4a

explore (model, compare and convert) the relationships between fractions, decimals and percentages.

### INTERACTIVES Dice Roller · display, explore

### WHAT THIS LESSON TEACHES

The chance we expect from working it out is favourable outcomes over total outcomes (a six on a fair die is  $1/6$ ).

→ Rolling any one number on a normal die: 1 favourable face out of 6, so  $1/6$ .

→ Rolling a die 60 times and getting 11 sixes gives an experimental probability of  $11/60$ .

### MODEL THIS ON THE BOARD

#### PREDICT SIXES IN 60 ROLLS

- 1 Theory says 1 six in every 6 rolls.
- 2 For 60 rolls divide 60 by 6 to get **10**.
- 3 Expect about 10 sixes, but not exactly every time.

### DISCUSSION STARTER

**REFLECT** Did your experiment match your prediction? What could explain any difference?

### ANSWER KEY

**Scaffold:** visual check on the page

**Q1:** 10

**Q2:**  $4/20$

**Q3:** about 7

**a)** Sometimes : It can happen, but most sets of 60 rolls give a few more or a few fewer.

**b)** Always : Because 60 divided by 6 is 10.

**c)** Sometimes : It happens often but not guaranteed every single trial.

**d)** Never : Each roll is random even if the long-run pattern is known.

### EXTENSION SHEET · STRETCH ANSWERS

**S1:** 60%

**S2:** unlikely

**S3:** even

**S4:** 0.75