

Experimental probability, predictions and review

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

Q4: $12/60 = 1/5$

a) **Never** — It can be close but varies with each set of rolls.

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

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

d) **Always** — Each roll is random even though the long-run pattern is known.

EXTENSION SHEET · STRETCH ANSWERS

S1: 60%

S2: unlikely

S3: even

S4: 0.75