

## Two-way tables

### Starter

- (Review of last lesson)** Write down the three equations of motion needed at GCSE level, stating which letter is missing from each equation.
- (Review of last lesson)** A boy drops a rock over the edge of cliff and it takes 5 seconds to reach the sea. Assume the acceleration due to gravity is  $9.8 \text{ m/s}^2$ .
  - How high is the cliff?
  - Find the velocity of the rock as it hits the sea (assume it does not reach its terminal velocity).
  - The boy throws a second rock down and it takes 4 seconds to hit the sea. What speed did he throw the rock down with?

### Notes

Two-way tables show two sets of connected data. Numbers are filled in using logic, like a sudoku problem.

**N.B.** After filling in the numbers, and before you answer any questions, check your totals are consistent by adding each column and row.

**E.g. 1** (a) Copy and complete the two-way table about whether people prefer to watch films in the cinema or on television at home.

	Cinema	Television	Total
Over 30s		6	
Under 30s	14		23
Total	33		

- State how many:
  - Over 30s were included in the survey
  - Under 30s preferred watching films on television at home.
- Compare film watching preferences for over and under 30s. Use percentages to support your statement.

**Working:** (a)

	Cinema	Television	Total
Over 30s	$33 - 14 = 19$	6	$19 + 6 = 25$
Under 30s	14	$23 - 14 = 9$	23
Total	33	$6 + 9 = 15$	$25 + 23 = 48$

(b) (i) 25                      (ii) 9

(c) Preference for cinema: Over 30s =  $\frac{19}{25} \times 100\% = 76\%$   
 Under 30s =  $\frac{14}{23} \times 100\% \approx 60.9\%$

Both age groups prefer to watch films in the cinema but this is more apparent for the over 30s (76%) than in the under 30s age group ( $\approx 61\%$ )

**E.g. 2** Complete the following two-way table about the type of music adults and children prefer listening to out of pop, classical and rock. Then answer the questions that follow.

	Pop	Classical	Rock	Total
Adults	6	18		37
Children			12	
Total	33			80

- (a) How many people like rock music in all?
- (b) What is the probability of choosing a person who likes classical music?
- (c) An adult is chosen. What is the probability they like rock music?
- (d) What is the probability that choosing a person who likes rock music is a child?

**E.g. 3** The students in a two year groups, Y8 and Y9, gave their sporting preference:

Y8, Football	Y9, Hockey	Y9, Tennis	Y8, Football
Y8, Hockey	Y8, Football	Y8, Tennis	Y9, Hockey
Y9, Tennis	Y9, Football	Y9, Hockey	Y8, Football
Y9, Football	Y9, Tennis	Y9, Football	Y9, Hockey

- (a) Record the results in a two-way table.
- (b) What percentage of the students prefer tennis?
- (c) What percentage of Y9 students prefer football?

**Video:** [Two-way tables](#)

[Solutions to Starter and E.g.s](#)

### Exercise

9-1 class textbook:	p351 M11.1 Qu 1-5
A*-G class textbook:	p315 M11.1 Qu 1-5
9-1 homework book:	p120 M11.1 Qu 1-4
A*-G homework book:	p88 M11.1 Qu 1-4

### Summary

Use logic to fill in the table.

Read each question carefully as it may restrict which part of the table you are looking at.