Name	Date started	Target end date

WJEC GCSE Mathematics and Numeracy (Double Award) — Question Pack

Foundation data collection: turning raw observations into tally and frequency tables, choosing sensible class intervals for grouped data, and finding

REVISE
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F3.08 — Collecting & organising data — tally, frequency & class intervals

Spec 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.1.6, 4.1.7, 4.1.8 — Unit 3 (calculator allowed)

Foundation data collection: turning raw observations into tally and frequency tables, choosing sensible class intervals for grouped data, and finding class midpoints. Sourced from legacy WJEC GCSE Mathematics-Numeracy Foundation papers (3300U10/U20) and accessible content from Intermediate papers (3300U30/U40), organised for revision under the 2025 spec.

2025 SPECIFICATION

Estimated time for entire question pack: ~32 minutes

*Derived from the GCSE Higher pace of **~1.5 min/mark** (21 marks across 7 questions).*

*You are advised to **not** attempt to complete all of this in one sitting.*

ABOUT THIS QUESTION PACK

This is a **focused single-topic practice pack**, not a single mock paper. Questions are organised against the 2025 specification. Questions are ordered chronologically by sitting, with custom-written and SAM questions at the end.

INSTRUCTIONS

Use black ink or black ball-point pen. Show all working — method marks are awarded for clear setup.

A calculator is allowed on every question in this pack (Unit 3 is the calculator-allowed paper).

Collecting & organising data — tally, frequency & class intervals — what the new spec asks

WJEC GCSE Mathematics (first teaching 2025) · Unit 3: calculator-allowed.

Data collection 4.1.1

- Design a frequency or tally table.
- Decide between discrete and continuous data.
- Decide whether to group data.

Class intervals 4.1.2

- Choose equal-width intervals.
- Make sure intervals don't overlap.
- Find midpoints for use in averages later.

Recording data 4.1.3

- Use tally marks in groups of five.
- Cross-check tally total against frequency total.
- Label all columns clearly.

Exam strategy 4.1

- Read context carefully — what is being measured?
- Choose sensible bin widths for the range of data.
- Total the frequency column to check.

Crib sheet »

Collecting & organising data — tally, frequency & class intervals in one page

Quick-reference notes — revisit before each question. Don't use during the questions.

Tally marks

Group in fives: four vertical strokes, fifth crosses through.

Count tallies in fives to get frequencies quickly.

Frequency table

Columns: category | tally | frequency.

Total of frequency column = number of items in the data set.

Class intervals

Used when data is continuous or has many values.

Pick equal width intervals: e.g. $0<x\leq10$, $10<x\leq20$, ...

Midpoint of a class

$$\text{midpoint} = (\text{lower} + \text{upper}) \div 2$$

For $10<x\leq20 \Rightarrow$ midpoint = 15.

Inclusive vs exclusive

< means 'less than', ≤ means 'less than or equal to'.

Each value should fall in exactly one class.

Common traps

- Overlapping intervals (e.g. 10–20 and 20–30).
- Unequal class widths without good reason.
- Forgetting tally total = frequency total.

Examiner only

2. Twenty-five balls have numbers printed on them.
Some of the balls are coloured yellow (Y), the others are coloured blue (B).
The list below shows both the colour of each ball and the number printed on it.

Y 76	Y 217	B 54	B 126	Y 21
Y 438	Y 32	B 561	B 194	Y 69
B 37	B 518	Y 94	Y 157	Y 208
Y 382	B 56	B 234	Y 72	B 84
Y 68	Y 271	Y 53	B 100	Y 321

(a) Complete the frequency table. [2]

Type of ball	Yellow		Blue	
	Number < 100	Number $\geqslant 100$	Number < 100	Number $\geqslant 100$
Frequency	8			

(b) How can you use your table to check that all the balls have been counted? [1]

(c) The 25 balls are placed in a box.
One ball is chosen at random.
What is the probability that it is a yellow ball numbered less than 100? [2]

Examiner only

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Examiner only

11. *(a)* A biased coin is thrown 100 times.
The number of heads thrown is recorded after 20 throws, 40 throws, 60 throws, 80 throws and 100 throws.

Some of the results are recorded in the relative frequency table below.

Complete the table. [2]

Number of throws	20	40	60	80	100
Number of heads	11	18	24	30	
Relative frequency	0·55	0·45		0·375	0·37

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Examiner only

(b)

5 7 8 11 14 17 17 19 26 28

The sum of the ten numbers shown above is 152.
The numbers are displayed in the grouped frequency table shown below.

Number	0 - 9	10 - 19	20 - 29
Frequency	3	5	2

Consider the estimated mean calculated from the table and the actual mean of the ten numbers.
Calculate the difference between these two values.
You must show all your working. [5]

Examiner only

3. *In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

A company produces 440 boxes of paper clips each day.
Each box contains between 320 and 330 paper clips.

Calculate the approximate total number of paper clips produced in 200 days.
Give your answer to the nearest ten million.
You must show all your working. [4 + 2 OCW]

Examiner only

13. Thirty numbers are recorded in the grouped frequency table below.

Group	1 to 20	21 to 40	41 to 60	61 to 80	81 to 100
Frequency	3	8	7	6	6

It is decided that the same thirty numbers should be recorded in a table with larger group widths.

This new table is shown below, but only one frequency has been given.

Group	1 to 30	31 to 60	61 to 90
Frequency			12

(a) What is the smallest possible frequency of the 1 to 30 group? [1]

.....

(b) What is the greatest possible frequency of the 31 to 60 group? [1]

.....

Examiner only

2. Kiera goes to the cinema with her friend.

(a) *In this part of the question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

A ticket bought **at the cinema** costs £4.50.

Kiera decides to buy the 2 tickets **online in advance**.

When she buys the tickets online:
- she is given 10% off the cost of each ticket
- she has to pay a total booking fee of £1.40.

How much does Kiera pay in total for the 2 tickets? [4 + 2 OCW]

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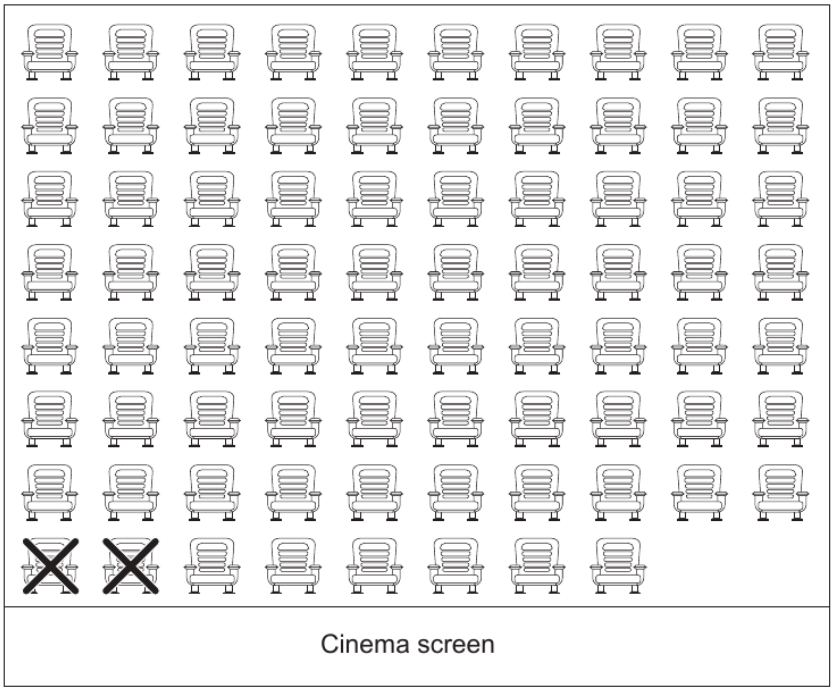
Examiner only

(b) The position of each seat in the cinema is given by a code, for example, seat E5.
Each row of seats is labelled with a letter, A, B, C, D, E, F, G and H.
Each row starts with seat number 1.
Seats A1 and A2 have already been booked.
This is shown by the crosses on the diagram.

Kiera books seats G9 and G10 for herself and her friend.
Draw a cross on each of these 2 seats on the diagram below. [1]



Examiner only

(c) When Kiera arrives at the cinema, she sees the following prices advertised.

Drinks		Snacks	
Small soft drink	£2.99	Regular popcorn	£4.95
Regular soft drink	£3.29	Large popcorn	£5.45
Large soft drink	£3.59	Nachos	£6.00
		Hot dog	£5.60

Combos			
Classic Combo: (regular soft drink & regular popcorn)	£6.99	Deluxe Combo: (large soft drink & large popcorn)	£7.60

Kiera decides to buy the Deluxe Combo.
How much will Kiera save by buying the Deluxe Combo instead of buying a large soft drink and a large popcorn separately? [4]

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