gateway qualifications

Functional Skills

Mathematics

Level 2 - Sample

Fill in your name, date of birth, registration number and centre name in the boxes below.

Surname:	Other Names:
Gateway Qualifications Registration Number:	DOB:
Centre Name:	

My signature confirms that I will not discuss the content of this assessment with anyone.

Signature:

Paper Ref: FSML2AA/P	**Time:** 2 hours	**Marks Available:** 50	**Marks Awarded:** /50

You must have:
A pen with black or blue ink, calculator, HB pencil, eraser, ruler (graduated in cm and mm)

Instructions

- Answer **all** questions.
- Answer the questions in the spaces provided.

Information

- The total mark for this paper is **50**.
- The marks for **each** question are shown in brackets - use this as a guide as to how much time to spend on each question.
- You must show clearly how you get your answers because marks will be awarded for your working out.
- Check your working and your answers at each stage.
- Calculators may be used throughout the paper.

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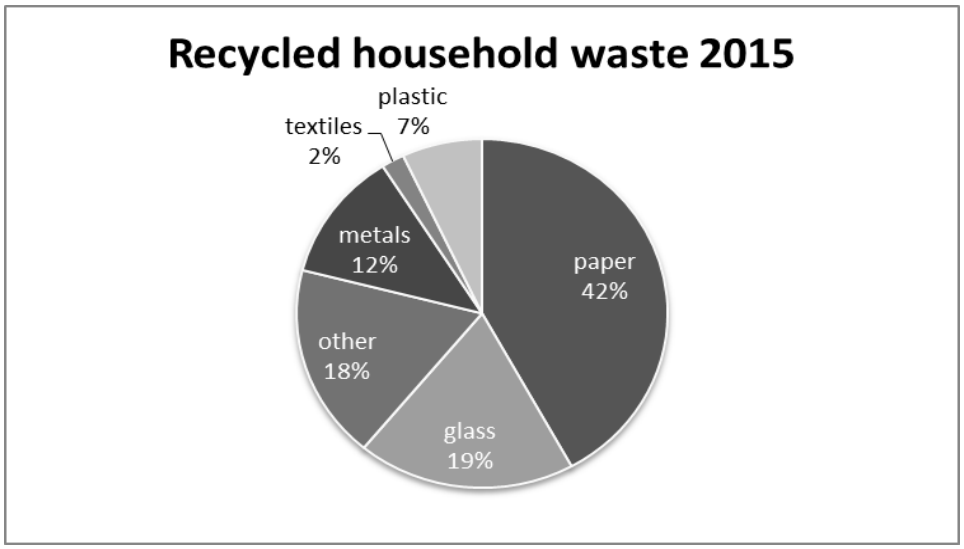
Section A – Recycling

Gaz finds some data about recycling.



The total weight of recycled household waste was

5.8 million tonnes.

Source: Gov.UK, Provisional statistics on waste managed by local authorities in England, 2015.

1. Which material is the greatest proportion of the total recycled? How do you know? (1 mark)

2. How many million tonnes of glass were recycled? Give your answer to two decimal places.

*You **must** show your working.* (2 marks)

3. Ninety percent of recycled glass is used to make new bottles and containers.

What is the probability that a recycled glass bottle is not used to make new bottles and containers?

*You **must** show your working.* (2 marks)

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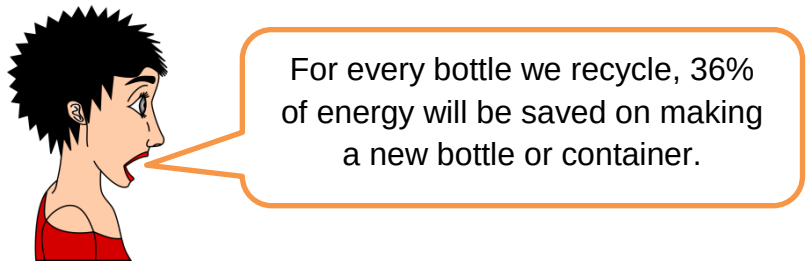
4. Gaz reads this information on the internet.

> Using recycled glass to make new bottles and containers causes 20% less air pollution and 50% less water pollution than producing new glass. It also saves 68% of the energy required.

With his friends, Gaz starts to recycle more glass. One of his friends, Shelly says:



Look at **Q3** again and the information from the internet.

Shelly is wrong. She has made two mistakes. What are these mistakes?

*You **must** show your working and your reasoning.*

(4 marks)

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5. Gaz and his friends start to collect glass bottles for recycling. The local recycling centre pays the following per tonne:

Type of glass bottle	Price per tonne £
brown	16
clear	22
green	6
mixed	5

One tonne is the equivalent of 1 000kg. They have collected 155kg of clear glass bottles.

How much will the recycling centre pay for their bottles?

*You **must** show your working.* (2 marks)

6(a) You should have checked your calculations throughout the task.

Show how you can check your answer **Q5**.

Make sure you use a **different method** from the one you first used to get your answer to question **Q5**.

Show your check. (1 mark)

6(b) How effective was your check? Why? (1 mark)

Section B - Holiday!

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1. Helen is going on holiday with two friends. She compares the cost of flying with four different airlines.

Airline	Ticket £ per person	Taxes £ per person per ticket	Baggage costs £ per bag per ticket	Return or one way
Fast Go	231	14.50	20.00	return
England UK	328	15.00	16.00	return
Pink	281	15.50	17.50	return
Spain Direct	140	6.50	12.00	one way

There will be **three** people travelling, each will have one item of baggage. The friends want to find the cheapest **return** travel costs.

Which airline should they choose?

*You **must** show your working*. (6 marks)

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2. Helen looks at information about hotels in the area.

Hotel	Cost per person per week £	Total distance for taxi fare km
Blue Sea	274	69
Sunset	289	12
Beach Front	299	24
Finest	250	102
Palm Trees	282	17

The **three** friends have a budget. To stay within their budget, they have the following criteria:

- the hotel **alone** costs less than 2/5ths of their budget
- they want the cheapest hotel **and** taxi fare combined.

The taxi fares are €2 for every 3km travelled. The exchange rate is currently €1.4 to £1.

They want to spend the least money on the hotel **and** taxi fare combined.

Which hotel should they choose? Explain why.

*You **must** show your working and your reasoning.* (8 marks)

Section C - Charity

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Sam is going to work for a charity in Africa.

He reads this advert about the charity on the internet.

GIVE £5 per month to help get clean water to Africa.

GIVE £6 per month to help get water to crops in Africa.

GIVE £10 per month to help with medical supplies in Africa.

89% of all money given goes directly to Africa.

1. Sam decides to give 12% of his monthly wages to the charity. His wages are £84 per month.

Which monthly payments in the advert could he make?

*You **must** show your working and your reasoning.* (4 marks)

2. Sam also wants to give £30 to the charity from his savings. The charity says that 89% of all money received goes directly to Africa.

How much of Sam's £30 will go directly to Africa?

*You **must** show your working.* (2 marks)

3. Sam goes out to Africa to work for the charity. His first job is on a farm, where he needs to work out how much water is needed to water the crops in a field. He is told that:

- the field measures 42.5m by 32.8m
- 1 000m^2 of field requires 85 gallons of water
- I gallon is equivalent to 4.55 litres.

How much water will Sam need to water the field? Give your answer to the nearest whole litre.

*You **must** show your working.* (6 marks)

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4. Sam studies the water tanks. Each tank is a cylinder and measures 2.2m high with a diameter of 76cm. The volume of a cylinder can be calculated using the equation: $V = \pi r^2 h$

What is the volume of one water tank to the nearest m^3?

*You **must** show your working.* (5 marks)

5. In another field on the farm, Sam is asked to work out how many seedlings he can plant in the field.
The field is 36m x 12.8m.

The seedlings need to be planted 2m apart and 1m from the edges of the field.

What is the maximum number of seedlings that Sam could plant in the field?

*You **must** show your working.* (4 marks)

6(a) You should have checked your calculations throughout the task.

Show how you can check your answer to **Q5**.

Make sure you use a **different method** from the one you first used to get your answer to question **Q5**.

Show your check. (1 mark)

6(b) How effective was your check? Why? (1 mark)

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END OF ASSESSMENT

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