

Year 4  
Written Methods  
A Parent Booklet



Pound Hill Junior School

The maths work your child is doing at school may look different to the kind of calculations you remember. This is because children are encouraged to work mentally, where possible, using personal jottings to help support their thinking. Even when children are taught more formal written methods, they are only encouraged to use these methods for calculations they cannot solve in their heads.

When faced with a calculation problem, encourage your child to ask...

- Could I do this in my head using drawings or jottings to help me?
- Do I need to use a written method?

However, when the time comes, the written methods for the four operations of addition, subtraction, multiplication, and division that we teach the children have not fundamentally changed. It is more the finer details, such as what we call the 'exchanging' process or where we record a carry that there seems to be a difference between the way people have learnt and how children are taught at PHJS.

Some parents also worry that they will confuse children by teaching them a different method. However, if there is a discussion comparing the benefits and drawbacks of each method, this can be a valuable learning tool on the path to Mastery. Discussing the efficiency and suitability of different strategies is an important part of maths lessons.

In this booklet we will show you the different methods your child will use as they progress through the school. If you support the children master these methods at home, it will provide a stable foundation for further learning.

Success Ladders will also be provided to emulate the learning process that we use in the classroom, as well as some activities designed to broaden and deepen the children's learning. Key Language for each method will be provided like this: \*Language\*

If you would like further resources and worksheets, go to <https://whiterosemaths.com/parent-resources> and go to the appropriate resource page.

The following methods will be covered in this booklet:

The following methods will be covered in this booklet:

**Addition & Subtraction**

- Compact Method up to 4 digits

**Multiplication**

- Short Multiplication up to ThHTO x O



**Application**

- Using the four operations in solving problems, including missing digits and word problems

Next to each success ladder, there will be a QR code. Use the ipads or your phone to scan the code using the photo app, which will take you to a video of Mr Ferguson talking through the method. The code below will take you to the website which has all the videos together. Please note that the QR links take you to a youtube video. This was the easiest way to upload these videos, but there is no controlling the recommended videos or ads. Please be aware and monitor any children viewing these videos as you normally would with online safety.



## AO: Use the compact written method for addition

Greater Depth	Expanded & Compact video   Compact addition 
Solve addition problems	
Met	
Use the compact method to solve addition and subtraction calculations	
Working Towards	
Use the compact method to solve addition and subtraction calculations with support with laying out	
<b>KEY LANGUAGE:</b> *Carry* *Bridging*	

### WT- Solve the calculations. Remember to start adding the ones column first.

#### Without Carries

1)  $523 + 346 =$

	5	2	3	
+	3	4	6	

2)  $2,374 + 1,623 =$

	2	3	7	4	
+	1	6	2	3	

#### With Carries

3)  $635 + 347 =$

	6	3	5	
+	3	4	7	

\*Carry\* when \*bridging\* into the next column

4)  $2,739 + 3,416 =$

	2	7	3	9	
+	3	4	1	6	

## Met- Lay out and solve the calculations

### Without Carries

1)  $327 + 641 =$

	+			

2)  $3,273 + 5,426 =$

	+			

### With Carries

3)  $392 + 546 =$

	+			

4)  $3,482 + 4,856 =$

	+			

## GD – Solve the problems on the square paper below

Reasoning: find the missing digits

		3	□	8	□
	+	□	4	□	1
		7	9	3	8

Explain the mistake

		1	7	9	3
	+	6	3	5	6
		8	0	4	9
		1			

### Solve the Word Problem

4,285 people attend a football match on one day. 3,629 attend the next day. How many people attend altogether?

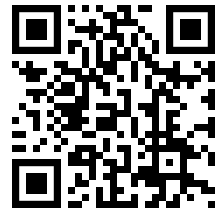
### What if: Adapt one of these problems for a partner.

- Can you change the context of the word problem?
- Can you choose appropriate digits for the other problems?



## AO: Use a written method for subtraction

Greater Depth	Subtraction methods video
<b>Solve</b> subtraction problems	
Met	Compact subtraction
<b>Use</b> the <b>compact</b> method to solve subtraction calculations <b>with exchanging</b>	
Working Towards	
<b>Use</b> the <b>compact</b> method to solve subtraction calculations <b>without exchanging</b>	
<b>KEY LANGUAGE:</b> *Partition* *Exchange*	



### WT- Solve the calculations. Remember to start subtracting the ones column first.

1)  $867 - 322 =$

		8	6	7
-		3	2	2
<hr/>				

2)  $935 - 324 =$

-				
<hr/>				

3)  $7485 - 3462 =$

-				
<hr/>				

4)  $6934 - 2614 =$

-				
<hr/>				

**Met- Solve the calculations. Remember to go to the column to left and \*exchange\* if you don't have enough ones, tens or hundreds**

1)  $952 - 427 =$

Do you have enough ones for  $2 - 7$ ?  
\*Exchange\* from the tens column

	9	5	2
-	4	2	7
<hr/>			

2)  $734 - 192 =$

-				
<hr/>				

3)  $8534 - 7829 =$

-				
<hr/>				

4)  $7502 - 2164 =$

-				
<hr/>				

**Greater Depth – Solve the problems on the square paper below**

Reasoning: find the missing digits

	5		2	
-		4		1
<hr/>				
	1	2	8	3

Explain the mistake

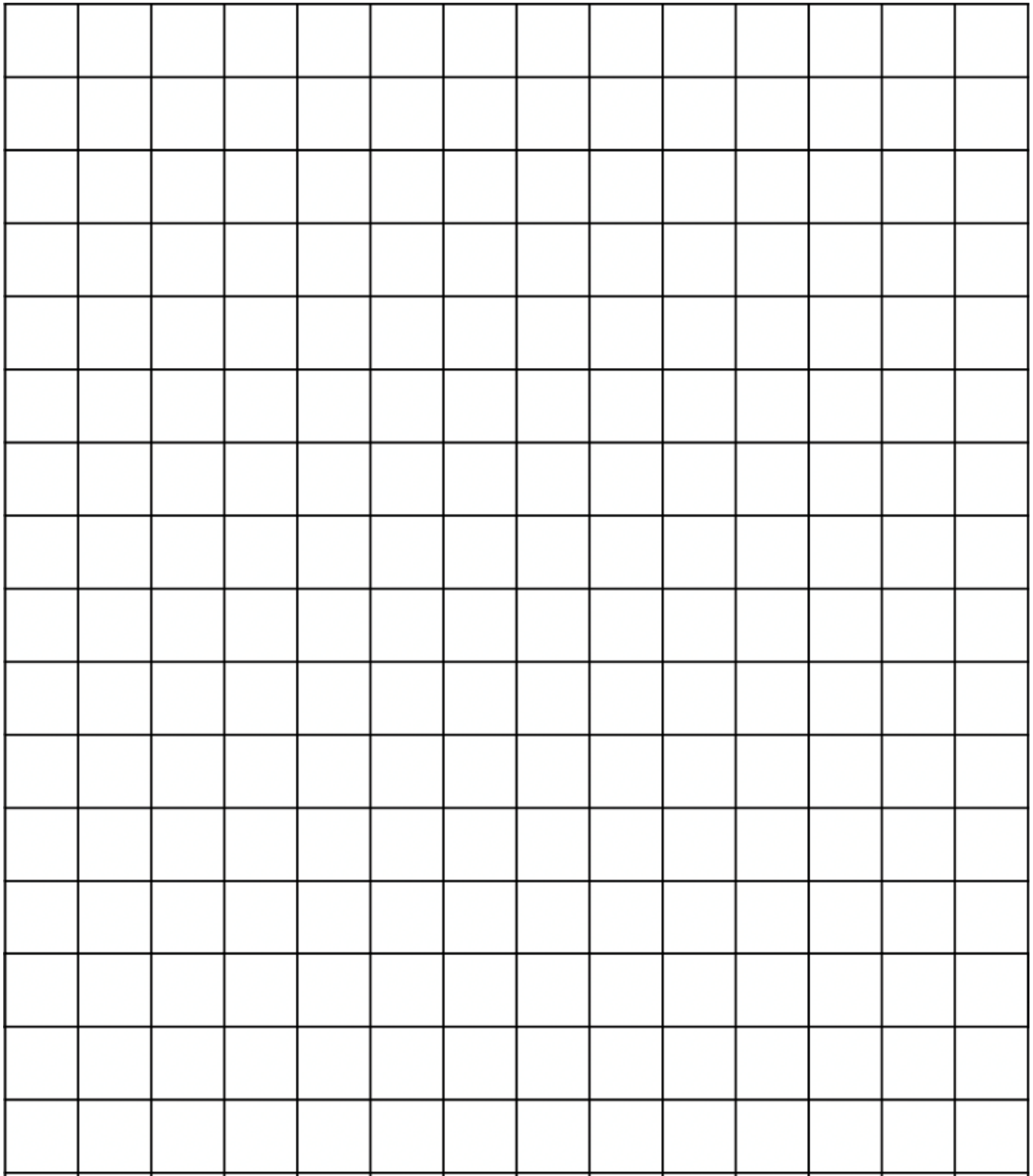
	<sup>6</sup> 7	<sup>1</sup> 2	5	3
-	6	3	4	6
<hr/>				
		9	1	3

Solve the Word Problem

Year 3 earn £483 at the book sale and Year 4 earn £839. How much more do Year 4 earn?

What if: Adapt one of these problems for a partner.

- Can you change the context of the word problem?
- Can you choose appropriate digits for the other problems?



Answers- check answers with a green pen



WT	Met
1) $867 - 322 = 545$	1) $952 - 427 = 525$
2) $935 - 324 = 611$	2) $734 - 192 = 542$
3) $7485 - 3462 = 4023$	3) $8534 - 7829 = 705$
4) $6934 - 2614 = 4320$	4) $7502 - 2164 = 5338$

	5	7	2	4
-	4	4	4	1
	1	2	8	3

**GD** Word Problem -  $£839 - £483 = £356$

Explain – Found the difference in the ones column, forgot to exchange. Should be 907

## AO: Use the short multiplication method

Greater Depth	
Solve multiplication problems	
Met	
Use the short multiplication method with awkward digits	
Working Towards	
Use the short multiplication method with simple digits	
KEY LANGUAGE: *Carry*	

Grid & short method video

Short method

## WT- Solve the calculations. Remember to start multiplying the ones column first.

3 x 1 digit

1)  $243 \times 2 =$

		2	4	3
x				2

2)  $415 \times 4 =$

		4	1	5
x				4

\*Carry\*

4 x 1 digit

3)  $1,324 \times 5 =$

		1	3	2	4
x					5

\*Carries\*

4)  $4,835 \times 3 =$

		4	8	3	5
x					3

**Met- Solve the calculations. Remember to start multiplying the ones column first.**

3 x 1 digit

1)  $957 \times 6 =$

	9	5	7
x			6
<hr/>			

2)  $639 \times 8 =$

x			
<hr/>			

4 x 1 digit

3)  $4,876 \times 9 =$

x				
<hr/>				

4)  $9,386 \times 7 =$

x				
<hr/>				

**GD – Solve the problems on the square paper below**

Reasoning: find the missing digits

	5			2
x				4
<hr/>				
2		3	2	8
<hr/>				
	3	1		

Explain the mistake

	4	2	3	1
x				6
<hr/>				
2	5,	2	8	6
<hr/>				
	1	1		

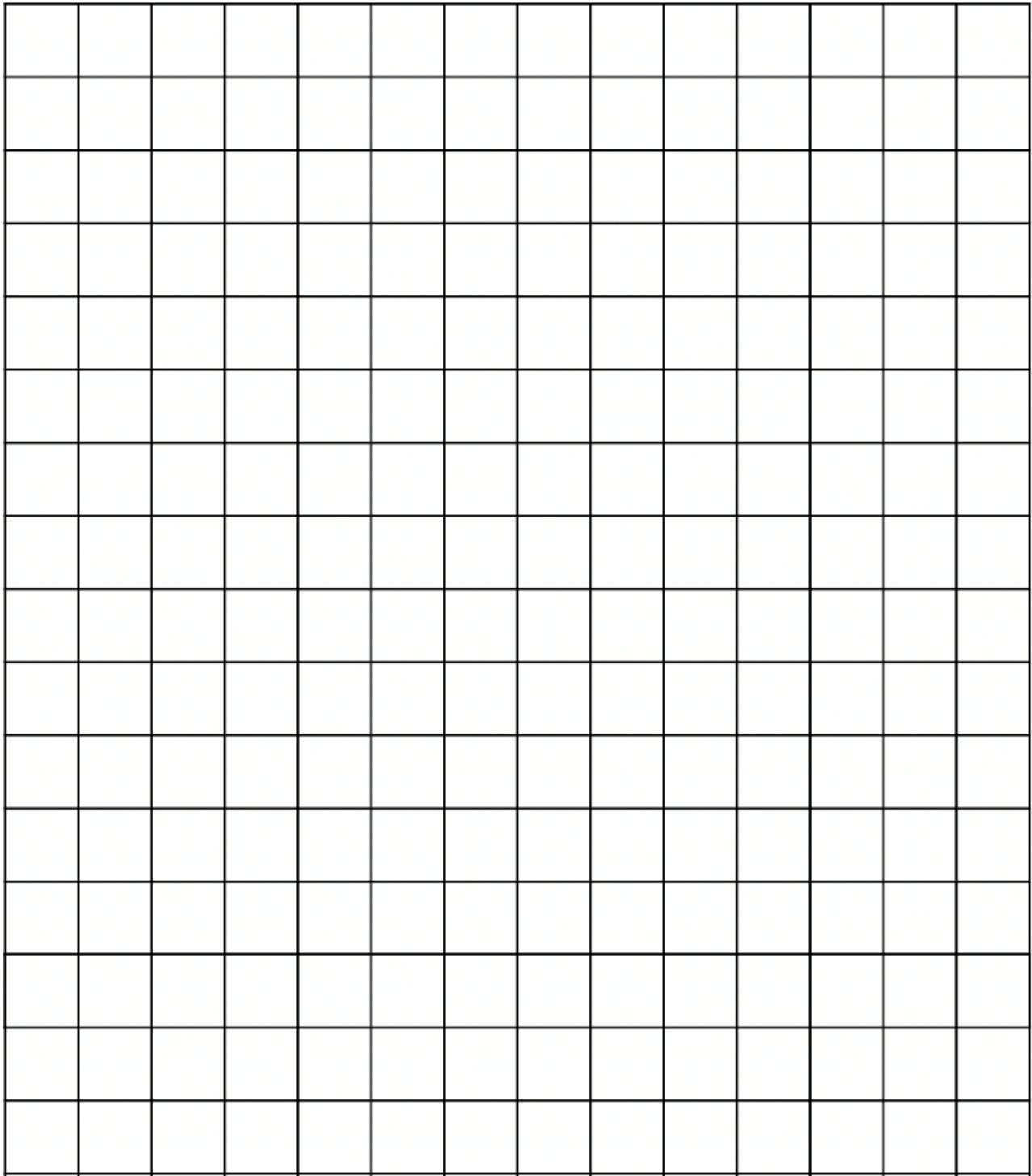
Solve the Word Problem

Each school chair weighs 2,154 grams. How much does 6 weigh?

Can you give your answer in grams and Kilograms?

What if: Adapt one of these problems for a partner.

- Can you change the context of the word problem?
- Can you choose appropriate digits for the other problems?



Answers- check answers with a green pen

MISSING DIGITS

WT	Met
1) $243 \times 2 = 486$	1) $957 \times 6 = 5,742$
2) $415 \times 4 = 1,660$	2) $639 \times 8 = 5,112$
3) $1324 \times 5 = 6,620$	3) $4,876 \times 9 = 43,884$
4) $4835 \times 3 = 14,505$	4) $9,386 \times 7 = 65,702$

	5	8	3	2
x				4
2	3	3	2	8
	3	1		

**GD** Word Problem –  $2154 \times 6 = 12,924g = 12.924kg$

Explain – Forgotten to add the carry in the hundreds, should be 25,386

Word Problems Now that you have mastered the 4 Operations, can you apply them to different word problems?

### 1-Step Addition

#### 1. Varjak Paw

Varjak collected 1,348 fish bones from one market and 2,576 from another.

How many fish bones did he collect altogether?

#### 2. The Explorer

The children travelled 2,487 m through the rainforest on Monday and 1,956 m on Tuesday.

How far did they travel altogether?

#### 3. Bearkeeper

Tom stored 3,164 berries in one cave and 2,528 in another.

How many berries did he store altogether?

#### 4. Varjak Paw

Holly counted 1,785 cats across the city and Tam counted 2,349.

How many cats did they count altogether?

#### 5. The Explorer

Fred spotted 3,846 insects during one expedition and 2,195 during another.

How many insects did he spot altogether?

### Converting answers & decimals

#### 6. Varjak Paw

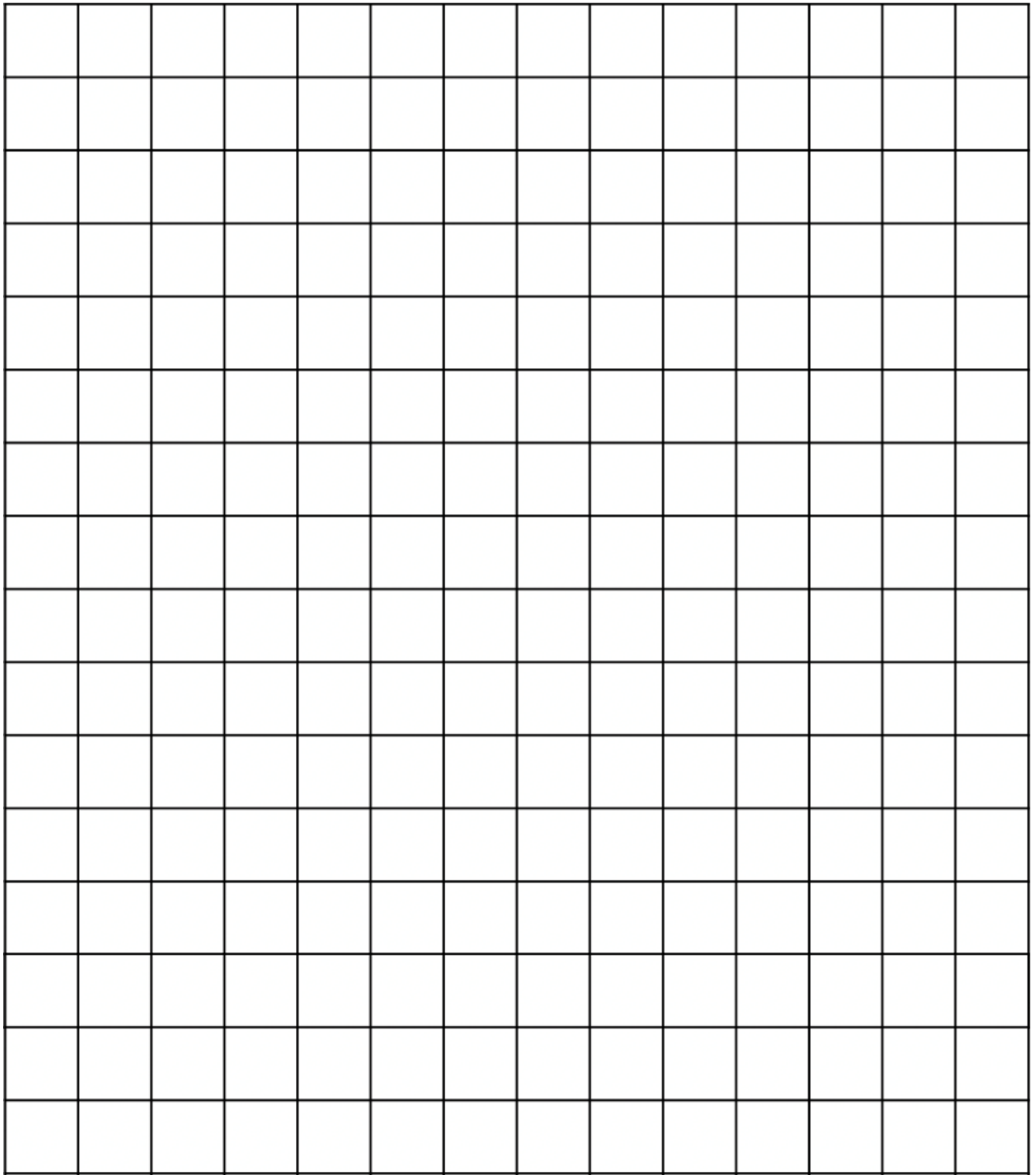
Varjak collected 2 kg 450 g of fish from one market and 1 kg 875 g from another.

How many **grams** of fish did he collect altogether?

#### 7. The Explorer

The children found treasure worth £24.85 and later found another £37.60.

How much was the treasure worth altogether?



*Adapt one of the above questions- change some of the numbers, context, or language.*

## 1-Step Subtraction

### 1. Varjak Paw

Varjak had 5,264 fish bones. He gave 1,839 away.  
How many fish bones did he have left?

### 2. The Explorer

The children packed 4,380 ml of drinking water. They used 1,765 ml.  
How much water was left?

### 3. Bearkeeper

Pip collected 6,153 acorns. The bears ate 2,487.  
How many acorns remained?

### 4. Varjak Paw

Varjak planned to visit 3,910 rooftops. He had already visited 2,476.  
How many rooftops did he still have to visit?

### 5. The Explorer

The raft could carry 8,000 kg. It was already carrying 5,684 kg.  
How much more weight could it safely carry?

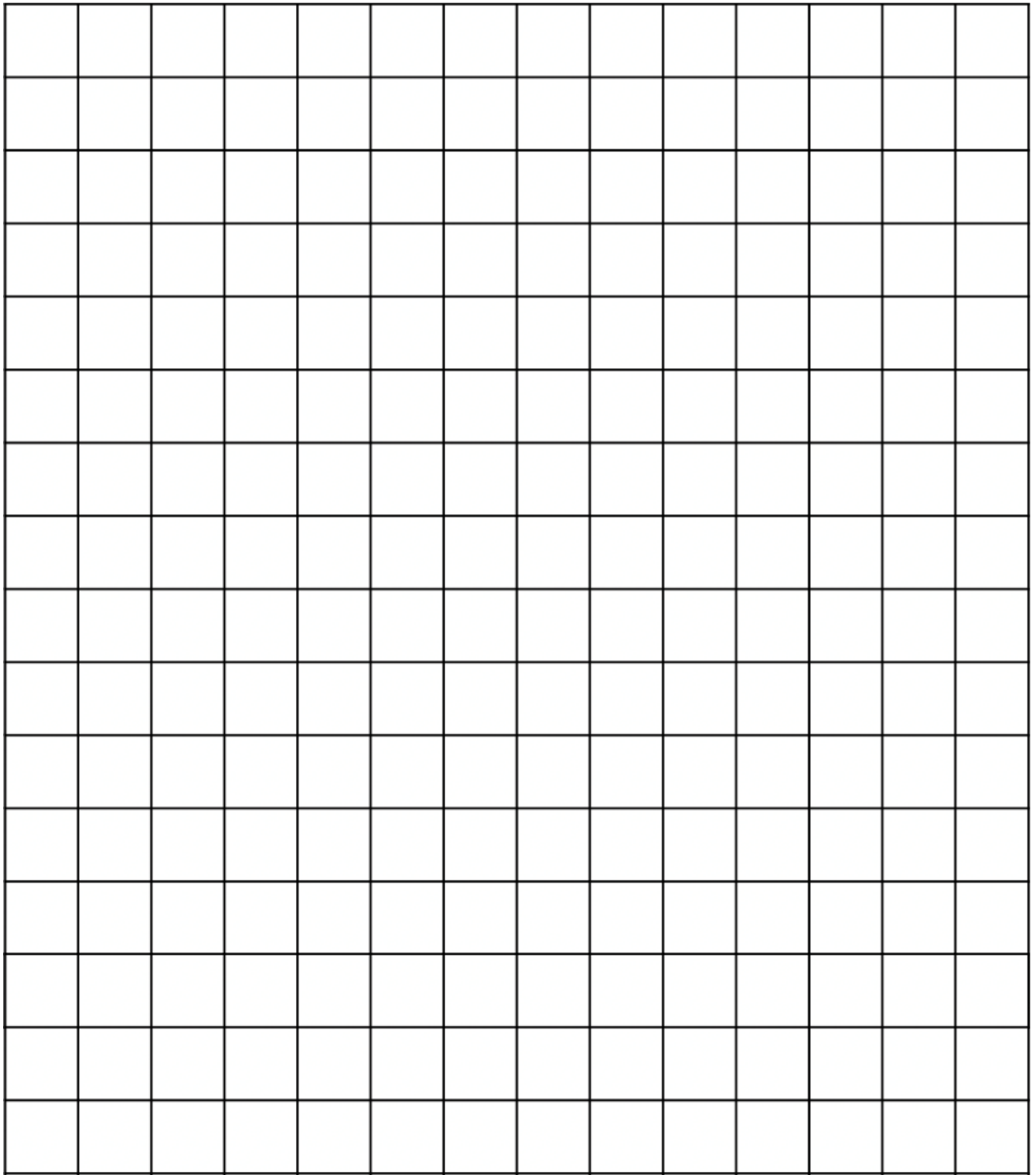
## Converting answers

### 6. Bearkeeper

Each bear eats 325 g of berries each day. There are 8 bears.  
How many **kilograms** of berries do they eat altogether?

### 7. The Explorer

Each canoe carries 125 litres of water. There are 7 canoes.  
How many **millilitres** of water can they carry altogether?



Adapt one of the above questions- change some of the numbers, context, or language.

## 2-Step Addition & Subtraction

### 1. Varjak Paw

Varjak collected 1,487 fish bones on Monday and 2,639 on Tuesday. He gave 1,284 away.

How many fish bones did he have left?

### 2. The Explorer

The children found 2,586 bananas and 1,947 mangoes. They ate 986 pieces of fruit.

How many pieces of fruit remained?

### 3. The Bearkeeper

Pip stored 3,462 berries in spring and 2,138 in summer. The bears ate 1,759 berries.

How many berries were left?

### 4. Varjak Paw

Holly rescued 1,964 kittens and Tam rescued 2,187 more. 1,235 kittens later found homes.

How many kittens still needed homes?

### 5. The Explorer

The children walked 3,425 m before lunch and 2,876 m afterwards. They realised 1,548 m had been walked in the wrong direction.

How far had they actually travelled?

## Converting answers & decimals

### 6. Varjak Paw

Varjak collected 3 kg 450 g of fish on Monday and 2 kg 875 g on Tuesday. He gave 1 kg 650 g away.

How many **grams** of fish did he have left?

### 7. The Explorer

The children found £18.75 in one cave and £24.90 in another. They spent £12.45 on supplies.

How much money did they have left?



## 1-Step Multiplication

### 1. Varjak Paw

Each rooftop has 146 pigeons. Varjak visits 8 rooftops.  
How many pigeons does he see altogether?

### 2. The Explorer

Each canoe carries 184 kg of supplies. There are 6 canoes.  
How much do they carry altogether?

### 3. Bearkeeper

Each bear eats 127 berries every week. There are 9 bears.  
How many berries do they eat altogether?

### 4. Varjak Paw

Each alley has 238 cats. Varjak explores 7 alleys.  
How many cats are there altogether?

### 5. The Explorer

Each campfire uses 135 sticks. The children build 8 campfires.  
How many sticks do they use altogether?

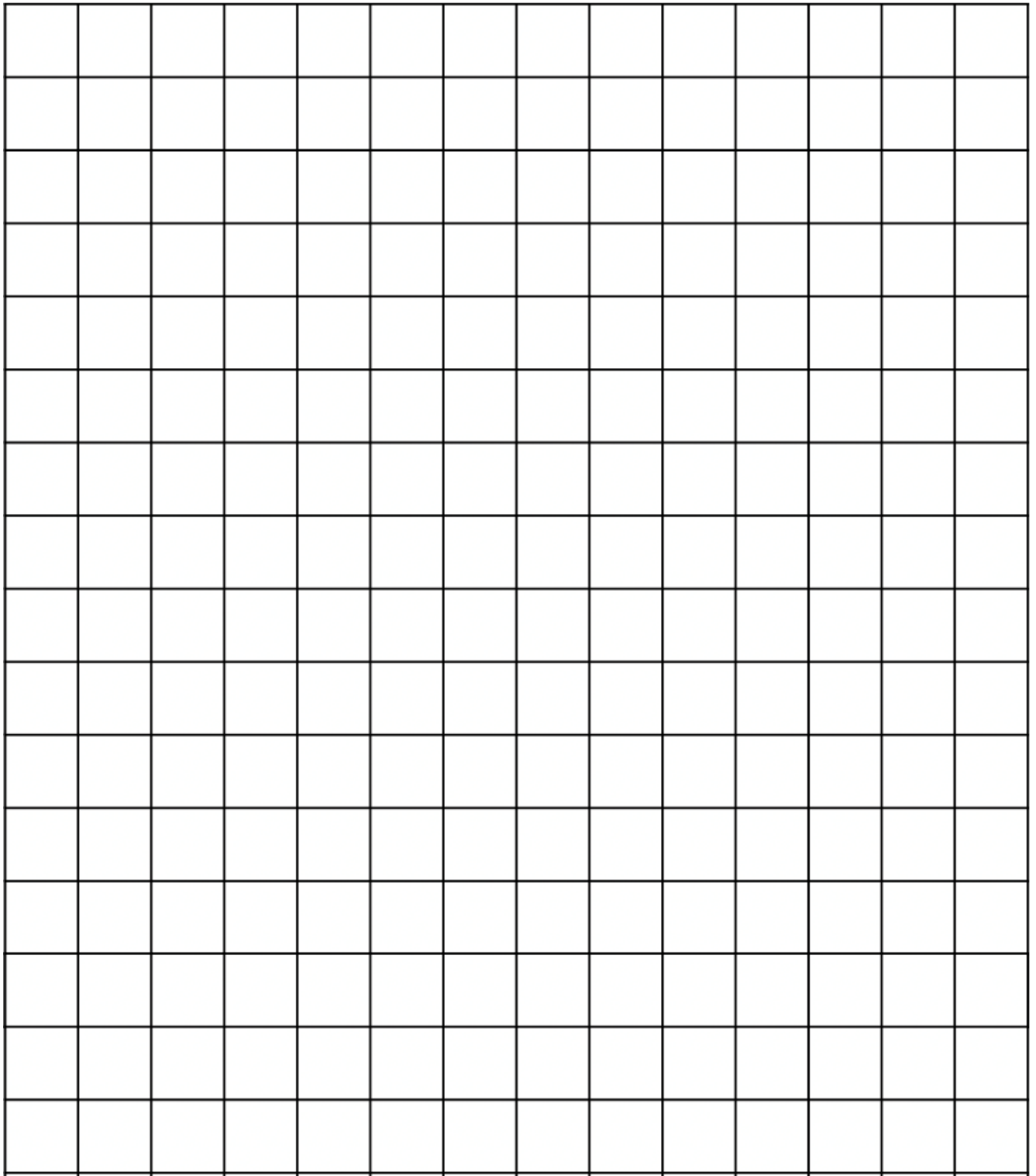
## Converting answers

### 6. Bearkeeper

Each bear eats 325 g of berries each day. There are 8 bears.  
How many **kilograms** of berries do they eat altogether?

### 7. The Explorer

Each canoe carries 125 litres of water. There are 7 canoes.  
How many **millilitres** of water can they carry altogether?



Adapt one of the above questions- change some of the numbers, context, or language.

## 2-Step Multiplication & Addition/Subtraction

### 1. Varjak Paw

Varjak caught 138 fish each day for 7 days. He gave 246 fish away.  
How many fish did he have left?

### 2. The Explorer

Each child collected 174 coconuts. There were 8 children. They used 395 coconuts to build shelters.

How many coconuts were left?

### 3. Bearkeeper

Each bear needs 126 honey pots for winter. There are 9 bears. Tom already has 483 honey pots.

How many more honey pots does he need?

### 4. Varjak Paw

Each rooftop has 215 pigeons. Varjak visits 8 rooftops. 387 pigeons fly away before he counts them.

How many pigeons does he count?

### 5. The Explorer

Each raft carries 164 supply crates. There are 7 rafts. During the journey, 238 crates are damaged.

How many undamaged crates are left?

## Converting answers & decimals

### 6. Varjak Paw

Each bag of fish weighs 425g. Varjak carries 9 bags but gives away 750g of fish.

How many **kilograms** of fish does he have left?

### 7. Bearkeeper

Each bear needs £18.75 worth of food each week. There are 7 bears. Tom already has £42.50 saved.

How much more money does he need?



## Word problem answers

<p><u>1-Step Addition</u></p> <ol style="list-style-type: none"><li>1) 3,924</li><li>2) 4,443 m</li><li>3) 5,692 berries</li><li>4) 4,134 cats</li><li>5) 6,041 insects</li><li>6) 4,325 g</li><li>7) £62.45</li></ol> <p><u>1-Step Subtraction</u></p> <ol style="list-style-type: none"><li>1) 3,425 fish bones</li><li>2) 2,615 ml</li><li>3) 3,666 acorns</li><li>4) 1,434 rooftops</li><li>5) 2,316 kg</li><li>6) 2,375 g</li><li>7) 4,350 ml</li></ol>	<p><u>2-Step Addition &amp; Subtraction</u></p> <ol style="list-style-type: none"><li>1) 2,842 fish bones</li><li>2) 3,547 pieces of fruit</li><li>3) 3,841 berries</li><li>4) 2,916 kittens</li><li>5) 4,753 m</li><li>6) 4,675 g</li><li>7) £31.20</li></ol> <p><u>1-Step Multiplication</u></p> <ol style="list-style-type: none"><li>1) 1,168 pigeons</li><li>2) 1,104 kg</li><li>3) 1,143 berries</li><li>4) 1,666 cats</li><li>5) 1,080 sticks</li><li>6) 2,600g (2.6kg)</li><li>7) 875,000 millilitres</li></ol>
<p><u>2-Step Multiplication &amp; Addition/Subtraction</u></p> <ol style="list-style-type: none"><li>1) 720 fish</li><li>2) 997 coconuts</li><li>3) 651 honey pots</li></ol>	<ol style="list-style-type: none"><li>4) 1,333 pigeons</li><li>5) 910 supply crates</li><li>6) 3.075kg</li><li>7) £88.75</li></ol>