

# Book Mystery



Touch arrow to begin,  
then i for information



Spending budgets and trying to balance the cost of what we buy is something that every student needs to learn. In this activity students use tables and other clues to work together to help a librarian match her bills with the books bought.

Suitable for students aged 8+

The Learning Outcome will be that students will be able to solve the Mathematical problem of matching costs to items and working on budgets.

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# Book Mystery



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Developed by Steve Cooke

**Theme: Costs**

**Age range: 8+**

## Context:

Spending budgets and trying to balance the cost of what we buy is something that every student needs to learn. In this activity students use tables and other clues to work together to help a librarian match her bills with the books bought.

## Preparation:

Print out the A4 sheets.

If possible, laminate the Instructions and the Hint Sheets.

## HOW TO PLAY:

Students can individually or in pairs work on the activity provided or it can also be used as a whole class activity.

Students should read the information sheet carefully. They can then make a note of the following:

That the librarian bought different numbers of each book.

That each book cost an exact number of £s.

The cost of the books.

They can then use the information to fill in the "could have cost" Table e.g. She bought two copies of science topics. These two books could have cost £54 for two or £27 each, or £60 for two or £30 each because each total can be divided by two to produce a whole £ number, but £65 can't be divided etc.

When they have filled out the possibilities for each book title, they will be able to find that they have enough information to solve the book mystery using the second table.

We have provided three hint sheets, of varying levels of completion, that the teacher can give out if they think that a student might benefit by its use.

## Learning Outcomes:

Students will be able to solve the Mathematical problem of matching costs to items and working on budgets. If you have found further learning outcomes please share them by emailing [collaborate@mantralingua.com](mailto:collaborate@mantralingua.com), quoting MathsBM01.0

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(You can purchase a professionally printed, sound-enabled version of this activity with pre-cut cards from [www.mantralingua.com](http://www.mantralingua.com). Students can use PENpal to record and re-record aurally onto the pages and cards. Recordings can be saved and used for assessment, or shared with other classes and schools via "ShareLINK".)

## Instructions



Read the information sheet carefully.

Note that the librarian bought different numbers of each book.

Note that each book cost an exact number of £s.

Note the cost of the books.

Then use the information to fill in the "could have cost" table.

For example she bought two copies of science topics. These two books could have cost £54 for two or £27 each, or £60 for two or £30 each because each total can be divided by two to produce a whole £ number.

When you have filled out the possibilities for each book title, you will find that you have enough information to solve the book mystery using the second table.



Name: \_\_\_\_\_

The school librarian bought six different text book editions for the library. She bought a different amount of each different book:



9 copies of "Geography World"



4 copies of "History Themes"



3 copies of "Maths Book 1"



5 copies of "English Grammar"



2 copies of "Science Topics"



8 copies of "Technology Works"



The librarian has the bills for each set of books, but can't remember which bill goes with which set. The total the librarian paid for each set were £54, £60, £65, £81, £88 and £108. She can remember the price of one book of each kind was an exact number of pounds. Can you help her by working out how much she paid for each set of books?



Use this table to work out which total could match which book.

Name of book	Number of copies	Could she have paid £54?	Could she have paid £60?	Could she have paid £65?	Could she have paid £81?	Could she have paid £88?	Could she have paid £108?
Geography World							
History Themes							
Maths Book 1							
English Grammar							
Science Topics							
Technology Works							

## What could one book have cost?

- One Geography book could have cost \_\_\_\_\_ or \_\_\_\_\_ or \_\_\_\_\_.
- One History book could have cost \_\_\_\_\_.
- One Maths book could have cost \_\_\_\_\_.
- One English book could have cost \_\_\_\_\_.
- One Science book could have cost \_\_\_\_\_.
- One Technology book could have cost \_\_\_\_\_.

Here are the prices of the six different kinds of books.



Name of book	Could one have cost £9?	Could one have cost £11?	Could one have cost £13?	Could she have paid £30?	Could one have cost £18?	Could one have cost £27?
Geography World						
History Themes						
Maths Book 1						
English Grammar						
Science Topics						
Technology Works						

How much did the Librarian pay for each kind of book?

She must have paid \_\_\_\_\_ for the Geography books.

She must have paid \_\_\_\_\_ for the History books.

She \_\_\_\_\_  
\_\_\_\_\_

She \_\_\_\_\_  
\_\_\_\_\_

She \_\_\_\_\_  
\_\_\_\_\_

She \_\_\_\_\_  
\_\_\_\_\_

One more thing...

The school has given the Librarian some extra money to buy text books. She can spend £278. She wants to buy more copies of the same text books. Can you work out how many copies of each book she can buy? She can't spend more than £278 but she wants to spend as near as possible to £278.



# The Book Mystery extension: hint sheet 1

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	Geography	History	Maths	English	Science	Technology
1	9	27	18	13	30	11
2	18	54	36	26	60	22
3	27	81	54	39	90	33
4	36	108	72	52	120	44
5	45	135	90	65	150	55
6	54	162	108	78	180	66
7	63	189	126	91	210	77
8	72	216	144	104	240	88
9	81	243	162	117	270	99
10	90	270	180	130		110
11	99		198	143		121
12	108		216	156		132
13	117		234	169		143
14	126		252	182		154
15	135		270	195		165
16	144			208		176
17	153			221		187
18	162			234		198
19	171			247		209
20	180			260		220
21	189			273		231
22	198					242
23	207					253
24	216					264
25	225					275
26	234					
27	243					
28	252					
29	261					
30	270					
<b>MAXIMUM</b>	<b>30</b>	<b>10</b>	<b>15</b>	<b>21</b>	<b>9</b>	<b>25</b>



# The Book Mystery extension: hint sheet 2

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	Geography	History	Maths	English	Science	Technology
1	9	27	18	13	30	11
2					60	
3					90	
4					120	
5					150	
6					180	
7					210	
8					240	
9					270	
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
MAXIMUM					9	

# The Book Mystery extension: hint sheet 3

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	Geography	History	Maths	English	Science	Technology
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
MAXIMUM						