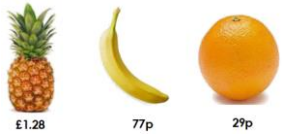
Year 4 maths – Summer 1 Week 5 beginning: 18.5.20

Theme	Money Lesson 4 Solving problems involving money (addition)	Money Lesson 5 Solving problems involving money (subtraction)	Money Lesson 6 Solving problems involving money (multiplication 1 of 2)	Money Lesson 7 Solving problems involving money (multiplication 2 of 2)	Money Lesson 8 Estimating amounts of money
Factual fluency (to aid fluency)	Practise adding 2 3-digit numbers	Subtract numbers with up to 3 digits	Practise your multiplication skills here!	Have a go at these multiplication word problems.	Solve money problems using price lists
Problem/ activity of the day **Remember, just like in class, you can still show the depth of your knowledge** LINK	**(Lesson 1 resources below)** **MAKING LINKS:** Last week, we learnt how to write, compare and round amounts of money. Today we are going to solve problems involving adding amounts of money. **THINK: (support below)** **Bob goes to a toy shop. He wants to buy these 3 toys.**  **Bob has £7.00. Can he afford all the toys he wishes to buy?** **SEE: (model below)** For support with formal methods of addition with regrouping/renaming click here. **DO:** Answer the questions below.	**(Lesson 2 resources below)** **MAKING LINKS:** Yesterday we learnt how to add amounts of money. Today we are going to learn how to subtract amounts of money and solve 2-step word problems. **THINK: (support below)** **Ben went to a cafe for his birthday tea. He had burger and chips for £5.65 and a milkshake for £1.70.**  **How much change did Ben receive from a £10 note?** **SEE: (model below)** For support with formal methods of subtraction with regrouping/renaming click here. **DO:** Answer the questions below.	**(Lesson 3 resources below)** **MAKING LINKS:** This week, we have learnt how to add amounts of money and subtract to find change. Today we are learning to use the expanded method of multiplication to multiply amounts of money. **THINK (support below):** **Sophie buys snacks and drinks for a party of 6.**  **She buys 3 bottles of juice, 3 packets of crisps and 6 packets of nuts. How much does Sophie spend altogether?** **SEE (model below)** **Watch video here** **DO:** Use the expanded method for multiplication to solve the problems below. Watch out for Questions 9 and 10 – you may have to do something different!	**(Lesson 4 resources below)** **MAKING LINKS:** Yesterday we learnt how to use the expanded method of multiplication to multiply amounts of money. Today we are going to continue using this method, but we are also going to learn how to find change. **THINK (support below):** **A Year 4 teacher challenged the children in her class to make a fruit salad. Henry went to the shop and bought 2 pineapples, 3 bananas and 2 oranges. How much did Henry spend? How much change did he receive from £6?**  **SEE (model below)** **DO:** Use the expanded method for multiplication to calculate how much each child spent. Use the formal written method for subtraction to find out how much change each child received.	**(Lesson 1 resources below)** **MAKING LINKS:** Last week, we learnt how to round amounts of money. Today we are going use our rounding skills to estimate total amounts of money. **THINK (support below):** **Lisa and Bob's families went out for dinner together. When they were given the bill, Lisa's Mum asked how much the total was approximately so that it was easier to split.**  **Bob worked out that it was approximately £76.00 but Lisa said it was about £82.00** **Who was correct?** **SEE: (model below)** **DO:** Answer the questions below.
Methods, tips, clues & checks	**Day 1 resources and answers (below)**	**Day 2 resources and answers (below)**	**Day 3 resources and answers (below)**	**Day 4 resources and answers (below)**	**Day 5 resources and answers (below)**

See below for resources to support you to THINK-SEE-DO

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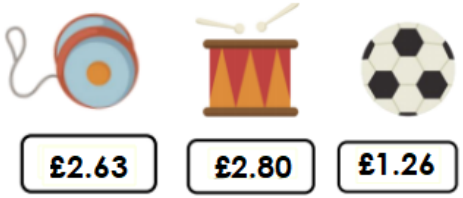
DAY 1 RESOURCES:

THINK:

Bob wants to buy these toys. He has £7.00. Can he buy them all?



£2.63 £2.80 £1.26

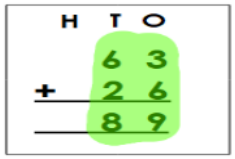
SEE:

We need to find the TOTAL amount of the 3 toys. We need to find the most efficient and accurate way of working this out. It can help us to combine methods. Today we will look at using **partitioning and column methods.** We start by adding the 2 amounts which may be the trickiest to add - the amounts which have digits in all place value positions. **These are the YO-YO at £2.63 and the FOOTBALL at £1.26.**

1. First, partition the amounts into £ and pence:

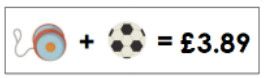
2. Next, add the £ together: £2 + £1 = £3

3. Now, use the column method to add the pence. Remember to line up your digits in the correct place value columns and start with the ones



4. Then we recombine the £ and pence:

£3 and 89p = £3.89



Now we know the YOYO and the FOOTBALL cost a total amount of £3.89. We still need to add the cost of the DRUM to find the final total. So we will add £3.89 and £2.80 together using the same methods:

1. PARTITION

2. ADD POUNDS (£)

£3 + £2 = £5

*For support with formal methods of addition with regrouping/ renaming click here.

3. ADD PENCE

Now we have 100 pence in the hundreds. Remember 100p = £1 So we have £1.69

4. RECOMBINE TOTAL £ AND PENCE

£5 and £1.69 = £6.69

DO:

How much did each child spend at the beach? Remember to use partitioning and column method to help you and record your workings.

1) Josh bought a beach ball, bucket and spade and beach towel.
2) Amy bought an ice cream, rubber ring and wind break.
3) Dexter bought a bucket and spade, ice cream and beach towel.
4) Jed bought a beach ball, rubber ring and wind break.
5) Samira bought a beach towel, ice cream and rubber ring.
6) Ed bought a bucket and spade, rubber ring and beach ball.
7) Katie bought a beach towel, rubber ring and wind break.
8) Ravi bought an ice cream, bucket and spade and beach ball.

Deepening:

Write three of your own problems like the ones above. Explain, using words and diagrams, how to solve each one.

DAY 2 RESOURCES:

THINK:

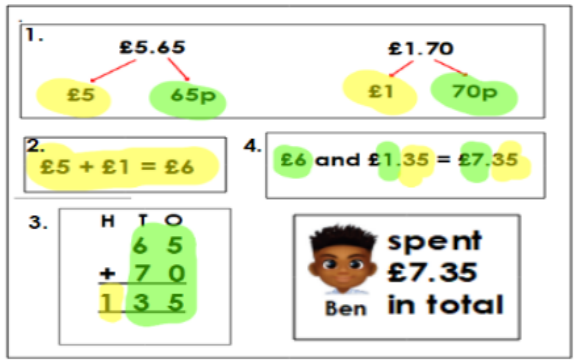
Ben went to a cafe for his birthday tea. He had burger and chips for £5.65 and a milkshake for £1.70.

Ben

How much change did he receive from a £10 note?

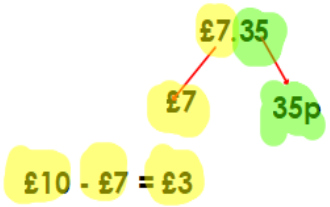
SEE:

This is a **2-step problem**. To solve it we need to complete the steps in the correct sequence. We want to know **how much change** Ben received from the **total he spent**. So our **first step is to find the total**.
Recap your **addition methods** from yesterday to find the total amount Ben spent:



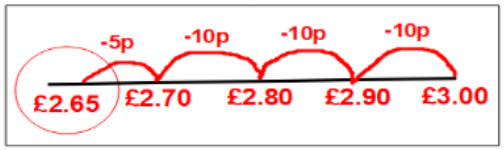
We now know that Ben spent **£7.35**. How much change did he receive from **£10.00**? We need to **find the difference** between the two amounts by **subtracting £7.35 from £10.00.**
Our calculation is £10.00 - £7.35

We can use **partitioning** to help us again by **subtracting the £ first.**

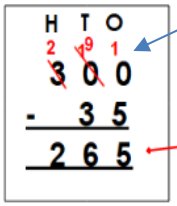


Now we have **£3.00 left** with **35p still to take away.**
We can use a **numberline** or **column method** to help us here.

To use the numberline I count back 35p in increments or 'chunks' from £3.00:



To use the column method I will convert all amounts to the same unit. Here I have converted the £ to pence: £3.00 = 300 pence.



Note that as I have 0 tens and 0 ones, I have to rename TWICE before I can subtract my ones*

Remember this is 265p which will be £2.65

Both my numberline and column method answers tell me that £3.00 - 35p = £2.65 or 265p

1. **We subtracted the pounds: £10.00 - £7.00 = £3.00**
2. **We subtracted the pence: £3.00 - £0.35 = £2.65**
3. **The final answer was: £10.00 - £7.35 = £2.65**

Ben **received £2.65 in change**

DO:

It's potion shopping day at Hogwarts! Help calculate the costs and change in these 2-step problems.

1. Harry bought some Wolfshane Potion and Essence of Dillany. How much change did he have from a £10 note?
2. Hermione bought some Veritaserum and a Draught of Living Death. How much change did she receive from a £10 note?
3. Ron bought some Pepperup Potion and some Amostentia. How much change did he receive from a £5 note?
4. Dumbledore needed some Flesh-Eating Slug Repellant and some Felix Felicis. What was his change from a £10 note?
5. Hagrid popped in for some Skele-Gro and Wolfshane Potion. He paid with a £10 note. What was his change?
6. Draco bought some Wartcap Powder, Bubotuber Pus and Begoar. How much change did he receive from a £20 note?

Deepening:

At the school fair I sold cupcakes. I charged 31p for 1, 50p for 2 and 65p for 3. My first customer spent exactly £8.76. How many cupcakes might he have bought? How much change would he receive from £10?

*For support with formal methods of subtraction with regrouping/renaming click **here.**

DAY 3 RESOURCES:

THINK:

Sophie buys snacks and drinks for a party of 6. She buys 3 bottles of juice, 3 packets of crisps and 6 packets of nuts. How much does Sophie spend altogether?

SEE: VIDEO HERE

We can use the expanded method for multiplication to help us calculate how much money Sophie spent. We calculate the total cost of each item (multiplication) and then we add these together to find the total amount of money spent on all the items:

x 1 2 6	x 2 0 9	1
3	3	x 1 6 7
1 8	2 7	6
+ 6 0	+ 0 0	4 2
3 0 0	6 0 0	+ 3 6 0
3 7 8	6 2 7	6 0 0
		10 0 2

Juice = £3.78 + Crisps = £6.27 + Nuts = £10.02

£3.78 + £6.27 + £10.02 = £20.07.

Sophie spent £20.07 on snacks.

Remember to:

- ✓ Multiply the ones first
- ✓ Multiply the tens
- ✓ Multiply the ones
- ✓ Add the amounts together
- ✓ Don't forget the decimal point when writing the total as an amount of money!

DO:

How much did each person spend? Solve each problem using the expanded method of multiplication. Remember to record your calculations.

1. Arjun buys 2 boxes of eggs.
2. Millie buys 1 pint of milk and 2 bags of flour.
3. Leon buys 3 bags of flour.
4. Gemma buys 3 bags of flour, 1 pint of milk and 2 bags of sugar.
5. Adrian buys 3 pints of milk.
6. Joanne buys 2 pints of milk, 2 bags of flour, 2 bags of sugar and 2 boxes of eggs.
7. Justin buys 3 bags of sugar and 4 boxes of eggs.
8. Abigail buys 2 bags of sugar, 2 pints of milk and one bag of flour.
9. Daniel buys 4 boxes of eggs but then changes his mind and returns one.
10. Tyrone buys 2 pints of milk and 2 bags of flour but then changes his mind and returns 1 pint of milk.

Deepening:

Find another way to solve one of your calculations from today. Explain how it is different to the methods we have used today.

DAY 4 RESOURCES:

THINK:

£1.28

77p

29p

A Year 4 teacher challenged the children in her class to make a fruit salad. Henry went to the shop and bought 2 pineapples, 3 bananas and 2 oranges for his fruit salad.
How much did Henry spend?
How much change did he receive out of £6?

SEE:

First, I need to calculate the cost of each item of fruit. Then, I need to add these totals together to find out the total amount that Henry spent on fruit. I can use my learning from yesterday to help me with these calculations.

```
x  1 2 8
       2
  ------
     1 6
+    4 0
   2 0 0
  ------
   2 5 6
```

```
x    7 7
       3
  ------
+    2 1
   2 1 0
  ------
   2 3 1
```

```
x    2 9
       2
  ------
+    1 8
     4 0
  ------
     5 8
```

2 pineapples = £2.56

3 bananas = £2.31

2 oranges = £0.58

Once I have calculated the total cost of each item, I need to add them together to find the total price Henry paid for his fruit:
£2.56 + £2.31 + £0.58 = £5.45

Henry spent £5.45 on fruit for his fruit salad. I need to subtract this amount from £6.00.

```
    5   9
    6  ¹0  ¹0
-   5   4   5
  -----------
    0   5   5
```

£6.00 - £5.45 = £0.55 or 55p

Henry received 55p change from £6.

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DO:

Watermelon
£3.29

Apples
£2.65

Pineapple
£3.45

Strawberries
£5.75

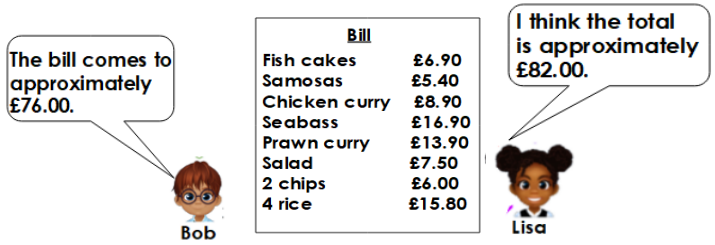
1. Rodrigo has £10. He buys 2 watermelons. How much does he spend? How much change does he receive?
2. Nadia has £10. She buys 2 bags of apples and a pineapple. How much does she spend? How much change does she receive?
3. Sam has £15. He buys 2 punnets of strawberries. How much does he spend? How much change does he receive?
4. Naomi has £15. She buys 3 bags of apples and 2 watermelons. How much does she spend? How much change does she receive?
5. Thomas has £20. He buys 3 punnets of strawberries and 1 bag of apples. How much does he spend? How much change does he receive?
6. India has £20. She buys 3 pineapples and 2 bags of apples. How much does she spend? How much change does she receive? Can she afford to buy another item?

Deepening:

I spent exactly £25 on goldfish and angelfish. Each goldfish cost £5 and each angelfish cost £3. How many of each fish did I buy?

DAY 5 RESOURCES:

THINK:



SEE:

To find the approximate total of the bill we need to round each price to the nearest pound. Last week you learnt how to round amounts of money. You can at look the tenths digit in each of these amounts and decide whether they round up or down.

Bill	
Fish cakes	£6.90
Samosas	£5.40
Chicken curry	£8.90
Seabass	£16.90
Prawn curry	£13.90
Salad	£7.50
2 chips	£6.00
4 rice	£15.80

The samosas are £5.40 and are closer to £5.00 than £6.00. So we round this price **down** to £5.00

£5.40 ≃ £5.00

Bill	
Fish cakes	£6.90
Samosas	£5.40
Chicken curry	£8.90
Seabass	£16.90
Prawn curry	£13.90
Salad	£7.50
2 chips	£6.00
4 rice	£15.80

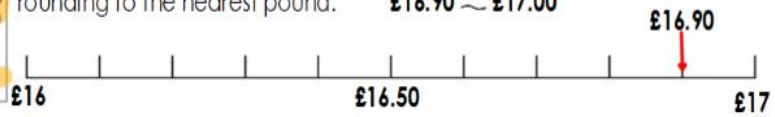
The chips do not need to be rounded as they are already in whole pounds.

All of the other items on the menu round **up** to the next pound as their tenths digits are 5 or more.

We can see that the fish cakes at **£6.90 ≃ £7.00**

Bill	
Fish cakes	£6.90
Samosas	£5.40
Chicken curry	£8.90
Seabass	£16.90
Prawn curry	£13.90
Salad	£7.50
2 chips	£6.00
4 rice	£15.80

This includes the **seabass**, the prawn curry and the rice which all have pounds in the tens position as well as the ones. We still look at the tenths value when we are rounding to the nearest pound. **£16.90 ≃ £17.00**



Once you have decided whether to round **up** or **down** based on the tenths digit, you can record your answers:

Fish cakes	£6.90	≃ £ 7.00
Samosas	£5.40	≃ £ 5.00
Chicken curry	£8.90	≃ £ 9.00
Seabass	£16.90	≃ £17.00
Prawn curry	£13.90	≃ £14.00
Salad	£7.50	≃ £ 8.00
2 chips	£6.00	≃ £ 6.00
4 rice	£15.80	≃ £16.00

Add the rounded totals: £82.00

DO:

1. Mark buys a chicken for £5.05 and some yoghurt for £2.82. To the nearest pound, how much does Mark spend?
2. Annabelle buys a T-shirt for £6.25, a pair of shorts for £7.89 and a pair of trainers for £12.65. To the nearest pound, how much does Annabelle spend?
3. In the toy shop, Charlotte buys a teddy bear for £11.55, a rocket for £3.29 and some face paint for £5.09. What is the approximate total cost of her items to the nearest pound?
4. For his Mum's birthday, Archie buys a birthday card for £3.79, a bunch of flowers for £7.39 and some chocolates for £5.50. To the nearest pound, how much does Archie spend?
5. Khashan buys a toy car for £4.39, a magazine for £4.72 and an ice cream for £2.69. How much does he spend, to the nearest pound? What change will he receive, to the nearest pound, from a £20.00 note?
6. Jada's magazine cost £3.00 when rounded to the nearest pound. What is the maximum price (most) she could have paid for her magazine? What is the minimum (least) she would have paid?

Deepening:

Lexi has £20. She wants to buy some items with these costs:

£5.43 £2.07 £6.30 £4.49 £2.26

She rounds each price to the nearest pound. "I estimate the total to be £19, so I have enough money." Why might Lexi not be correct?

ANSWERS:

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
1. £7.50 2. £8.95 3. £6.95 4. £9.50 5. £7.45 6. £7.20 7. £10.95 8. £5.50 **Deepening:** Share your alternative explanation with your teacher.	1. Harry spent £5.72 and received £4.28 change. 2. Hermione spent £6.85 and received £3.15 change. 3. Ron spent £3.06 and received £1.94 change. 4. Dumbledore spent £8.35 and received £1.65 change. 5. Hagrid spent £8.62 and received £1.38 change. 6. Draco spent £11.40 and received £8.60 change. **Deepening:** The customer could have bought 40, 36 (in two different ways) or 32 cupcakes. He would receive £1.24 change.	1. Arjun - £3.30 2. Millie - £7.55 3. Leon - £8.34 4. Gemma - £16.45 5. Adrian - £5.97 6. Joanne - £18.96 7. Justin - £15.78 8. Abigail - £12.88 9. Daniel - £4.95 10. Tyrone - £7.55 **Deepening:** Share your alternative method with your teacher.	1. Rodrigo spent £6.58 and received £3.42 change. 2. Nadia spent £8.75 and received £1.25 change. 3. Sam spent £11.50 and received £3.50 change. 4. Naomi spent £14.53 and received 47p change. 5. Thomas spent £19.90 and received 10p change. 6. India spent £15.65 and received £4.35 change. She could buy one more watermelon, one bag of apples or one pineapple. **Deepening:** I could have bought 2 goldfish and 5 angelfish or 5 goldfish and 0 angelfish.	1.Mark spent £8.00 to the nearest pound 2.Annabelle spent £27.00 to the nearest pound 3.Charlotte spent £20.00 to the nearest pound 4.Archie spent £17.00 to the nearest pound 5.Khasan spent £12.00 to the nearest pound. He will receive £8.00 change from a £20.00 note 6.The maximum price Jada's magazine could cost is £3.49. The minimum it could cost is £2.50. **Deepening:** If Lexi rounds each amount to the nearest pound, she has to check the digit in the tenths place to decide whether to round up to the nearest pound or down to the nearest pound. Each of the digits in the tenths place is below 5. That tells Lexi that each amount needs to be rounded down to the nearest pound. When she rounds down, she 'loses' all of the pence in each amount. This means that the £20 she has will be enough. If she rounded each amount to the nearest 10p, she would be able to include the pence which would have given her a more accurate answer. She would then have noticed that £20 was not enough money to buy each of the items.