

Unit 10
Money and “real life” problems

Three daily lessons

North West Consultants

Year 3
Autumn term

This Unit Plan is designed to guide your teaching.

You will need to adapt it to meet the needs of your class.

Unit Objectives
Year 3

- Recognise coins and notes of different values.
- **Choose an appropriate number operation and calculate method to solve word problems** involving money and ‘real life’.
- **Understand and use £ p notation.**
- Explain and record method informally.
- Check multiplication in different order.

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Link Objectives

Year 2

Year 4

- Use of £ p notation.
- **Choose and use appropriate number operation and calculate strategy to solve simple word problems.**
- Explain method.

- **Choose appropriate number operations and calculation methods** to solve money and ‘real life’ word problems with one or more steps.
- Explain and record methods.
- Check with equivalent calculation.

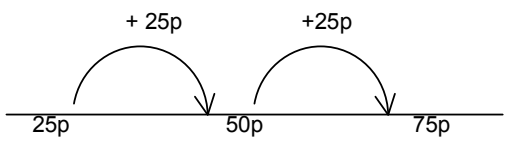
Resources needed to teach this unit:

- Dice 1-6
- Timer
- Number line 1-100
- Counting stick
- Display coins, large 50p 20p 10p 5p
- Small coins
- Individual number lines
- Cube, number rod
- Squared paper
- 100 number square
- Whiteboards
- Pens
- Resource sheet 10.1
- Resource sheet 10.2
- Resource sheet 10.3
- Resource sheet 10.4
- Resource sheet 10.5
- Resource sheet 10.6
- Notes regarding Resource sheet 10.2
- OHT sheet 10.1

Planning Sheet	Day 1	Unit 10: Money and “real life” problems	Term: Autumn	Year Group: 3
Oral and Mental		Main Teaching		Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions
		<ul style="list-style-type: none"> ▪ Choose and use appropriate operations to solve word problems. ▪ Appropriate ways of calculating. ▪ Consider word problems involving numbers in “real life” and money. <p>VOCABULARY pound pence add - addition subtract – subtraction multiply – multiplication divide – division equals total how much left sign</p>	<ul style="list-style-type: none"> ▪ Teacher has four coins, e.g. 50p, 20p, 10p, 5p. <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Q What coins have I got?</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Q If I add them, how much have I got?</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Q How many 10ps make 50p?</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Q If I spend 20p, how much do I have left?</div> <ul style="list-style-type: none"> ▪ Ask children to make up two questions linked to coins. ▪ Record question. ▪ Teacher records on board -, +, %, +, =. <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Q How could we use these signs to record the operation we would use to solve?</div> <ul style="list-style-type: none"> ▪ Look at teacher’s last question, “If I spend 20p, how much do I have left?” ▪ Teacher discusses total 85p, spend 20p Operation would be 85p-20p= Do not need to solve, it is the operation that is important. ▪ Now use children’s questions in the same manner. 	<ul style="list-style-type: none"> ▪ Choose one of the problems on the worksheet display on board. e.g. Share £20 equally between 5 people. ▪ Draw £20 <input type="text"/> 5 = ▪ Discuss what sign should be recorded in the box. Ask a child to record in the box. <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Q Do you think that is correct? Why?</div> <ul style="list-style-type: none"> ▪ Encourage children’s explanations. ▪ Teacher chooses answer box £2 ▪ Children should then be encouraged to state why this is the incorrect answer. ▪ A child could then choose an example and explain their decisions.

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Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions
		<p>RESOURCES Four coins, large display, 50p, 20p, 10p, 5p</p> <p>Resource sheet 10.1</p>	<ul style="list-style-type: none"> ▪ Record on board £ and p. ▪ Record a money addition but leave out the signs <p style="text-align: center;">£28 £4 £32</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q What sign could go in here to make the number sentence correct?</p> </div> <ul style="list-style-type: none"> ▪ Repeat with subtraction, multiplication and division. ▪ Answers are included at this stage. ▪ Ask children to use Resource Sheet 10.1. Explain how sheet has to be completed. (Complete first one on the board if required) <p>This sheet could be completed in different ways:</p> <ul style="list-style-type: none"> - either lines drawn to join correct answer - or cut and paste in a row 	<div style="border: 1px solid black; padding: 10px; margin-top: 20px;"> <p>By the end of the lesson, children should be able to:</p> <ul style="list-style-type: none"> • choose the correct operation • explain their choice <p>(Refer to supplement of examples, Section 5, p61, 67, 69)</p> </div>

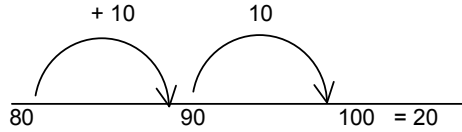
Planning Sheet	Day 2	Unit 10: Money and “real life” problems	Term: Autumn	Year Group: 3
Oral and Mental		Main Teaching		Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions
		<ul style="list-style-type: none"> ▪ To choose correct operation to solve a word problem. ▪ Use appropriate ways of calculating. ▪ Explain methods and how the problem was solved. <p>VOCABULARY pound pence price cost total how much?</p> <p>RESOURCES OHT 10.1 Resource Sheets 10.2, 10.3 Coins Number lines Whiteboards Pens</p>	<ul style="list-style-type: none"> ▪ Using Resource sheet 10.2 enlarged or use as an OHT. ▪ Price the articles to suit the needs of your class. ▪ Look at the picture of the toy sale. <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Q Look at the picture. What do you think it is about?</div> <ul style="list-style-type: none"> ▪ Point to one of the toys. <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Q I want to buy 3 of these. What information is important to work out the answer?</div> <ul style="list-style-type: none"> ▪ Underline or highlight price. <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Q What maths operation do we need to use to find the answer? What calculation is required?</div> <ul style="list-style-type: none"> ▪ Children use whiteboards to record the correct number sentence. ▪ Check that all are multiplication/repeated addition. ▪ Children work out the answer. <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Q What is the answer? How did you work it out?</div> <ul style="list-style-type: none"> ▪ Compare methods used. ▪ Repeat the process with another question. ▪ Give the children Resource Sheet 10.3. ▪ Ask them to work with a partner to see if they can find 2 different strategies to solve the problem. 	<ul style="list-style-type: none"> ▪ Read through one of the problems that the children have worked on and ask one pair to come out and discuss the strategies they used. ▪ Choose a different problem and repeat the process. ▪ Try to choose children who have used a variety of methods. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>By the end of the lesson children should be able to:</p> <ul style="list-style-type: none"> • choose the correct operation • solve the problem • explain the strategy used <p>(Refer to supplement of examples Section 5, pages 61, 67 and 69.)</p> </div>

Planning Sheet	Day 3	Unit 10: Money and “real life” problems	Term: Autumn	Year Group: 3						
Oral and Mental		Main Teaching		Plenary						
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions						
		<ul style="list-style-type: none"> ▪ Use informed methods to support and record work. ▪ Choose and use appropriate operations to solve word problems – with jottings, pencil and paper. <p>VOCABULARY partition partitioning number line altogether multiples</p> <p>RESOURCES Resource sheet 10.2 Resource sheet 10.4</p>	<ul style="list-style-type: none"> ▪ Write the problem on the board. “Zack buys 3 magazines. Each magazine costs £1.25. What is the total cost of 3 magazines?” ▪ Demonstrate methods. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q How could we solve this question. I am going to show you how I would solve.</p> </div> <ul style="list-style-type: none"> ▪ Record on the board and explain each step. $£1 \times 3 = £3$ $20p \times 3 = 60p$ $5p \times 3 = 15p$ $£3 + 60p + 15p = £3.75$ This is called “partitioning” ▪ Or I could have recorded. Again explain each step. <div style="text-align: center; margin: 10px 0;">  </div> <p>$£1 \times 3 = 3$ $£3 + 75p = £3.75$</p> <ul style="list-style-type: none"> ▪ Then work through a different example. Matt has seen a game that costs £4.50. He would like to buy it. He is able to save 50p a week. How many weeks will it take to save enough money to buy the game. Record how to solve: $50p = 1$ magazine and discuss $£1 = 2$ magazine – double $£2 = 4$ magazine – double $£4 = 8$ magazine - double 	<ul style="list-style-type: none"> ▪ What am I? “I am more than £1.50 and less than £4.50. My amount in pence is a multiple of 3 and 50”. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q What does multiple mean?</p> </div> <ul style="list-style-type: none"> ▪ Show example 3, 6, 9 in the 3x table. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q Do you think 30, 60, 90 would be a multiple of 3? Why?</p> </div> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q Who can work out what multiples of 50 could be?</p> </div> <ul style="list-style-type: none"> ▪ Take children’s ideas: <table style="margin-left: 20px;"> <tr> <td>50</td> <td>200</td> </tr> <tr> <td>100</td> <td>250</td> </tr> <tr> <td>150</td> <td>300</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Q Can anybody see a link between the 3 and the 50 multiples?</p> </div> <ul style="list-style-type: none"> ▪ If 30 is a multiple, then 300 would be? ▪ So 300p is the answer. ▪ This week we have been working on money problems. 	50	200	100	250	150	300
50	200									
100	250									
150	300									

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		<ul style="list-style-type: none"> ▪ 	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Q How can I find out how many weeks it will take me to save £4.50?</p> </div> <p>£4 – 8 weeks 50p – 1 week 9 weeks altogether</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Q What if the game cost £5?</p> </div> <p>£1 = 2 weeks £5 = 10 weeks 2 + 2 + 2 + 2 + 2 or 2 x 5</p> <ul style="list-style-type: none"> ▪ Now using Resource sheet 10.2 from yesterdays work give out Resource sheet 10.4. ▪ Children can work individually or in pairs to solve the problems. 	<ul style="list-style-type: none"> ▪ Tomorrow we will be solving more problems but not just money. <div style="border: 1px solid black; padding: 10px; margin-top: 20px;"> <p>By the end of the lesson children will be able to:</p> <ul style="list-style-type: none"> • Use informal methods to support and record work. </div>

Planning Sheet	Day 4	Unit 10: Money and “real life” problems	Term: Autumn	Year Group: 3
Oral and Mental		Main Teaching		Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions
		<ul style="list-style-type: none"> ▪ Choose and use appropriate operations to solve word problems. ▪ Choose and use appropriate ways of calculating. ▪ Solve word problems involving numbers in “real life” and money. ▪ Explain methods and reasoning orally, where appropriate in writing. <p>VOCABULARY calculate calculation method operation</p> <p>RESOURCES cube, number rod, coins, squared paper, number square, whiteboard, pencil, paper Resource sheet 10.5</p>	<ul style="list-style-type: none"> ▪ Children sit on the carpet in a circle. ▪ Place mathematical apparatus in the centre, cube, number rod, coins, squared paper, number line, 100 square, whiteboard, pencil and paper. <div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;">Q What do these things have in common?</div> <ul style="list-style-type: none"> ▪ They all help us with calculations? <div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;">Q How could each of these pieces of apparatus help us?</div> <ul style="list-style-type: none"> ▪ So we can see how different apparatus helps us, this week we have been looking at different strategies that can help us to solve problems. <div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;">Q Who can tell me what some of those strategies are?</div> <ul style="list-style-type: none"> ▪ Children may discuss addition, partitioning, doubling, making ten, repeated addition, adjusting etc. ▪ We are now giving to use apparatus and our strategies to help us to solve some problems. ▪ Using Resource sheet 10.5 set the children some of the problems. ▪ Children can either work on all of the problem or these can be cut and selected to match children’s ability. 	<ul style="list-style-type: none"> ▪ The focus of the plenary will be the discussion of the apparatus and methods children used to solve their problems. ▪ Refer back to the apparatus discussed and match an example of children’s choice of one or two of the pieces of apparatus. ▪ Similarly link those examples to the methods/strategies that the children have used. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>By the end of the lesson, children should be able to:</p> <ul style="list-style-type: none"> • choose appropriate apparatus to support their work. • use a range of mental strategies, <p>(Refer to supplement of examples Section 5, p61, p67 and p69).</p> </div>

Planning Sheet	Day 5	Unit 10: Money and “real life” problems	Term: Autumn	Year Group: 3
Oral and Mental		Main Teaching		Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions
		<ul style="list-style-type: none"> Choose an appropriate number operation. Choose a calculation method to solve a word problem. Explain and record method informally. <p>VOCABULARY partitioning calculation mental method operation</p> <p>RESOURCES Resource Sheet 10.6</p>	<ul style="list-style-type: none"> Before the lesson write the question for children to read. “There are 100 books on a shelf, 45 of them are fiction, 35 are information and the rest are poetry books. How many are poetry books?” <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Q What do you think the problem is asking you to do?</p> </div> <ul style="list-style-type: none"> Gather children’s responses. <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Q How are we going to solve this problem? Which operations do we need to use? Add, subtract, multiply, divide?</p> </div> <ul style="list-style-type: none"> Accept answers and reasons from the children. This problem needs addition and subtraction. Let’s look. Demonstrate and discuss step by step. We know there are 100 books altogether, so we will record a word sentence first. <p><u>Discuss each step</u></p> <p>1) Fiction + information + poetry = 100 What numbers can we put instead of the words.</p> <p>2) fiction = 35 information = 45 poetry = ρ</p> <p>3) $35 + 45 + \rho = 100$</p>	<ul style="list-style-type: none"> We will look at some of the methods we have been using this week. <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Q Two children have 12 pencils each. How many do they have altogether?</p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Q Which operations?</p> </div> <ul style="list-style-type: none"> Doubling <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Q Crayons are sold in packs of 5. If Amir has 6 packs, how many crayons does he have?</p> </div> <ul style="list-style-type: none"> Multiplication or repeated addition. Ask a child to come out and do the recording. <div style="border: 1px solid black; padding: 5px;"> <p>Q What do you think you have learned this week?</p> </div>

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Oral and Mental		Main Teaching		Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions
			<p>4) $30 + 40 = 70$ $5 + 5 = 10$ $70 + 10 = 80$</p> <p>5) $80 + \rho = 100$</p>  <p>so, $80 + 20 = 100$</p> <div style="border: 1px solid black; padding: 2px; margin: 10px 0;"> <p>Q So how many poetry books are there?</p> </div> <ul style="list-style-type: none"> ▪ Set children to work on Resource Sheet 10.6. ▪ Stop children after short working session (Q1 & 2 completed for example) <div style="border: 1px solid black; padding: 2px; margin: 10px 0;"> <p>MINI PLENARY</p> </div> <ul style="list-style-type: none"> ▪ Discuss the first or second question and how the children have solved not only methods used but what they have actually recorded. ▪ Children then continue with work. 	<div style="border: 1px solid black; padding: 10px;"> <p>By the end of the lesson children will be able to:</p> <ul style="list-style-type: none"> • Read the problem and know which operation to use. • Be able to use informal jottings to record their method. <p>(Refer to supplement of examples Section 5, p67 and p69.</p> </div>