Bk2	R: Addition/subtraction **C: Mass: estimation/comparison** *E: Relationship between weight and mass*	*Lesson Plan* *65*
Activity		***Notes***
1	**Halves** Look at these numbers on the BB. Think about what the arrow means. BB: 8 12 20 30 34 50 26 60 70 6 4 15 17 10 13 25 35 30 Who can come and join up more pairs? Ps come out to draw arrows. Class agrees/disagrees. Who can tell us the rule? (Arrow points towards the number which is 'half' of the first number) Who agrees? Who can tell us other such pairs not on the BB? (e.g. 10, 5; 100, 50)	Whole class activity Written on BB or use enlarged copy master or OHP Involve several Ps Discussion, agreement, checking, praising Ask several Ps
Extension	If the arrow pointed in the opposite direction what would the rule be? (Arrow would point towards the number which is 'twice' (double) the first number.)	P to BB to demonstrate
	5 min	
2	***Book 2, page 65, Q.1*** Read: List the possible solutions and mark them on the number line. **a)** Let's work out the LHS first. **A**, come and write the answer above the addition and mark it on the number line. (49) Who agrees? Now let's do the RHS. **B,** come and write the answer above the subtraction and mark it on the number line. (68) Who agrees? Let's read out the inequality, starting from the square: 'the square is more than forty-nine and less than sixty-eight'. **C**, come and point to these two numbers and read the numbers that the square could be. Is **C** correct? Let's mark them on the number line and list them opposite the square. How many whole numbers could the square be? Let's count. (18) b) Done as individual work, monitored and helped. Review at BB with whole class. Mistakes corrected. How many dots did you draw on the number line? (17)	Whole class activity for a) Drawn on BB or use enlarged copy master or OHP Discussion, reasoning, agreement, checking, praising Ps also write in their books In unison BB: a) $49 < \square < 68$ $\square$: 50, 51, . . ., 66, 67 Class recites them in unison b) $63 < \square < 81$ $\square$: 64, 65, . . ., 79, 80 Praising
	12 min	
3	**Comparison of mass** T has various objects on table at front of class. Ps come out to hold one in each hand (e.g. book and sponge) and lower the hand which holds the heavier item. (e.g. P chooses the book and the sponge and lowers the hand holding the book. T: We can say that the book is heavier than the sponge. We could also say that the mass of the book is greater than the mass of the sponge, or the weight of the book is greater than the weight of the sponge. What else could we say? (The sponge is lighter than the book; the mass (weight) of the sponge is less than the mass (weight) of the book.) Repeat for other pairs of items, encouraging Ps to say which is heavier/ lighter. (If P not sure, other Ps come out to confirm.) [NOTE: We tend to use the terms 'mass' and 'weight' as equivalent. In fact, it is mass that we measure in g or kg, whereas weight is dependent on gravity. For example: on the Earth: weight (in Newtons) = 9.81 × mass (in kg) on the Moon: weight (in Newtons) = 1.58 × mass (in kg) This is why astronauts need to wear heavy boots on moon walks!]	Whole class activity (e.g. sponge, soap, book, packet of crisps, nail varnish, ribbon, apple, button, litre bottle of water, banana, pencil, ruler, ball, soft toy, cushion, stone, 1 kg and 1 g weights) Involve several Ps Praising (T should try to use the correct term, mass, at all times involving measures but not insist that Ps do so at this stage – see NOTE) Discuss general idea with Ps if they ask about it.
	18 min	

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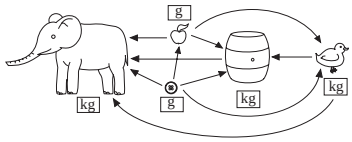
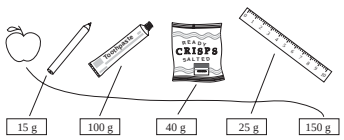
Bk2		*Lesson Plan 65*
Activity		***Notes***
4	**Standard units of measure** T has 2 sets of scales (one measuring grams and the other measuring kg). Which standard units do we use to measure how heavy something is? (g, kg) Which is bigger? (kg) Which of these items would it be best to measure in g and which in kg? T holds up items and class shouts out. T demonstrates on the scales whether the chosen unit is suitable . 23 min	Whole class activity Discussion, agreement BB: 1 kg > 1 g 1 g < 1 kg
5	**Interlude** Action song or rhyme 25 min	Whole class in unison
6 **Extension**	***Book 2, page 65*** Q.2 Read: Which weighs more? Draw arrows towards the one which is heavier. Write in the boxes the standard unit you would use to weigh them. Let Ps try drawing arrows first, then review at BB with whole class. (Encourage short, neat lines and done in a logical order.) Which is heaviest (lightest)? (elephant, button) Review units. What if the elephant was a balloon and the button was made of very heavy metal? Discuss that size is usually a good indicator of mass but it also depends on what something is made of. (e.g. show a sponge and a block of wood of similar shape/size.) 32 min	Individual trial, monitored, helped Use enlarged copy master/OHP Agreement, checking praising Self-correction BB:  Discussion, demonstration
7	***Book 2, page 65*** Q.3 Read: Join up the equal amounts. What should we do first? (Write the values above/below each addition.) Encourage Ps to draw short, neat joining lines. Review at BB with whole class. Ask some Ps to explain how they did the calculations. (e.g. 16 + 36 = 16 + 4 + 30 + 2 = 52) 38 min	Individual work. monitored Drawn on BB or use enlarged copy master or OHP Discussion, agreement, checking, praising BB: 52 g < 59 g < 67 g
8	***Book 2, page 65, Q.4*** T has one of each item in the picture and a set of scales on desk. Discuss which item Ps think is heaviest (lightest). Which measure is biggest (smallest)? Ps join up pictures to measures in their books (monitored). Review with whole class. If there is disagreement, Ps come out to weigh the objects to check whether their answer is feasible. Discuss that, e.g. not all apples (pencils, etc.) are the same size, but they will weigh roughly the same compared to other items. Ps come out to weigh other objects in the classroom. Class can estimate mass first by comparing with objects already weighed. T (or P) writes estimated mass in table on BB. P weighs object and writes actual mass in table. Difference calculated to show how close the estimate was. (Or Ps could each have a copy of the table to fill in.) 45 min	Whole class discussion Use enlarged copy master or OHP (or real items with measures on card) BB:  Drawn on BB or use copy master or OHP

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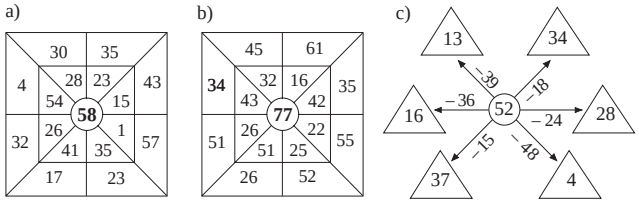
Bk2	R: Calculation. Measures learned **C: Mass (weight): estimation, comparison** *E: Measurement*	*Lesson Plan* *66*
Activity		***Notes***
1	**Number cards** Show me the number I am describing with number cards when I say: • the next nearest whole number less than (greater than) 37 (36, 38) • the next nearest whole 10 less than (greater than) 37. (30, 40) Repeat for other numbers. (Ps can choose the numbers.) *5 min*	Whole class activity Cards shown in unison Incorrect responses corrected at class number line. Praising
2	***Book 2, page 66, Q.1*** Read: *Fill in the missing numbers.* a) Study the puzzle carefully. What is the rule? (numbers sum to 58) Ps come out one at a time to fill in missing numbers and give a reason for choice (or write addition on BB). Class agrees disagrees. b) Think about what the rule could be this time. Let's see if you can do it without any help! Review at BB with whole class. (*Rule:* numbers sum to 77) c) What do you think we have to do in this puzzle? (Subtract the numbers on the arrows from 52 to give the missing numbers.) Ps come out one at a time to fill in missing numbers and give a reason for choice (or write subtraction on BB). Class agrees disagrees. *Solutions:* a) b) c)  *12 min*	Whole class activity Drawn on BB or use enlarged copy maser or OHP BB: e.g $\square + 26 = 58$ $58 - 26 = 32$ Individual work, monitored BB: e.g $\square + 51 = 77$ $77 - 51 = 26$ Whole class activity BB: e.g. $52 - 36 = 52 - 30 - 2 - 4 = 16$ Agreement, checking praising
3	**Missing numbers** T has BB ready prepared: a) $\square + 17 + 25 = 65$ b) $54 + \square + 19 = 100$ c) $63 - 15 - \square = 27$ d) $87 - 29 - \square = 33$ Deal with one part at a time. Ps come out to BB to write in answers, explaining method of solution. e.g. a) $17 + 25 = 17 + 20 + 3 + 2 = 42$; $65 - 42 = 65 - 40 - 2 = 23$ Who would do the same? Who would do it in a different way? e.g. a) $65 - 25 = 65 - 20 - 5 = 40$; $40 - 17 = 40 - 10 - 7 = 23$ Who would do it this way too? Which way is correct? (Both correct.) Let's check the answer! *Check:* $23 + 17 + 25 = 23 + 42 = 65$ Similarly for the other parts. *18 min*	Whole class activity Ps copy down in their exercise books Discussion on 'easiest' method of solution Ps write in their books too BB: a) $23 + 17 + 25 = 65$ b) $54 + 27 + 19 = 100$ c) $63 - 15 - 21 = 27$ d) $87 - 29 - 25 = 33$ Praising
4	**Interlude** Physical exercises to music *20 min*	Whole class in unison

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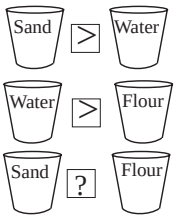
Bk2		*Lesson Plan 66*
Activity		***Notes***
5	**Comparing the mass of different materials** T has plastic cups all the same size and set of scales at front of class. Do you think that if we filled each cup with different materials they will all weigh the same? Ask several Ps what they think. Demonstrate using, e.g. sand, water and flour. Ps come out to hold a cup in each hand and lower the one which is heavier. (BB). BB: Ps compare sand against water and water against flour and write in the correct signs. Who can write in the the correct sign between sand and flour without weighing? Who agrees? How did you work it out? Discuss the fact that equal amounts of different materials do not necessarily have the same mass BUT equal amounts of the same material do have the same mass. Check on the scales.	Whole class activity T demonstrates at front of class with help of Ps Ps hold cups level at first so that the class can guess which weighs more. If in doubt, use scales to determine which is heavier. BB: 
Extension	I wonder how much of this 1 litre jug of water would weigh 1 kg? T puts 1 kg weight on one side of scales and pours water into the other. Class shouts out when scales are level. T shows class an empty jug. Does this mean that 1 litre of oil or 1 litre of syrup will weigh 1 kg? (No, they are different materials – only 1 litre of water has mass 1 kg.)	BB: 1 litre of water weighs 1 kg Discussion, agreement
	28 min	
6	***Book 2, page 66*** Q.2 Read: *Fill in the missing numbers.* What do you notice about the additions? (All the units are grams and the values in each add up to 100 g.) What weighs about 100 g? (e.g. T could show a packet of ready weighed sweets, or grapes, or counters, etc. which weigh roughly 100 g) Deal with one part at a time. Review orally round class. If problems, demonstrate on class number line or as opposite.	Individual work, monitored Discussion, agreement, checking, praising T could weigh out sweets from packet to match some of the values so that Ps have an idea of what each mass means. (Ps hold one in each hand)
	34 min	
7	***Book 2, page 66, Q.3*** Read: *A walnut has mass 10 g and a cherry has mass 8 g.* *What would be the mass of different numbers of walnuts and cherries? Complete the table.* T makes sure that Ps understand what each row in the table means. If I had no walnuts, how many grams would they weigh? **B**, come and write it in the table. (0) Is **B** correct? Let's check. (BB) Repeat for zero cherries. (BB) Ps come out to choose a column and fill in the values. Class agrees/ disagrees. T checks by writing equations on BB.	Whole class activity Drawn on BB or use enlarged copy master or OHP (T could have real walnuts and cherries to show Ps) BB: 0 times 10 g = 0 g 0 times 8 g = 0 g etc. Ps write in *Pb*s too
Extension	Study the table. How many walnuts and how many plums have an equal mass? (4 walnuts and 5 cherries, or 8 walnuts and 10 cherries)	4 times 10 g = 5 times 8 g = 40 g 8 times 10 g = 10 times 8 g = 80 g Elicit that 80 g is twice 40 g
	40 min	
8	***Book 2, page 66, Q.3*** Deal with one part at a time. Teacher (Ps) reads problem a few times. Ps are given time to work it out in their books. Ps show answers with number cards on command. P with correct answer comes out to BB to explain method of solution. Class agrees/disagrees.	Whole class activity BB: Monday $\overset{15\text{ g}}{<}$ Thursday a) 53 g – 15 g = 38 g b) 53 g + 38 g = 91 g 91 g – 85 g = 6 g
	45 min	

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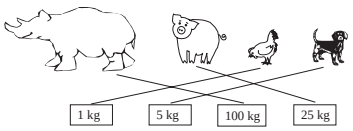
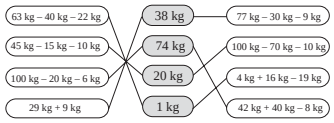
Bk2	R: Calculations. Known measures **C: Mass (weight): estimation, comparison** *E: Finding the rule*	*Lesson Plan* *67*
Activity		***Notes***
1	**Secret numbers** Listen very carefully, do the calculation in your head, and show me the answer with a number card when I say. *I thought of a number, subtracted 25 and was left with 30. What was the number I first thought of?* Show me with number cards . . . now! (55) **A**, come and explain how you got your answer. Who did it a different way? Let's check that **A** is correct. (BB) Repeat with another 'secret' number, but this time using an addition. *5 min*	Whole class activity T repeat slowly a few times (Mental calculation backwards) In unison BB: 30 + 25 = 55 *Check:* 55 – 25 = 30 Praising
2	**Measuring mass** T has various implements for measuring mass (e.g. balances, scales, bathroom scales, coil spring scale) and various items to weigh. Demonstrate measurement with **non-standard** units (e.g. cubes, Cuisennaire rods) and with **standard** units (g, kg). Ps come out in pairs . They choose 3 items and use different implements to find out which is heaviest, with help of T. Class can estimate first. *10 min*	Whole class activity, but measuring done in pairs T suggests methods of measuring Praise correct estimates
3	***Book 2, page 67*** Q.1 Read: *Join up each picture to a suitable measure.* Talk about the animals first and their relative size. Are they made from the same material? (Yes – bones, muscle, skin, etc.) Which is biggest (smallest)? (rhino, chicken) Which measure is biggest (smallest)? (100 kg, 1 kg) Ps come out to join up the animals to the matching measures, explaining their choice. Class agrees/disagrees. Discussion. How many chickens (dogs) would weigh roughly the same as a rhino (pig)? (100, 5) Would they be **exactly** equal? (No, because the same type of animals are not always the same size, so do not weigh eactly the same.) *15 min*	Whole class activity Use enlarged copy master/OHP Discussion, agreement BB:  Discussion. Ask several Ps what they think. Compare with standard units (g or kg) which **always** have the same mass.
4	***Book 2, page 67*** Q.2 Read: *Join up the equal quantities.* T explains task. (Work out the value for each label. If it equals one of the measures in the middle column, join it up.) T encourages working in logical order, e.g. from top to bottom on LHS, then top to bottom on RHS. Review at BB with whole class. Mistakes corrected. If problems, write calculations on BB. *20 min*	Individual work, monitored Use enlarged copy master/OHP BB:  Reasoning, agreement, self-correction
5	**Interlude** Song, rhyme *22 min*	Whole class in unison

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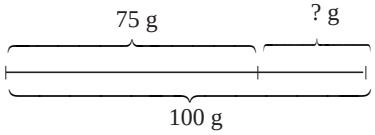
Bk2		*Lesson Plan 67*
Activity		***Notes***
6	***Book 2, page 67*** Q.3 Read: *List the amounts which make the inequality true.* **a)** Let's work out the LHS first. **B**, come and write the answer above the subtraction. (70 kg) Is **B** correct? Now let's do the RHS. **C,** come and write the answer above the subtraction. (80 kg) Is **C** correct? Let's read out the inequality, starting from the star: 'the star is more than 70 kg and less than 80 kg'. What values could the star be? Let's say them together. '71 kg, 72 kg, 73 kg, 74 kg., 75 kg, 76 kg, 77 kg, 78 kg, 79 kg' b) Let's see if you can do this part on you own! Review at BB with whole class. Mistakes corrected. T asks several Ps to read out the inequality using a value from their list. Insist on them saying the units too! *29 min*	Whole class activity for a) Drawn on BB or use enlarged copy master or OHP Discussion, reasoning, agreement, checking, praising Ps also write in their books too BB: a) 70 kg < ☆ < 80 kg ☆: 71 kg, 72 kg, . . ., 79 kg Individual work, monitored b) 65 kg > ⌓ > 59 kg ⌓: 64 kg, 63 kg, . . ., 58 kg Praising
7	***Book 2, page 67*** Q.4 a) Read: *Complete the table.* What do you think the rule is? (Quantities in each column must add up to 100 kg.) What do you think weighs about 100 kg? (e.g. rhino) T should check other suggestions! **D**, what is the missing quantity in the first column? (30 kg) Why do you think that? (Because 70 kg + 30 kg = 100 kg) Let's see who can finish first with them all correct! Review orally round class. If problems, Ps come out to write addition on BB. Mistakes corrected. b) Read: *Write another addition for 100 kg.* Review orally round class (e.g. 100 kg + 0 kg, 50 kg + 50 kg) Ps point out incorrect or duplicated answers. *34 min*	Individual work, monitored, helped Discussion. T could have a list already prepared. Reasoning, agreement Set a time limit Agreement, self-correction At a good pace Reasoning, agreement. Praising
8	**Ordering measures of mass** T has BB already prepared. Let's put these measures in **increasing** order but let's read them first. BB: 20 g, 1 kg, 18 kg, 50 g, 3 kg, 84 g, 37 g, 54 kg, 5 g Ps come out one at a time to write the list on BB, scoring out each mass as it is used. Class points out mistakes. Ps copy final list into *Ex. Bk*s. Let's read the ordered list from left to right (right to left). BB: 5 g, 20 g, 37 g, 50 g, 1 kg, 3 kg, 18 kg, 54 kg *39 min*	Whole class activity In unison At a good pace In unison, at speed
9	**Problem** Listen carefully, picture the story in your head and show me the answer with number cards when I say. Draw a diagram to help you. *Jane bought a 100 g packet of crisps. She ate 75 g. How many grams of crisps were left?* Show me with number cards . . . now! (25) **X**, come and explain your answer. Who agrees/disagrees? *Answer:* 25 g of crisps were left.  	Whole class activity T (and Ps) repeat a few times Give Ps time to think In unison Reasoning, agreement, checking, praising BB: 100 g – 75 g = 25 g

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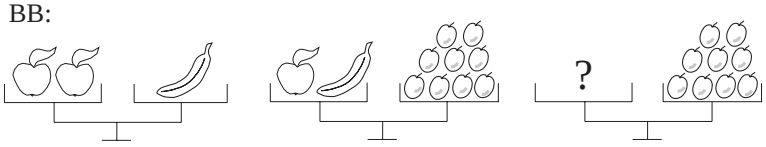
Bk2	R: Calculations: mass **C: Mass: estimation, comparison** *E: Inequalities*	*Lesson Plan* *68*
Activity		***Notes***
1	**Logic problem** T has BB already prepared. How many apples will balance the plums? BB:  How can the pictures help us to work it out? Ps explain their reasoning and class agrees/disagrees. T helps Ps to write equations about each balance. Praise if a P deduces that 1 apple = 3 plums. T shows Ps how the equations can be written in a shorter way, using only initial letters. (Preparation for algebra) *8 min*	Whole class activity Use enlarged copy master/OHP Discussion, reasoning, agreement, checking BB: 2 apples = 1 banana 1 apple + 1 banana = 9 plums 1 apple + 2 apples = 9 plums 3 apples = 9 plums so 1 apple = 3 plums or $2a = 1b$, $1a + 1b = 9p$ $1a + 2a = 9p$ $3a = 9p$ $1a = 3p$
2 **Extension**	***Book 2, page 68, Q.1*** Let's measure how heavy everyone in the class is and keep a tally in this table. (T reminds Ps what a tally is.) Why do you think we are using kg and not grams as the standard unit? (grams is too small) All the Ps in the class come out one at a time to be weighed (or Ps could be asked at end of previous day to weigh themselves at home). T rounds to nearest kg and notes the value for each P (see Activity 5 below). P puts tally mark in correct row in table. Ps first count up the tally marks and write totals at the end of the rows. T checks that everyone has the correct totals before asking individual Ps to read out the questions. Deal with one question at a time. Ps write weight group in *Pb*s. Discussion/agreement on correct answer. Make a bar chart of the results on the BB, after demonstrating with lines of Ps at front of class. (All Ps in same weight group form a line.) Ps come out to draw/colour bars. What does the longest (shortest) bar show? Ps can draw own bar chars on squared paper (or use 2 cm grid from Y1) *20 min*	Whole class activity Table drawn on BB or use enlarged copy master/OHP Ps write own mass at top of *Pb* page as a reminder Ps also keep a tally in *Pb*s. Discussion, reasoning, agreement, praising Whole class activity first Demonstration, discussion On BB or use copy master Individual work, helped.
3	**Interlude** Mental counting. Ps put heads on hands on desks and count in heads from 0 to 100 and back down to zero again. *22 min*	Whole class counting
4	***Book 2, page 68*** Q.2 Read: *Colour the equal amounts in the same colour.* What should we do first? (Write the value beside each shape.) Review at BB with the whole class. Mistakes corrected. If problems, P comes out to write equation on BB and show on class number line. e.g. 37 kg + 48 kg = 37 kg + 40 kg + 3 kg + 5 kg = 85 kg *27 min*	Individual work. monitored Drawn on BB or use enlarged copy master or OHP Discussion, agreement, checking, praising BB: 45 kg < 65 kg < 85 kg
5	**Mental calculation using kg** T tells Ps to take note of their own mass (weight) as they must be ready to stand up quickly when required. T describes a value according to the results in Activity 2 and Ps stand up if their mass fits that value. e.g. 'more than 30 kg and less than 38 kg', 'twice 15 kg'; '19 kg + 34 kg', 'more than 47 kg – 18 kg and less than 60 kg', '15 kg less than 50 kg' *32 min*	Whole class activity T should have taken note of Ps' weights in Activity 2 T does random check on Ps standing. Class agrees/disagrees Done at a good pace. Praising

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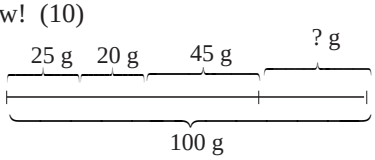
Bk2		*Lesson Plan 68*
Activity		***Notes***
6	***Book 2, page 68, Q.3*** T should have a real football and cricket ball to show to class. Read: *A football weighs 3 kg. A cricket ball weighs 5 kg. Compare how heavy the balls are. Write in the missing signs.* Ps come out to hold a ball in each hand to feel the difference in mass between one of each type. They raise the one which is lighter (football). Why is the football bigger in size but weighs less? (Football is made from a lighter material and is full of air.) a) to c) Deal with one part at a time. Ps come out to write in the missing signs. Class agrees/disagrees. Let's check. Ps come out to write the total value beneath the footballs and cricket balls. Ps write in *Pb*s too. d) This drawing has not been finished. See if you are clever enough to write in a sign and finish the drawing so that the sign is true. Review with whole class. (There will be many answers apart from the one given – try to deal with them all.) Ps come to BB to show solution and explain reasoning. Class decides whether solution is valid. *39 min*	Whole class activity Use enlarged copy master/OHP or cut-out balls stuck to BB Demonstration, discussion BB: a) The mass of < the mass of 9 kg 10 kg b) The mass of = the mass of 15 kg 15 kg c) The mass of > the mass of 21 kg 20 kg e.g. d) The mass of > the mass of 6 kg 5 kg Praise creativity
7	**Problem** Listen carefully, picture the story in your head and show me the answer with number cards when I say. Draw a diagram to help you. *Kate is making up a parcel to send to her cousin. She has already put in 25 g of biscuits, 20 g of sherbet, and 45 g of crisps. She cannot afford the postage for more than 100 g. How many g has she spare?* Write the data down in your *Ex. Bk*s. Draw a diagram to help you. Show me with number cards . . . now! (10) **X**, come and explain your answer. Who agrees/disagrees? *Answer:* Kate has 10 g spare.  (Discuss what it might be needed for, e.g. packing, a letter or card to say who the parcel is from, a stamp, etc.) *45 min*	Whole class activity T repeats slowly a few times One or two Ps repeat in own words. Give Ps time to take note of data, draw, think In unison Reasoning, agreement, checking, praising BB: 25 g + 20 g + 45 g = 90 g 100 g – 90 g = 10 g Talk about posting, stamps, letters, Ps' own experiences

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Bk2	R: Addition, subtraction, measures **C: Revision and practice** *E: Problems in context*	*Lesson Plan* 69
Activity		***Notes***
1	**Logic Puzzle** ***(OHT 16, Txt 2, page 48, Q.3)*** Look at this puzzle. The four 1-digit numbers along a line sum to 25. The same colour means the same number, Where should we start? (On the line which has '1' already given and 3 *green* circles.) BB: 1 + Ⓖ + Ⓖ + Ⓖ = 25, so Ⓖ = 8. **A**, come and write 8 in all the *green* circles. Where should we go next? (Line which has 2 already given and two 8's) BB: 2 + Ⓨ + 8 + 8 = 25, so Ⓨ = 25 – 18 = 7 **B**, come and write 7 in all the yellow circles. Continue in this way until puzzle is completed. (If some Ps would like to try it on their own, give them a coloured copy of the puzzle.) *8 min*	Whole class activity Involve several Ps *Solution:* Green → 8 Yellow → 7 Violet → 4 Blue → 9 Pink → 3 Lime → 6 Turquoise → 5 If no OHP, use copy master, enlarged and coloured appropriately
2	**Describing numbers** T has the numbers 63, 45, 36, 72, 54 on cards on desk. Ps come out to choose the number described and stick on BB: • The next number smaller than 64. (63) • The sum of 20 and 25. (45) • 6 less than 42. (36) • The next number greater than 71. (72) • The difference between 100 and 46. (54) **C**, come and put them in decreasing order. Who agrees? What is the rule? (Decreasing by 9) Let's continue the sequence. *13 min*	Whole class activity Involve several Ps At a good pace Class agrees/disagrees Use number line if problems BB: 72, 63, 54, 45, 36, . . . '27, 18, 9, 0, (– 9, – 18, . . .)'
3	***Book 2, page 69*** Q.1 Read: *Fill in the missing signs. (<, >, =)* What are the units measuring? (length: metres and centimetres) How many centimetres are in 1 metre? (100) (BB) Tell Ps to work out any addition or subtraction first and write the result above before writing in the sign. (e.g. 3 m – 1 m 10 cm = 3 m – 1 m – 10 cm = 2 m – 10 cm = 1 m + 100 cm – 10 cm = 1 m + 90 cm = 1 m 90 cm) Deal with one part at a time. Review at BB with whole class. Ps come to BB to explain their answers and show calculations. Did we really need to do all the calculations? (No, not necessary in last two in b), as sign is already obvious.) *19 min*	Individual work, monitored, helped BB: 1 m = 100 cm Discussion, agreement, checking, praising BB: a) 4 m 80 cm > 2 m 60 cm 1 m 90 cm = 3 m – 1 m 10 cm 64 cm – 30 cm = 69 cm – 35 cm b) 73 cm + 27 cm = 1 m 3 m – 80 cm < 5 m 1 m + 6 cm > 1 m – 4 cm
4	**Interlude** Song or rhyme *21 min*	Whole class in unison
5	***Book 2, page 69*** Q.2 Read: *Fill in the missing signs. (+ or –)* Talk about each one first. What is it measuring? Is the answer more or less than the first quantity? Review orally round class. Mistakes corrected at class number line. *26 min*	Individual work, monitored Discussion, agreement, self-correction Ask Ps which they found most difficult and why.

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Bk2		*Lesson Plan 69*
Activity		***Notes***
6	***Book 2, page 69, Q.3*** Let's have a competition! T divides class into 4 or 5 groups (of roughly equal ability). I will give you 5 minutes to solve the 3 problems in Q.3 in your books You can do the problems in any order and use what you like to help you. Ps finished first may help the others in your group. Listen carefully while I will read out each question twice, then start when I tell you. When you are finished, sit up with your arms folded. The group which is fastest and has most correct answers will win a prize! a) Read: *Ann cut 8 cm from a 12 cm piece of ribbon. What length of ribbon remained?* (4 cm) b) Read: *Little Red Riding Hood gathered 17 mushrooms altogether. She found 8 mushrooms in a field and the rest in the wood. How many mushrooms did she find in the wood?* (9) c) Read: *Alec had £20. He spent £12 and then was given £8 by his Aunt. How much money does Alec have now?* (£16) Start . . . now! T notes when Ps finish. After 5 minutes T says 'Stop!' T elicits answers and Ps mark own work. Who had all correct (2 correct, 1 correct)? T notes total score for each group on BB. Review mistakes. Ps with correct answers show solutions on BB. T selects winning group. *36 min*	Individual work done as a whole-class competition Only monitored, not helped Preliminary discussion T repeats each slowly, emphasising relevant data *Solutions*: a) 12 cm – 8 cm = 4 cm 4 cm of ribbon remained b) 17 – 8 = 9 She found 9 mushrooms in the wood. c) £20 – £12 + £8 = £16 Alec has £16 now. Praising. Awards given (e.g. stars/stickers)
7	***Book 2, page 69, Q.4*** Read: *List the numbers which make the inequalities true.* a) Let's read the inequality together, starting at the rectangle: 'the rectangle is more than seventy minus forty-nine and less than fifty minus twenty-five'. What should we do first? (Work out the subtractions on either side.) **X**, come and write the answer above the subtraction on the LHS and point to it on the number line. (21) Is **X** correct? **Y,** come and write the answer above the subtraction on the RHS and point to it on the number line. (25) Is **Y** correct? Let's all read out the whole numbers between 21 and 25 that the rectangle could be: ' 22, 23, 24'. T writes them on BB, Ps in *Pb*s. b) Let's read the inequality together from left to right: 'forty-nine is less than forty-three plus the circle; forty-three plus the circle is less than sixty-one minus eight'. What should we do first? (Work out the subtraction on RHS side.) **Z**, come and write the answer above the subtraction on the RHS and point to it on the number line. (53) Is **Z** correct? Let's all read out the whole numbers between 49 and 53: '50, 51, 52'. Are these the numbers the circle could be? (No, these are the numbers that 43 plus the circle could be.) Write the whole numbers that the circle could be in your books (7, 8, 9) *42 min*	Whole class activity Drawn on BB or use enlarged copy master or OHP In unison Reasoning, agreement Ps also write in *Pb*s too BB: a) $21 < \square < 25$ $\square$: 22, 23, 24 In unison Reasoning, agreement Ps also write in *Pb*s BB: b) $49 < 43 + \bigcirc < 53$ $43 + \bigcirc$: 50, 51, 52 $\bigcirc$: 7, 8, 9 T starts to use 'whole' numbers in preparation for fractions
8	**Problem** *How much ribbon did I buy if I cut off 20 cm and 1 m 50 cm was left?* T asks several Ps what they think. P with correct response explains solution to class. Another P checks with a subtraction. *Answer:* I bought 1 m 70 cm of ribbon. *Check* *45 min*	Whole class activity Ps suggest 'plan' for solution Reasoning, agreement, checking 1 m 50 cm + 20 cm = 1 m 70 cm 1 m 70 cm – 20 cm = 1 m 50 cm

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Bk2	R: Addition, subtraction, measures **C: Revision and practice** *E: Paying money, receiving change*	*Lesson Plan* *70*
Activity		***Notes***
1	**Measures** T describes a quantity. P replies saying number and units, e.g. • 3 days more than 1 week (10 days) • 41 g less than 100 g (59 g) • If I added 100 cl to it, there would be 5 litres. (4 litres) • 27 cm less than 1 m. (73 cm) etc. *5 min*	Whole class activity At speed round class Class points out incorrect answers Ps can ask questions too! Praising
2	***Book 2, page 70*** Q.1 Read: *Fill in the missing quantities. The middle quantity is the sum of the 3 along each side.* What do you notice about the puzzles? (Both in shape of triangles; ellipses are missing quantities, 3 along each side of triangles; a) : measures of length; b) : measures of mass) Deal with one part at a time. Review at BB with whole class. Mistakes corrected. *Solutions:* a) 50 cm, half a metre, 18 cm, 9 cm, 1 m, 32 cm, 27 cm, 41 cm b) 32 kg, 21 kg, 18 kg, 100 kg, 47 kg, 3 kg, 50 kg *11 min*	Individual work, monitored, helped Discussion. Ask several Ps T gives hints if necessary Drawn on BB or use enlarged copy master or OHP Reasoning, agreement, checking, praising BB: e.g. a) 32 cm + 27 cm + 41 cm = 100 cm = 1 m b) 32 kg + 21 k + 47 kg = 100 kg
3	***Book 2, page 70*** Q.2 Read: *Find a rule, then complete the table. Write the rule in different ways.* Look carefully at the two completed columns. Which row has the biggest values? (square) What could the rule be? (Ps agree on one form of rule, even if it has been expressed only in words, e.g. the ring (circles) + the triangle = the square) Let's use this rule to complete the table. Review at BB with whole class. Mistakes corrected. **A**, come and write the rule in a mathematical way. Who agrees? Who can write it in a different way? etc. Let's check. Who can think of other values not shown in the table? *18 min*	Individual work, monitored, helped Drawn on BB or use enlarged copy master or OHP Discussion, reasoning, agreement, checking with values from table BB: □ = ◎ + △ ◎ = □ – △ △ = □ – ◎
4	**Interlude** Song or rhyme *20 min*	Whole class in unison
5	***Book 2, page 70, Q.3*** a) Study the picture carefully. It shows an easy way of calculating 24 + 19. Who can tell us how the picture relates to the numbers? (On LHS: 2 packets of 10 sweets plus 4 extra sweets = 24 sweets On RHS: 2 packets of 10 sweets = 20 sweets) Instead of adding 19 to 24, which is difficult, we have added 20 to 24 and then taken away 1. Will this give the same answer? (Yes, because + 19 is the same as + 20 – 1), or (23 + 20 is the same	Whole class activity Drawn on BB or use enlarged copy master or OHP (or demonstrate with real packets of 10 sweets) Involve several Ps in the discussion – show different ways of reasoning (BB)

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Bk2		*Lesson Plan 70*
Activity		***Notes***
	as 24 + 19 – we have added the number 1 more to the number 1 less) **B**, come and write in the missing number. (43) Who agrees? b) Study the picture carefully. Who can explain to us what it shows? (It shows an easy way of calculating 13 + 18.) (On LHS: 1 packets of 10 sweets plus 3 extra sweets = 13 sweets On RHS: 2 packets of 10 sweets = 20 sweets) Instead of adding 18 to 13, which is difficult, we have added 20 to 13 and then taken 2 away. Will this give the same answer? (Yes, because + 18 is the same as + 20 – 2) or (13 + 18 is the same as 11 + 20 – we have added the number 2 more to the number 2 less) **C**, come and write in the missing number. (31) Who agrees? Who thinks this is an easier method of calculating? Who disagrees? Let's see who is quickest to do these additions in your head. T: e.g. 25 + 19, 14 + 19, 56 + 18, 17 + 18 T asks quickest Ps for the answer and their method of calculation. Stress that it does not matter which method is used, as long as it results in the correct answer! Ps should use the 'easiest' method for them.	Reasoning, agreement, checking, praising BB: a) 24 + 19 = 24 + 10 + 6 + 3 = 43, or 24 + 19 = 24 + 20 – 1 = 44 – 1 = 43, or 24 + 19 = 24 + 20 – 1 = 24 – 1 + 20 = 23 + 20 = 43 b) 13 + 18 = 13 + 10 + 7 + 1 = 31, or 13 + 18 = 13 + 20 – 2 = 33 – 2 = 31, or 13 + 18 = 13 + 20 – 2 = 13 – 2 + 20 = 11 + 20 = 31
	28 min	
6 **Extension**	***Book 2, page 70*** Q.4 Read: *Bunny has coloured some of the eggs.* *How many eggs have not been coloured?* *Write an equation for each part.* Deal with one part at a time. Use part a) as an example: How many eggs are in a full box? (10) How many full boxes? (5) How many extra eggs? (4) How many eggs are there altogether? (54) How many of them have been coloured? (9) So the number of eggs **not** coloured is: 54 – 9 = 45 Parts b) to d) done as individual work. Review at BB with whole class. Mistakes corrected. Discuss different methods of calculation. Relate to Q.3 in *Pb*. e.g. 54 – 9 = 54 – 4 – 5 = 54 – 10 + 1 = 55 – 10 = 45 44 – 19 = 44 – 10 – 4 – 5 = 44 – 20 + 1 = 45 – 20 = 25	Whole class activity for a) Drawn on BB or use enlarged copy master or OHP Involve several Ps Discussion, aagreement, checking. praising Individual work, monitored, helped BB: a) 54 – 9 = 45 b) 44 – 19 = 25 c) 54 – 29 = 25 d) 44 – 29 = 15
	36 min	
7	**Shopping** T has items on desk with prices attached, e.g. book at 38 p, teddy bear at 49 p, etc. and a purse lying in front of each (purse in front of book contains five 10 p coins and three 1 p coins; purse in front of teddy contains six 10 p coins and five 1 p coins, etc.) **X**, come and choose which one you would like to buy (e.g. book). This is your purse. Tell the class what you have in your purse. (53 p) (T sticks cardbord coins on BB to show class.) How will you pay for the book? **X** hands T four 10 p coins and T gives **X** two 1 p coins in change. **X** how much do you have in your purse now? (15 p) Let's write it as an equation. **X** had 53 p in his purse. **X** paid for the 38 p book with four 10 p coins (40 p) and received two 1 p coins (2 p) back in change. **X** now has one 10 p and five 1 p coins (15 p) left in his purse. (T manipulates coins on BB.) Ps write equations in their exercise books Repeat with other Ps, items, prices and purses.	Items, price tags and purses should be prepared beforehand BB: e.g. *Book:* 53 p – 38 p = 15 p – 40 p + 2 p *Teddy:* 65 p – 49 p = 16 p – 50 p + 1 p etc. Demonstration/discussion – aim is to promote understanding only!
	45 min	

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Bk2	R: Mental calculation. Measures **C: Revision and practice** *E: Combinatoric problems*	*Lesson Plan* 71
Activity		***Notes***
1	**Making additions** T has written on BB: 58, 74, 85 + 5, 7, 9 Let's see how many additions we can make by adding one of the numbers on the LHS to one of the numbers on the RHS. Let's do it logically! T starts by saying and writing on BB: '58 + 5, 58 + 7, . . .' Ps continue saying additions (without the results) round the class and T writes in order on BB. (9 additions) Could we have worked out that there were 9 additions without writing them all down? (Yes, 3 additions for each of the 3 numbers on the LHS, i.e. 3 lots of 3, or 3 times 3 = 9) *5 min*	Whole class activity Agreement, checking, praising At a good pace BB: 58 + 5 74 + 5 85 + 5 58 + 7 74 + 7 85 + 7 58 + 9 74 + 9 85 + 9 Discussion about possible number of cases. Extra praise if a P reasons without help!
2	**Making 2-digit numbers** Let's make 2-digit numbers which have digits 3, 7, 8 or 9. (BB) Ps write as many as they can in their exercise books. Ps dictate numbers to T who writes them in systematic order on BB. How do we know that we have found all the possible cases? (For each of the 4 numbers used as a tens digit, there will be 4 units digits: 4 lots of 4, or 4 times 4 = 16 possible 2-digit numbers. How many of them are **even** numbers? (4 times 1 = 4: 38, 78, 88, 98) *10 min*	Whole class activity BB: 3, 7, 8, 9 33 73 83 93 37 77 87 97 38 78 88 98 39 79 89 99 Discussion about possible number of cases. T | U (4) | (4)
3	***Book 2, page 71*** Q.1 Read: *Complete the table.* T explains that the first row in the table is the heading and it shows what should be put in the 5 rows below. The first column in the table shows the numbers the triangle could be. Let's do the first row together. If the triangle equals 44, what should go in the 'triangle + 6' space? (Ps shout out '50' and T writes 50 in the table.) Continue until first row is complete. Let's see if you can complete the rest of the table on your own. Review at BB with the whole class. Mistakes corrected at class number line if necessary. *18 min*	Individual work, monitored, helped Drawn on BB or use enlarged copy master or OHP In unison. Ps write in *Pb*s too Ps complete rest of table Reasoning, agreement, checking, self-correcting Praising
4	**Interlude** Song, rhyme, exercises *20 min*	Whole class in unison
5	***Book 2, page 71, Q.2*** Read: *Join up the equal quantities.* What can you say about the measures? (In each part, 10 measures altogether, 5 on LHS and 5 on RHS; measures in part a) are lengths; measures in part b) are weights/masses.) Ps come out one after the other to choose a measure on the LHS and join it up to an equal measure on the RHS, explaining their reasoning. Class agrees/disagrees. Insist on Ps using correct units and saying the equation, e.g. '50 cm is equal to half a metre'. Ps write any calculations on the BB. e.g. 50 cm – 16 cm = 50 cm – 10 cm – 6 cm = 34 cm (Some measures may be outside the Ps' experience but can be deduced from the matching measure on the other side.) *26 min*	Whole class activity Written on BB or use enlarged copy master or OHP Discussion Done at a good pace Ps draw joining lines in *Pb*s too Reasoning, agreement, checking praising Extra praise if Ps do this without help!

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Bk2		*Lesson Plan 71*
Activity		***Notes***
6	***Book 2, page 71, Q.3*** Let's see how many of these you can do correctly in 5 minutes! Sit up with your arms folded when you have finished. Start . . . now! . . . . Stop! Review orally round the whole class. Mistakes corrected. How many had 15 correct (14, 13, more than 10)? Who did not have time to do them all? T awards 'prize' to winner (fastest and highest score). We will have another competition later! See if you can beat your score then!	Individual work, monitored Keep to time limit Ps mark own (or neighbour's) work and count number correct out of 15. Self-correction, evaluation Praising only Encourage Ps to try harder next time.
	33 min	
7	**72 pupils from Y2 classes are about to leave school on a trip. 57 of them** *have already arrived. How many pupils are the buses waiting for?* Show me with number cards . . . now! (15) Diagram/plan on BB. *Answer:* The buses are waiting for 15 pupils.	T reads a few times. Ps repeat in own words. Cards shown in unison. Discussion, agreement, checking, praising BB: 72 – 57 = 15
	40 min	
8	***Book 2, page 71, Q.4*** Let's see how many of these you can do correctly in 4 minutes! Try to beat your score last time. Sit up with your arms folded when you have finished. Start . . . now! . . . . Stop! Review orally round the whole class. Mistakes corrected. Stand up if you have a higher score this time. How many more correct? (T asks each P in turn.) T awards 'prize' to most improved P.	Individual work, monitored Keep to time limit Ps mark own (or neighbour's) work and count number correct out of 15. Self-correction Praising only
	45 min	

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Bk2	R: Calculation **C: Revision, practice** *E: Equations*	*Lesson Plan* *72*
Activity		***Notes***
1	**Making subtractions** T has written on BB: 53, 65, 82 – 4, 6, 12 Let's see how many subtractions we can make by taking away one of the numbers on the RHS from one of the numbers on the LHS. Let's do it logically! What should be we write first? BB: '53 – 4, 53 – 6, . . .' Ps continue saying subtractions (without the results) round the class and T writes in order on BB. (9 subtractions) Are any more possible? (No – 3 subtractions for each of the 3 numbers on the LHS, i.e. 3 lots of 3, or 3 times 3 = 9) *5 min*	Whole class activity Agreement, checking praising At a good pace BB: 53 – 4 65 – 4 82 – 4 53 – 6 65 – 6 82 – 6 53 – 12 65 – 12 82 – 12 Praise if Ps reason this without help!
2	***Book 2, page 72, Q.1*** Read: *Fill in the missing numbers. Put the same numbers in the same shapes.* Ps come out one at a time to do each equation, writing in missing numbers and explaining reasoning. Class agrees/disagrees. BB: a) 24 = 8 + 8 + 8 19 = 6 + 6 + 6 + 1 16 = 5 + 5 + 5 + 1 25 = 6 + 6 + 6 + 6 + 1 b) 24 = 10 + 10 + 4 19 = 10 + 5 + 4 33 = 10 + 20 + 3 28 = 10 + 10 + 8 *13 min*	Whole class activity Use enlarged copy master/OHP Discussion, agreement, checking, praising Done at a good pace! Ps can make up their own for class to solve if time
3	***Book 2, page 72, Q.2*** Read: *Fill in the missing numbers.* Ps come out in pairs, one to write value above addition/subtraction already given and the other to fill in the missing number. Class checks that both are correct. If problems, demonstrate on class number line. *Solutions:* a) 13 + 26 = 25 + 14 11 + 14 = 57 – 32 78 – 22 = 31 + 25 b) 69 – 14 = 24 + 31 99 – 64 = 22 + 13 46 + 23 = 100 – 31 *18 min*	Whole class activity Written on BB (pre-pared) or use enlarged copy master or OHP Done at a good pace! Discussion, agreement, checking, praising
4	**Interlude** Song, rhyme, exercises *20 min*	Whole class in unison
5	***Book 2, page 72, Q.3*** Let's have a competition. See how many of these you can do correctly in 5 minutes! (Elicit that there are 7 additions and 5 subtractions, i.e. total marks possible = 12.) You gain 1 mark (+ 1) for every correct answer but lose 1 mark (– 1) if you answer incorrectly. The winner is the one with most marks! Sit up with your arms folded when you have finished. Start . . . now! . . . . Stop! Review orally round the whole class. Mistakes corrected. How many had 12 marks (11, 10, less than 10)? Who did not have time to do them all? T awards 'prize' to winner (quickest and highest score). *28 min*	Individual work (competition) (addition/subtraction of 1-digit to/from 2-digit numbers without crossing tens) Developing accuracy and speed in calculation Checking, self-evaluation, self-correction. Praise those with no mistakes. Award given (e.g. star/sticker)

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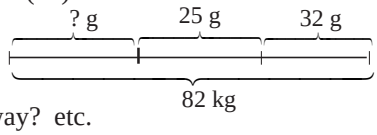
Bk2

Lesson Plan 72

Activity		*Notes*
6	***Book 2, page 72*** Q. 4 Let's practise more calculation, but this time it is more important to write the correct answer than to finish first! What is different about these additions/subtractions from those in the competition? (2-digit numbers are added/subtracted) I wonder how many of you will have no mistakes this time! Review orally round class. Mistakes corrected. *Solutions:* 76 = 24 + 52 59 = 26 + 33 34 = 49 – 15 93 = 72 + 21 26 = 78 – 52 52 = 78 – 26 67 = 42 + 25 35 = 99 – 64 43 = 84 – 43	Individual work, monitored but not helped Discussion Discussion, checking, self-correction Praising only
	34 min	
7	***Book 2, page 72*** Q.5 Read: *Write the differences in the middle row.* What kind of calculation will you be doing? (subtraction) Which number is being subtracted? (the smaller number is subtracted from the larger number) In which row are the larger numbers? (sometimes in the top row and sometimes in the bottom row) Review at BB with whole class. Mistakes corrected. Demonstrate on class number line if there are problems.	Individual work, monitored, helped Drawn on BB or use enlarged copy master or OHP Discussion, agreement, checking, praising *Solution:* 92 87 55 68 32 35 51 77 84 96 100 3 6 6 7 5 9 9 8 12 15 16 89 93 61 75 27 26 42 69 72 81 84
	40 min	
8	**Problem** Listen carefully, picture the story in your head and show me the answer with number cards when I say. Draw a diagram to help you. *A greengrocer had sold out of cabbages. Yesterday morning, 82 kg of cabbages were delivered to his shop. Yesterday afternoon he sold 32 kg and this morning he sold 25 kg of cabbages.* *How many kg of cabbages does the greengrocer have left?* Show me with number cards . . . now! (25) **X**, come and explain your answer. Who agrees?  Who did the calculation a different way? etc. e.g. BB: 82 kg – 32 kg = 50 kg, 50 kg – 25 kg = 25 kg or 32 kg + 25 kg = 57 kg, 82 kg – 57 kg = 25 kg *Answer:* The greengrocer had 25 kg of cabbages left.	Whole class activity T repeats slowly. One or two Ps repeat in own words Give Ps time to write down data in *Ex. Bk*s, draw, calculate In unison Discussion, reasoning, agreement, checking, praising BB: 82 kg – 32 kg – 25 kg = 25 kg 50 kg T writes answer on BB, Ps in their exercise books
	45 min	

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Bk2	R: Addition; shortening addition (multiplication) **C: Multiplication and division in context (2, 5 and 10)** *E: Multiplication sign. Multiplication table*	*Lesson Plan* 73

Activity		***Notes***
1	**Introducing multiplication** BB: * * * * * * * * * * T has BB already prepared. Ps copy pattern on desks with unit cubes (or items from their collection). Who can tell me an addition about this diagram? Who knows another? BB: 2 + 2 + 2 + 2 + 2 = 10 5 + 5 = 10 Ps write additions in *Ex. Bks* too. How many times have we added 2 (5)? (5 times, 2 times) We can write the additions in a shorter way as multiplications: BB: 5 times 2 = 10 2 times 5 = 10 Instead of writing 'times' we can use a multiplication sign like this. (T holds up '×' sign card.) Find it in your sign card set and hold it up. BB: 5 × 2 = 10 2 × 5 = 10 Let's read them together: 'five times two equals ten; two times five equals ten'. Copy the multiplications into your *Ex. Bks*. using the multiplication sign instead of the word 'times'. *5 min*	Whole class activity T makes sure that Ps have correct number and pattern Ps move cubes into 5 groups of 2, then 2 groups of 5. Individual work, monitored T demonstrates on BB In unison Ps make equations on desks too In unison Individual work, monitored (Ps write date and lesson no.)
2	***Book 2, page 73, Q.1*** Read: *Peter is putting his socks into pairs. Complete the table.* How many socks does Peter have in the first column? (11) Put 11 cubes (counters, etc) on your desk and then put them into pairs. How many complete pairs are there? (5: 2nd row of table) How many are left over (remain)? (1: bottom row of table). Ps fill in rest of table, using cubes to help them if necessary. Review at BB with whole class. Mistakes corrected by demonstration. We could say each column as a multiplication about '2'. **A**, come and write the first one using the multiplication sign: 5 × 2 + 1 = 11. Is **A** correct? Let's all read it together. 'five times two plus . . . eleven' Different Ps say multiplications about the other columns and T writes on BB: 4 × 2 = 8, 1 × 2 = 2, 1 × 2 + 1 = 3, 8 ×2 + 1 = 17, 9 × 2 = 18, 2 × 2 + 1 = 5, 6 × 2 + 1 = 13, 7 × 2 = 14, 0 × 2 + 1 = 1 What kind of numbers have 1 remaining when put into pairs? (odd) *10 min*	Whole class introduction Drawn on BB or use enlarged copy master or OHP Discussion, demonstration Individual work, monitored Reasoning, agreement, checking, self-correcting In unison At a good pace Class agrees/disagrees Class shouts out in unison
3	**Multiplications** T draws 20 dots on BB and Ps copy in *Ex. Bk*s. BB? 10 × 2 = 20 2 × 10 = 20 T instructs Ps to circle the dots in groups of 2 and to write a multiplication about it, using the multiplication sign. Then Ps circle the dots in groups of 10 and write a multiplication about it also. Review at BB with whole class. Ps come out to show on BB. Class agrees/disagrees. Does it matter in which order we write the numbers in a multiplication? (No – the result is the same.) *14 min*	Individual work, monitored, helped Ps can also show on desk with counters (cubes, etc) Reasoning, agreement, checking, praising BB: 10 × 2 = 2 × 10 = 20 (Only matters if an equation must match a picture)

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Bk2		*Lesson Plan 73*
Activity		***Notes***
4	***Book 2, page 73*** Q.2 Read: *How much money is in each purse? Fill in the missing numbers.* Review at BB with whole class. Who can write the equations using the multiplication sign? (Ps come out to BB, other Ps write in *Pb*s.) What is missing from the equations if the purses have real money in them? (units: p) Let's write in the units too. Discussion about where the units should be written. *18 min*	Individual work, monitored Drawn on BB or use enlarged copy master or OHP Discussion, agreement, checking, praising BB: a) $5 \times 1\text{ p} = 5\text{ p}$ b) $5 \times 5\text{ p} = 25\text{ p}$ c) $5 \times 2\text{ p} = 10\text{ p}$ d) $5 \times 10\text{ p} = 50\text{ p}$
5	**Interlude** Action song *20 min*	Whole class in unison
6	***Book 2, page 73*** Q.3 Read: *Peter and Linda are packing lettuces into boxes. Fill in the missing numbers. Who packed more lettuces? Write in the missing sign between them.* Review at BB with whole class. Who can write the equations using the multiplication sign? (Ps come out to BB, other Ps write in their books.) Elicit that $5 \times 4 = 4 \times 5 = 20$. T tells class that '$5 \times 4$' can be read as 'five times four' or 'five multiplied by four'; '4×5' can be read as 'four times five' or 'four multiplied by five'. *25 min*	Individual work, monitored Drawn on BB or use enlarged copy master or OHP Discussion, agreement, checking, praising BB: Peter: 5 times 4; Linda: 4 times 5 $\underbrace{5 \times 4}_{20} = \underbrace{4 \times 5}_{20} = 20$
7	***Book 2, page 73*** Q.4 Read: *Draw a line 10 cm long. Divide it up into 2 cm segments.* T reminds Ps how to draw a line of a certain length accurately. Ps draw 10 cm line, then draw a 'tick' at every 2 cm. How many 2 cm segments did you draw? (5) Who can come and write a multiplication about it? Who agrees? Who thinks something else? *30 min*	Ps should all have rulers on desks Individual work, monitored, helped. Encourage neatness T (P) demonstrates on BB using BB ruler BB: $5 \times 2\text{ cm} = 2\text{ cm} \times 5 = 10\text{ cm}$
8	**2 times table** T writes on BB, Ps in *Ex. Bk*s. T starts and Ps dictate what to write next. BB: $1 \times 2 = 2 \times 1 = 2$ $\quad$ $6 \times 2 = 2 \times 6 = 12$ $2 \times 2 = \ldots$ $\quad$ $7 \times 2 = \ldots$ Ps demonstrate some of the multiplications. (e.g. pairs at front of class). *35 min*	Individual work, monitored, helped Ps should have squared paper: 1 digit (sign) per square Demonstration, discussion
9	**Multiplication table** ***(OHT 7 in MEP Transparency Collection at*** http://www.cimt.org.uk/projects/mepres/primary/ohptrans/transmen.htm) • What do you notice about this multiplication table? (Ask many Ps) • Show me where to find 2×1, 2×2, $2 \times 3, \ldots, 2 \times 10$ • What kind of numbers are they? (2, 4, 6, . . ., 20; even numbers) • How can we find the answer to 7×2? etc. (Ps to BB to show) • Colour in the numbers for which you already know the multiplication. • Let's read out the row of 2's: '2 times 0 = 0, 2 times 1 = 2,. . . ' Let's read out the column of 2's: '0 times 2 = 0, 1 times 2 = 2, . . .' *45 min*	Whole class discussion. Praise all contributions Use the yellow strips cut from *OHT* to highlight relevant row and column, or use copy master Individual work, monitored (Ps have own copy on desks) In unison. Praising

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Bk2	R: Sequences **C: Multiplication and division (in context): 2, 5 and 10** *E: Multiples of 2, 5 and 10 up to 100. Names of components.*	*Lesson Plan* *74*
Activity	**** OHT 7 in MEP Transparency Collection at*** http://www.cimt.org.uk/projects/mepres/primary/ohptrans/transmen.htm	***Notes***
1	**Sequences** Let's continue the sequence to 100: a) 0, 2, 4, 6, 8, . . . What is special about these numbers? (Even) We also call them multiples of 2, because 2 can multiplied by another number to make them All even numbers are multiples of 2. BB: Multiples of 2: $6 = 3 \times 2$, $14 = 7 \times 2$, ... b) 0, 5, 10, 15, 20, 25, . . . We call these numbers multiples of 5, because 5 can be multiplied by another number to make them. BB: Multiples of 5: $15 = 3 \times 5$, $35 = 7 \times 5$, . . c) 0, 10, 20, 30, ... We call these numbers multiples of 10, because 10 can be multiplied by another number to make them. BB: Multiples of 10: $30 = 3 \times 10$, $70 = 7 \times 10$, . . . Let's find them in our multiplication table * . (rows and columns) *5 min*	Whole class activity At speed round class Ps give other examples At speed round class Ps give other examples At speed round class Ps give other examples T shows on *OHT 7*, Ps find on own copy of × table.
2

Bk2		*Lesson Plan 74*
Activity		***Notes***
	This sign (T points) is called the division sign. Find it in your set of sign cards and hold it up. Make this equation on your desks with cards. T asks individual Ps to read it aloud.	Individual work, monitored, helped
	b) Read: *Exchange these ten 1 p coins for 2 p coins. Continue the drawing.*	T should have real 1 p and 2 p coins with which to demonstrate
	T (or P) circles another group on BB before Ps continue. **A**, how many 2 p coins did you draw? (5) Who agrees? Who thinks something else?	Discussion, agreement, checking, praising
	We can say that 5 times 2 p = 10 p (T points to 2 p coins)	BB: 5 × 2 p = 10 p
	We can also say that 2 p is contained in 10 p five times, or 2 p can be taken away from 10 p five times.	T takes away 2 p at a time and Ps say how many are left Ps: '8 p, 6 p, 4 p, 2 p, 0 p'
	BB: 10 p – 2 p – 2 p – 2 p – 2 p – 2 p = 0	
	We can say that 10 divided by 2 equals 5. What do the numbers actually mean? (10 p ÷ 2 p = 5 groups)	BB: 10 ÷ 2 = 5 Discussion, agreement
	18 min	
4	**Interlude** Song or rhyme	Whole class in unison
	20 min	
5	**Practical consolidation**	
	Ps have 20 counters (or items from their collection) and 5 empty containers (bags, boxes, plastic cups) on desks.	Individual work but class kept together
	a) I want you to put 5 counters in a bag, then 5 counters tn another bag until the counters are used up. See how many bags you fill.	Monitored, helped
	B, how many bags did you fill? (4) Who agrees? How can we write it as an addition (multiplication)? Ps come out to write on BB, and class agrees/disagrees.	BB: 5 + 5 + 5 + 5 = 20 4 × 5 = 20
	We can say that 4 times 5 counters = 20 counters, or 5 counters are contained in 20 counters 4 times, or 5 counters can be taken away from 20 counters four times.	T shows pre-prepared plastic bags, each with 5 counters
	BB: 20 – 5 – 5 – 5 – 5 = 0	T takes away 5 counters at a time. Ps say how many are left Ps: '15, 10, 5, 0'
	We can also say that 20 counters divided into groups of 5 counters equals 4. **C**, come and write it as a division. Is **C** correct?	BB: 20 counters ÷ 5 counters = 4 (times)
	b) Empty all the counters out again. This time I want you to share the 20 counters equally among all the 5 bags. How can we do that? (Put 1 counter in each of the 5 bags, then another in each of the 5 bags until they are used up.) See how many counters will be in each bag.	Monitored, helped
	D, how many counters are in each of your bags? (4) Who agrees? How can we write it as an addition (multiplication)? Ps come out to write on BB, and class agrees/disagrees.	BB: 4 + 4 + 4 + 4 + 4 = 20 5 × 4 = 20
	We can say that 5 times 4 counters = 20 counters, or 4 counters are contained in 20 counters 5 times, or 4 counters can be taken away from 20 counters five times.	T takes away 4 counters at a time. Ps say how many are left Ps: '16, 12, 8, 4, 0'
	BB: 20 – 4 – 4 – 4 – 4 = 0	BB: 20 ÷ 5 = 4
	We can also say that 20 counters divided by 5 equals 4 counters. **C**, come and write it as a division. Is **C** correct?	(Ps come out to divide up/ share out the items in the two ways given above)
	(Or done as a whole class activity with 5 Ps at front of class and, e.g. 20 balloons, flowers, soft toys on elastic – anything exciting!)	
	30 min	

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Bk2		*Lesson Plan 74*
Activity		***Notes***
6	***Book 2, page 74*** Q.3 Read: *Exchange these thirty 1 p coins for 5 p coins.* T points out similarity to Q.2b and makes sure everyone understands what to do. (T can show real 1 p and 5 p coins) Review at BB with whole class. **E**, how many 5 p coins did you draw? (6) Who agrees? Who thinks something else? Let's fill in the missing numbers together. Ps come out to read statements and to fill in missing numbers. Class agrees/disagrees. Ps write numbers in *Pbs* too. BB: 30 1 p coins can be exchanged for 6 5 p coins because $6 \times 5\text{ p} = 30\text{ p}$. 30 p contains 5 p 6 times.) Who can think of a division about it? T asks several Ps and writes the two version on the BB. Ps copy down in their books. *35 min*	Individual work in circling and drawing coins Monitored Discussion, agreement, checking, praising Whole class activity Written on BB or use enlarged copy master or OHP BB: $6 \times 5\text{ p} = 30\text{ p}$ $30\text{ p} \div 5\text{ p} = 6$ (times) $30\text{ p} \div 6 = 5\text{ p}$
7	**5 times table** T writes on BB, Ps in their books T starts and Ps dictate what to write next, following the pattern. BB: $1 \times 5 = 5 \times 1 = 5$ $\quad$ $6 \times 5 = 5 \times 6 = 30$ $2 \times 5 = \ldots$ $\quad$ $7 \times 5 = \ldots$ T asks Ps to demonstrate some of the multiplications to show what they mean (e.g. Ps hold hands in 5's at front of class, or draw on BB, or show with counters (sticks, etc.) on desks. *40 min*	Individual work, monitored, helped Ps should have squared paper: 1 digit (sign) per square Demonstration, discussion (Ps may have $\times$ tables on desks if necessary)
8	**Division table for 5** T writes on BB, Ps in their books. T starts and Ps dictate what to write next, following the pattern. BB: $5 \div 5 = 1$ $\quad$ $30 \div 5 = 6$ $10 \div 5 = 2$ $\quad$ $35 \div 5 = \ldots$ $15 \div 5 = 3$ Let's look at our multiplication table. Where can we find the divisions? (e.g. Elicit that $35 \div 5 = 7$ is the same row, column as $7 \times 5 = 35$) *45 min*	Individual work, monitored, helped Use *OHT 7* or copy master Ps have own copies on desks (can be stuck into back of their copies of Book 2, or their exercise books and numbers along top and LHS coloured) Discussion, reasoning, agreement

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Bk2	R: Sequences. Mental calculation **C: Multiplication and division (in context): 2, 5, 10; × table** *E: Half , fifth, tenth*	*Lesson Plan* *75*
Activity	**** OHT 7 in MEP Transparency Collection at*** http://www.cimt.org.uk/projects/mepres/primary/ohptrans/transmen.htm	***Notes***
1	**Oral practice** a) Let's say the multiplication table for 2 (5, 10) in increasing order: 'one times two is two, two times two is four, three times two is . . .' b) T says a multiplication for 2, 5 or 10 (e.g. 3 × 5) P says answer (15) c) T says a division for 2, 5 or 10. Ps volunteer answers and explain reasoning, checking with multiplication. (e.g. 24 ÷ 2 = 12 because 12 × 2 = 24) T uses the terms 'one half', 'one fifth', 'one tenth' too. (e.g. one fifth of 10) *5 min*	Whole class activity In unison, at speed Ps hold up hands to volunteer. Class corrects mistakes. Refer to × table (*OHT 7* * or copy master) as a check Ps can have own copies too
2	**10 times table** T writes on BB, Ps in their books. T starts and Ps dictate what to write next, following the pattern. BB: 1 × 10 = 10 × 1 = 10 6 × 10 = 10 × 6 = 60 2 × 10 = . . . 7 × 10 = . . . T asks Ps to demonstrate some of the multiplications to show what they mean (e.g. Ps stand up in 10's, or draw dots or write additions on BB) *13 min*	Individual work, monitored Ps should have squared paper: 1 digit (sign) per square Demonstration, discussion, checking, praising
3	**Division table for 10** T writes on BB, Ps in their exercise books. T starts and Ps dictate what to write next, following the pattern. BB: 10 ÷ 10 = 1 . . . 20 ÷ 10 = 2 . . . 30 ÷ 10 = 3 100 ÷ 10 = 10 Let's look at our multiplication table. Where can we find the divisions? (e.g. Elicit that 70 ÷ 10 = 7 is the same row/column as 7 × 10 = 70) Talk about division being the opposite of multiplication, just as subtraction is the opposite of addition. *18 min*	Individual work, monitored Use *OHT 7* or copy master Ps have own copies on desks (or stuck into back of their copies of Book 2, or their exercise books) Discussion, reasoning, checking, agreement BB: e.g. 5 + 2 = 7 5 × 2 = 10 7 – 2 = 5 10 ÷ 2 = 5
4	**Interlude** Physical exercises to music *20 min*	Whole class in unison
5	**Jumping along the number line** Let's jump along the number line: a) from zero in 5's to 45 (T shows jumps, Ps recite numbers reached) After how many jumps did we reach 45? (9) Who can come and write it as a multiplication (division)? Who agrees? b) from 35 back to zero in 5's (T shows jumps, Ps recite numbers) After how many jumps did we reach 0? (7) Who can come and write it as a division? Who agrees? How can we check it? c) from zero to 100 in 10's d) from 100 back to zero in 10's *25 min*	Whole class activity T shows jumps on number line, Ps recite in chorus BB: a) 9 × 5 (units) = 45 (units) 45 (units) ÷ 5 (units) = 9 b) 35 (units) ÷ 5 (units) = 7 7 × 5 (units) = 35 (units) c) 10 × 10 (units) = 100 (units) 100 units ÷ 10 (units) = 10

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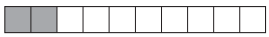
Bk2		*Lesson Plan 75*
Activity		***Notes***
6	***Book 2, page 75*** Q.1 Read: *Write an addition, a multiplication and a division about each picture.* Deal with one part at a time. Review at BB with whole class. BB: e.g. a) $9 + 9 + 9 + 9 + 9 = 45$, $5 \times 9 = 45$, $45 \div 5 = 9$ b) $2 + 2 + 2 + 2 + 2 = 10$, $5 \times 2 = 10$, $10 \div 5 = 2$ c) $5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 40$, $8 \times 5 = 40$, $40 \div 8 = 5$ d) $10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 = 80$, $8 \times 10 = 80$, $80 \div 8 = 10$ *30 min*	Individual work, monitored, helped Use enlarged copy master/OHP Discussion, agreement, checking, self-correcting (or $10 + 10 + 10 + 10 = 40$, $20 + 20 = 40$, etc.) Praising
7	***Book 2, page 75*** Q.2 Read: *On a school trip, 18 rolls were divided equally among the children so that each child had 2 rolls each.* *How many children were on the trip?* Let's see if you can work this out for yourselves! You may draw circles around the rolls to help you. Write a division and then check you are correct with a multiplication. Review at BB with whole class, with Ps coming out to explain reasoning and what they did to check it. Mistakes corrected. *35 min*	Individual work, monitored, helped BB: Number of rolls: 18 Each child has: 2 $18 \div 2 = 9$ *Check:* $9 \times 2 = 18$ *Answer*: 9 pupils Class/disagrees. Self-correction
8 **Extension**	***Book 2, page 75*** Q.3 Read: *Grandma cooked 30 dumplings.* *She gave 5 dumplings to each of her grandchildren.* *How many grandchildren does she have?* Let's see how quickly you can solve this problem! You may draw circles around the dumplings to help you. Write a division and then check it with a multiplication. Review at BB with whole class, with Ps coming out to explain reasoning and what they did to check it. Mistakes corrected. What information is missing from this problem? (Whether or not all the dumplings were used up, e.g. Grandma could have 4 grandchildren and there could be 10 dumplings left over.) *40 min*	Individual work, monitored BB: Number of dumplings: 30 Each grandchild has: 5 $30 \div 5 = 6$ *Check:* $6 \times 5 = 30$ *Answer*: 6 grandchildren Agreement. Self-correction Discussion. Ask several Ps what they think Praising if P thinks of it.
9 **Extension**	***Book 2, page 75*** Q.4 Read: *Colour in one half, one fifth and one tenth of the ribbon.* How many squares are there in the ribbon? (10) Colour in one half of the ribbon on the LHS and write '1 half' below it. **X**, how many squares did you colour? (5) Who disagrees? **Z**, come and write a division about it. Is **Z** correct? Let's check with a multiplication. Similarly for one fifth and one tenth. What do you do when you find one half (one fifth, one tenth) of something? [Divide by 2 (5, 10)] • What is half of 4 (6, 20, 100)? (2, 3, 10, 50) • What is one fifth of 15 (20, 30, 50)? (3, 4, 6, 10) • What is one tenth of 20 (30, 70, 100)? (2, 3, 7, 10) *45 min*	Individual trial, monitored, helped. Discussion at BB BB: *1 half*: $10 \div 2 = 5$ $5 \times 2 = 10$  *1 fifth*: $10 \div 5 = 2$ $2 \times 5 = 10$ *1 tenth*: $10 \div 10 = 1$ $1 \times 10 = 10$

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Bk2	R: Mental calculation **C: Multiplication and division by 2, 5, 10. x table** *E: Rules and regularities. Problem solving*	*Lesson Plan* *76*
Activity	**** OHT 7 in MEP Transparency Collection at*** http://www.cimt.org.uk/projects/mepres/primary/ohptrans/transmen.htm	***Notes***
1	**Sequences** T starts a sequence, a P continues it, then T asks another P to continue, then another, etc. to 100 (or further if Ps can do it) • 0, 2, 4, 6, . . . What are these numbers? (Multiples of 2, even) • 0, 5, 10, 15, . . . What are these numbers? (Multiples of 5) • 0, 10, 20, . . . What are these numbers? (Multiples of 10) Who can come and find them on the multiplication table? *3 min*	Whole class activity At speed Praising Without the aid of a multiplication table Use *OHT 7* * with yellow strips to highlight
2	**Multiplication** Open your books at your multiplication table. Check the numbers you coloured before. Are you sure that you know these multiplications by heart? You might be able to colour new numbers now ! Let's see what you know! T walks round class saying multiplications for 2, 5 and 10, pointing to different Ps in turn to give the answer. Class corrects wrong answers. If nobody knows, refer to *OHT 7*. Who knows a multiplication that we haven't mentioned yet? Come and show it to us on the multiplication table. *8 min*	Whole class activity (Give Ps 2 minutes to make sure that they know them) Praise every correct product Encourage Ps who make a mistake (but take note and ask them again unexpectedly at other times) Extra praise if correct
3	**Division** T starts a division by 2, 5 or 10 and chooses a P to answer. If P answers correctly, he/she chooses the next P. If answer is wrong, another P corrects it and answers the next division. Refer to multiplication table if necessary. Ask Ps to check with a multiplication if unsure. *12 min*	Whole class activity At a good pace! Praising, encouraging
4	***Book 2, page 76*** Q.1 Read: *Change 35 p into 5 p coins.* *Divide 35 p into 5 equal parts.* Who can tell me something about the two pictures? (Both the same, 5 rows of 7 coins, 35 coins altogether) Do we have to do the same for each picture? (No, in the LHS we are dividing up the coins into columns of 5 and in the RHS we are dividing up the coins into rows of 7) See if you can fill in the missing numbers on your own. Check you are correct by writing a multiplication. Review at BB with whole class. Ps come out to explain their reasoning and class agrees/disagrees. *18 min*	Individual work, monitored, helped Drawn on BB or use enlarged copy master or OHP Discussion, agreement, checking, praising BB: 5 is contained in 35 7 times One fifth of 35 = 7 35 divided by 5 = 7 35 ÷ 5 = 7 *Check:* 7 × 5 = 35
5	**Interlude** Action song/rhyme *20 min*	Whole class in unison
6	***Book 2, page 75*** Q.2 Read: *Fill in the missing numbers. Colour the coins which make the equation true.* Do part a) with whole class so that they understand what to do. (Make sure that they know to colour only as many coins as the number they write in the box.)	Whole class introduction Drawn on BB or use enlarged copy master or OHP (or cardboard coins stuck to BB) P at BB, rest of class in their books

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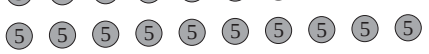
Bk2		*Lesson Plan 76*
Activity		***Notes***
	Ps do parts b) to f) on their own. Review at BB with whole class. Mistakes corrected (If problems, continue as whole class activity.) Ask Ps to say a division about each part too. BB: a) 50 = 5 × 10 b) 80 = 8 × 10 c) 25 = 5 × 5 d) 40 = 8 × 5 e) 50 = 10 × 5  f) 0 = 0 × 5 T says other equations and Ps give correct number of coins. Who can explain why the same number of coins were coloured in parts a) and c)? parts b) and d)? (The same number of coins of half the value gives half the amount.)	Individual work, monitored Discussion, agreement, checking, praising e.g. 6 × 10 = 60: How many 10 p coins? (6) 2 × 10 = 20: How many 10 p (5 p) coins? (2, 4) Praising
	28 min	
7	***Book 2, page 76*** Q.3 Read: *Write in the missing numbers.* *Learn and practise the 2 and 5 times tables.* Deal with one column at a time. Review orally round class. Elicit that the answers to the multiplications (i.e. products) are the same as the first numbers in the divisions. In the next 2 minutes try to learn the multiplications by heart and then we will try to say them without looking at the books!. Close your *Pb*s and let's say the 2 times table together. 'zero times two equals zero, one times two equals two . . .' Now let's say the divisions for 2: 'zero divided by two equals zero, . . .' (Demonstrate this first division if necessary.) Repeat for 5. If you have not learned them yet, practise at home.	Individual work, monitored Class points out mistakes Ps correct their errors T asks for quiet so that everyone can concentrate In unison, at speed In unison, at a good pace, with T's help Praising
	36 min	
8	**Problem** *I went into a sweetshop where you can choose your own sweets.* *I put the same kind of sweets in a bag.* *How many sweets did I buy if each sweet cost 5 p and I paid 20 p?* Show me with number cards . . . now! (4) **X**, explain how you got your answer. Who agrees? Repeat for other totals.	Whole class activity T repeats slowly In unison BB: 20 ÷ 5 = 4 Reasoning, agreement, checking, praising
	40 min	
9	**Challenge** Who is clever enough to calculate the answers to these? BB: 2 × 50 = 5 × 11 = 44 ÷ 2 = 100 ÷ 5 = 2 × 11 = 5 × 20 = *98 ÷ 2 = 55 ÷ 5 = 2 × 32 = *5 × 12 = *31 ÷ 2 = 22 ÷ 5 = Ps come out to choose one to try, explaining reasoning to class. Class agrees/disagrees. Who can do it another way? (using addition, double, half, fifth, subtraction, decomposition, inverse operations, etc.) *e.g. 98 = 100 – 2, 12 = 10 + 2, 31 = 20 + 10 + 1 (10 + 5 + half, or (50 – 1) (50 + 10) 2 × 15 + 1; *Ans*: 15, remainder 1)	Whole class activity Encourage Ps to think logically and to use what they already know. T gives hints if necessary Trials, reasoning, discussion, agreement, checking Praising if Ps reason without help
	45 min	

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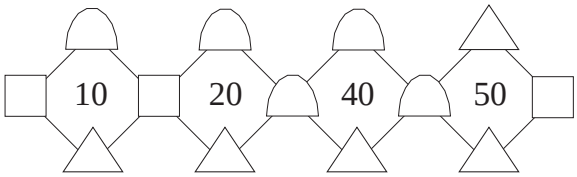
Bk2	R: Addition, subtraction. Multiplication and division by 2, 5, 10 **C: Multiplication and division table for 3** *E: Product of more than two factors*	*Lesson Plan* *77*
Activity		***Notes***
1	**Soft ball play** T throws a ball to a P saying a multiplication or division (2, 5 or 10). P throws ball back to T saying the product or quotient. *5 min*	Whole class activity At speed Try to involve all Ps
2	**Puzzle** Look at this puzzle. The same shape means the same 1-digit number. The number in the middle is the product of the 4 numbers around it. BB:  Let's work it out logically. Where should we start? (e.g. at 40 because there are 3 numbers the same.) Which 2 numbers multiplied together make 40 (i.e. are factors of 40)? Who agrees? Who thinks another two? BB: $40 = 4 \times 10 = 2 \times 2 \times 2 \times 5$ or $40 = 5 \times 8 = 5 \times 2 \times 4 = 5 \times 2 \times 2 \times 2$ So what must the semi-circle (triangle) equal? (2, 5) Who agrees? **A**, come and write '2' in all the semi-circles and '5' in all the triangles. How can we work out what the square equals? (e.g. $2 \times 5 = 10$, so the squares must equal '1' or $2 \times 5 \times 5 = 10 \times 5 = 50$, so the square must equal '1'. Let's check that we are correct. *10 min*	Whole class activity Drawn on BB or use enlarged copy master or OHP Discussion, agreement, trials, checking T gives hints if Ps are stuck (Ps might use trial and error to solve it but T should mention the logical way too) Ask several Ps what they think and explain to the class Checking, praising BB: □ = 1, ⌓ = 2, △ = 5
3	***Book 2, page 77*** Q1 Read: *Write additions, multiplications and division about the picture.* What can you say about the picture? (3 rows of 4 chicks, or 4 columns of 3 chicks; 12 chicks altogether) Review at BB with whole class. Mistakes corrected by demonstration. T asks Ps to read out the multiplications and divisions in different ways. (e.g. 3 times 4, 4 multiplied by 3, triple 4; 12 divided by 3, one third of 12, 12 shared equally among 3, etc.) (T starts to use terms such as 'multiples', 'factors', 'product', 'divisor', 'quotient' and shows where they are in the equations.) *15 min*	Individual trial, monitored, helped Draw on BB or use enlarged copy master or OHP Discussion, agreement, checking, praising BB: $3 + 3 + 3 + 3 = 12$ $4 + 4 + 4 = 12$ $3 \times 4 = 12$, $4 \times 3 = 12$ $12 \div 4 = 3$, $12 \div 3 = 4$
4	**Jumping along the number line** Let's jump along the number line: a) from zero to 30 in 3's (T or P shows jumps, Ps recite the numbers) b) from 30 back to zero in 3's (P shows jumps, Ps recite the numbers) What do we call these numbers? (multiples of 3) Let's find them in our multiplication tables. P comes out to BB to point to relevant row and column. Class agrees/disagrees and find in own tables too. *18 min*	Whole class activity In unison In unison Revise what a 'multiple' is T does a quick check
5	**Interlude** Ps put heads on desks and say the 2, 5 and 10 times table in their heads. *20 min*	Whole class practising tables mentally

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Bk2		*Lesson Plan 77*
Activity		***Notes***
6	**Number strips** Ps have numbers strips (or coloured plastic cubes stuck together in 2's, 3's, 4's, etc. or Cuisennaire rods) on desks. a) Let's put 3 of the same length in a long line and see how many they make altogether. (Start with three '1's, then three '2's, etc.) Who can say a multiplication about it? T writes on BB (e.g. $3 \times 1 = 3$, $3 \times 2 = 6$, $3 \times 3 = 9$, . . .) and Ps write in *Ex. Bks*. b) Let's put different numbers of 3 (number strips, rods or plastic cubes stuck together in 3's) in a long line and see how many they make altogether. (Start with one '3', then two '3's, etc.) Who can say a multiplication about it? T writes on BB (e.g. $1 \times 3 = 3$, $2 \times 3 = 6$, $3 \times 3 = 9$, etc), and Ps write in *Ex. Bks*. Who can tell me some divisions too? Class agrees/disagrees. (If problems, Ps can confirm with number strips/cubes/rods on desks.) *30 min*	Individual (or paired) work, instructed by T (Materials already prepared and on Ps' desks) T can demonstrate with large strips stuck to BB or use normal sized strips or rods with an OHP Ps go as far as they are able in a set time limit Discussion, agreement, checking, praising BB: e.g. $6 \div 3 = 2$, $15 \div 5 = 3$, etc.
7	***Book 2, page 77*** Q.2 Read: *Vera has made different shapes using 3 sticks for each shape.* *How many sticks will she need to make several shapes? Complete the table.* Review at BB with whole class. Mistakes corrected. • Who can say a multiplication and division about one of the columns? Class agrees/disagrees. Who knows another one? • Who can tell us the rule for the table? (Number of sticks = 3 × number of shapes) • What kind of numbers are in the bottom row of the table? (multiples of 3) Let's say them in decreasing order. (30, . . .) *35 min*	Individual work, monitored, helped. Drawn on BB or use enlarged copy master or OHP Discussion, agreement, checking, praising e.g. $10 \times 3 = 30$, $30 \div 3 = 10$ T points and class recites in unison, at speed
8	***Book 2, page 77, Q.3*** Read: *Claire lives in a 10-storey block of flats. From the back garden she can see 3 windows on each floor.* *a) How many windows can Claire see on:* *i) 3 floors?* Show me with number cards . . . now! (9) **X**, come and explain how you got your answer and write it as a multiplication. Is **X** correct? T deals with any mistakes they made. Ps correct own work. Deal with other parts in a smilar way. (Or done as individual work, monitored, helped and reviewed at BB wth whole class) *40 min*	Whole class activity Use enlarged copy master/OHP T or P reads questions, Ps write multiplication in their books In unison Reasoning, agreement, checking, praising BB: a) i) $3 \times 3 = 9$, etc. b) i) $21 \div 3 = 7$, etc. Keep up a good pace!
9	***Book 2, page 77, Q.4*** T talks about the multiplication table first, eliciting that the rows and columns showing the multiples of 2, 5 and 10 are already filled in because Ps should already know them. What do you notice about the row and column for the multiples of 3? (6, 15 and 30 are already filled in) Why? (6 is also a multiple of 2, 15 is also a multiple of 5, 30 is also a multiple of 10 (and of 5)). Ps fill in the missing multiples of 3. Let's say them together in increasing (decreasing) order. (Ps correct any mistakes in table in their books.) *45 min*	Whole class discussion Drawn on BB or use enlarged copy master or OHP Ps come out to point and explain Individual work, monitored In unison, at speed. Praising

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Bk2

R: Operations already learned
C: Multiplication and division by 3
E: Third

Lesson Plan 78

Activity		***Notes***
1	**Grouping in 3's** T has shapes stuck (drawn) on BB. Ps come out to arrange in groups of 3 and write a multiplication and division about it. BB: a) △ △ △ | △ △ △ 2 × 3 = 6 6 ÷ 3 = 2 b) ○ ○ ○ | ○ ○ ○ | ○ ○ ○ 3 × 3 = 9 9 ÷ 3 = 3 c) □ □ □ | □ □ □ | □ □ □ □ □ □ | □ □ □ | □ □ □ 6 × 3 = 18 18 ÷ 3 = 6 d) ⬠ ⬠ ⬠ | ⬠ ⬠ ⬠ | ⬠ ⬠ ⬠ ⬠ ⬠ ⬠ | ⬠ ⬠ ⬠ | ⬠ ⬠ ⬠ ⬠ ⬠ ⬠ | ⬠ ⬠ ⬠ | ⬠ ⬠ ⬠ 9 × 3 = 27 27 ÷ 3 = 9 If we change one third of the number of shapes into black ones, how many triangles (circles, squares, pentagons) will be black? (2, 3, 6, 9) Will we need to write new divisions about it? (No, the divisions already on BB also show the new arrangements.)	Whole class activity T has BB ready prepared (can use number cards) Shapes need not be drawn/ stuck in a regular pattern Ps come out to show groups (by drawing or rearranging) Class agrees/disagrees with equations Ps write equations in their books (first writing the date and lesson number at top of page) Done at a good pace Discussion, agreement, checking by demonstration, praising
	8 min	
2	***Book 2, page 78, Q.1*** T explains task. Ps come out to choose an animal and show its jumps on the number line, e.g. *Frog:* P points to '6' on the number line. This is how far *Frog* got to after 1 jump. How far would he have got after 3 jumps? P shows 3 jumps of 6 units each along the number line and the class keeps count. P writes '18' in correct place in table and equation on BB. Continue until all the blanks are completed. (Demonstration is not necessary once T thinks Ps have understood.) Ask Ps to compare the jumps orally using words such as '3 times', 'one third'. Discuss the special case of *Snail*: after 1 jump he has not moved, so 3 jumps of not moving equals zero. (Ps can jump on the spot 3 times but not move forwards or backwards.) *Solution:*	Whole class activity Drawn on BB or use enlarged copy master or OHP Demonstration, agreement BB: 3 × 6 = 18, etc. Ps complete table in their books too Involve several Ps BB: 3 × 0 = 0 Discussion, demonstration Elicit that jumps of 3, 8 and 10 are not shown in table. (Ps could suggest an animal for each)

After 1 jump	0	1	2	4	6	7	9
After 3 jumps	0	3	6	12	18	21	27

	14 min	
3	***Book 2, page 78*** Q.2 Read: *Write multiplications and division about the pictures.* Let Ps try without any help first. Review at BB with whole class. Elicit that in: a) there are 3 × 4 things in a 2 × 6 pattern b) there are 5 × 6 (or 10 × 3) shapes in a 3 × 10 pattern Praise the unexpected (e.g. 1 × 12; 2 × 15; 2 × 3 × 5)	Individual trials, monitored Drawn on BB or use enlarged copy master or OHP BB: a) 3 × 4 = 4 × 3 = 2 × 6 = 6 × 2 = 12 b) 3 × 10 = 10 × 3 = 5 × 6 = 6 × 5 = 30 (plus matching divisions)
	20 min	

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Bk2		*Lesson Plan 78*
Activity		***Notes***
4	**Interlude** Song or rhyme *22 min*	Whole class in unison
5	**Multiples of 3** a) T says a multiplication for '3'. Ps show on desks with counters (cubes, sticks, items from their collection), e.g. 3 × 4 (3 × 6, 3 × 7, 3 × 9, 3 × 0). How many do you have altogether? (Ps shout out in unison or show with number cards.) BB: 3 × 4 = 12, etc. b) T tells Ps to lay out a certain number of items on desks and to divide them up into groups of 3, e.g. 6 (24, 15, 30) How many is one third of the total number? (Ps shout out in unison or show with number cards.) BB: 6 ÷ 3 = 2, etc. *28 min*	Individual work but class kept together under T's instructions. Each P should have box of items already on desk Done at a good pace! T monitoring, helping Whole class demonstration if there are problems.
6	***Book 2, page 78*** Q.3 Read: *Fill in the missing numbers. Learn and practise the 3 times table.* Deal with one column at a time. Review orally round class. Elicit that the answers to the multiplications (products) are the same as the first numbers in the divisions. In the next 2 minutes try to learn the multiplications by heart and then we will try to say them without looking at the books! Close your books and let's say the 3 times table together. 'zero times three equals zero, one times three equals three, . . .' Let's say it another way in a relay, starting with '3 times zero' Now let's say the divisions for 3: 'zero divided by three equals zero, . . .' (Demonstrate this first division if necessary.) *35 min*	Individual work, monitored (helped) Class points out mistakes Ps correct their errors T asks for quiet so that everyone can concentrate In unison, at speed One P after another, at speed In unison, at a good pace, with T's help. Praising
7	**Problem** Listen carefully and show me the answer with number cards when I say. a) *Tom has 8 pencils. Ann has 3 times as many as Tom. How many pencils does Ann have?* Show me with number cards . . . now! (24) **X**, explain how you got your answer. Who agrees? (Answer in context) b) *Jim ate 9 pancakes, which was one third of the number of pancakes Mum had made. How many pancakes did Mum make?* Show me with number cards . . . now! (27) **Y**, explain how you got your answer. Who agrees? Who did it another way? *How many pancakes were left?* Show me with number cards . . . now! (18) **Z**, explain how you got your answer. Is **Z** correct? (Ps repeat answers as sentences in context.) *40 min*	Whole class activity Ps repeat in own words. In unison BB: 3 × 8 = 24 Ps repeat in own words Number cards shown in unison Discussion, agreement, checking, praising BB: 3 × 9 = 27 pancakes made 27 – 9 = 18 pancakes left
8	**Multiplication table** Open your books at your multiplication table. Colour any new numbers if you are sure you know a multiplication and division about them. Let's see what you know! T walks round class saying multiplications/ divisions for 2, 3, 5 and 10. Ps correct wrong answers on × table. *45 min*	Individual work in colouring, monitored (questioned) Check who circled every number in the row and column for 3. Praising, encouraging

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Bk2	R: Operations already learned **C: Multiplication and division by 3** *E: Factorising. Division with remainder*	*Lesson Plan* *79*
Activity	**** OHTs 7 and 11 in MEP Transparency Collection at*** http://www.cimt.org.uk/projects/mepres/primary/ohptrans/transmen.htm	***Notes***
1	**Oral practice** a) Let's practise our multiplication tables (2, 3, 5, 10) (forwards and backwards) T points to multiples on *OHT 7* * (or copy master) b) T says a multiplication/division already learned. Ps asked either in order round class or randomly. (Divisions checked by next P with a multiplication.) Demonstrate only if there are problems. *5 min*	Whole class activity At speed, in unison Done in good humour – no stress put on Ps! Praising only, encouraging in case of incorrect answers
2	**Logic Puzzle *(OHT 11)*** Look at this puzzle. The four numbers along each line add up to 51. (T writes 51 above or below puzzle.) The same colour means the same number. There is another limitation on the number in each rectangle. What does this tell us? (T points to the inequality.) (The numbers in each rectangle must be more than or equal to 10 and less than or equal to 16.) Let's say all the numbers the rectangles could be. '10, 11, 12, 13, 14, 15, 16' (T writes them on the BB.) We have to work out which of these numbers each colour represents. Where should we start? (e.g. on the 2nd row of the inner rectangle, which has 3 '12's already given.) BB: $3 \times 12 + \square = 51$ **A**, come and write in the missing number. (15) Who agrees? Let's check. (51 – 15 = 36, 36 ÷ 3 = 12) **A**, write 15 in all the *pink* rectangles. Where should we go next? (e.g. bottom row) (This could be done first) BB: $\square + 12 + \square + \square = 51$, $3 \times \square + 12 = 51$ **B**, come and write in the missing number. (13) Who agrees? Let's check. (51 – 12 = 39, 39 ÷ 3 = 13) **B**, write 13 in all the *orange* rectangles. Continue in this way until puzzle is completed (e.g. then LH column of inner rectangle to get *blue*, then vertical row on RHS to get *dark green*, then slanting row on RHS to get *yellow*, then slanting row on LHS to get *light green*). *12 min*	Whole class activity If no OHP, use copy master, enlarged and coloured appropriately BB: $10 \leq \square \leq 16$ $\square$: 10, 11, 12, 13, 14, 15, 16 In unison *Solution:* Pink → 15 Orange → 13 Blue → 14 Dark Green → 11 Yellow → 10 Light Green → 16 Involve as many Ps as possible in discussion/solution Other orders possible – Ps suggest where to go next and what to do as a check Checking, agreement, praising (Practice in addition, subtraction, multiplication and division)
3	***Book 2, page 79*** Q.1 a) Read: *The same shape means the same number. The number in the middle is the sum of the four numbers around it. Fill in the missing numbers.* Make sure that Ps know what 'sum' means. (Pairs could be an able P working with a less able P.) Review at BB with whole class, a different pair (or P) for each sum. Class confirms/points out errors. (If problems, write additions on BB.) b) Read: *The same shape means the same number. The number in the middle is the product of the four numbers around it. Fill in the missing numbers.* Make sure that Ps know what 'product' means. Review as in a), writing multiplications on BB if necessary. *20 min*	Individual (or paired) trial, monitored Drawn on BB or use enlarged copy master or OHP Discussion, reasoning, agreement, checking, praising *Solution:* a) ▭ = 15, △ = 16, ○ = 18, ▱ = 17, ⬡ = 19 b) □ = 2, ○ = 1, △ = 3, ⌓ = 5 Praise Ps who used × as shorter form of + in part a)
4	**Interlude** Song, verse, exercises *22 min*	Whole class in unison

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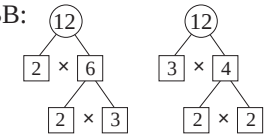
Bk2		*Lesson Plan 79*
Activity		***Notes***
5	***Book 2, page 79*** Q.2 Read: *Mrs Squirrel can carry home only 3 acorns at a time. Show how many times she had to go back if she collected: a) 12 acorns b) 24 acorns c) 18 acorns.* *Write a multiplication and division about each picture.* Review at BB with whole class: Ps at BB circling, counting groups of 3 and writing equations. Class agrees/disagrees. Mistakes corrected. (Demonstrate with plastic cubes and a P as Mrs Squirrel if problems; or Ps could have counters on desks. This is a good opportunity for less able Ps to consolidate, while more able Ps do creative exercise in exercise books for other multiples of 3.) Who notices a connection between parts a) and b)? (Twice as many acorns so Mrs Squirrel went back twice as many times) *28 min*	Individual work, monitored Do part a) with whole class first if necessary Use enlarged copy master or OHP or cut-out acorns stuck to BB. Discussion, reasoning, agreement, checking, praising BB: a) $4 \times 3 = 12$, $12 \div 3 = 4$ b) $8 \times 3 = 24$, $24 \div 3 = 8$ c) $6 \times 3 = 18$, $18 \div 3 = 6$
6	***Book 2, page 79*** Q.3 Read: *Colour one third of the number shown.* *Write a division about each picture and check your result with a multiplication.* How can we work out how many to colour? (Count the number of items altogether and divide by 3) (Less able Ps could have counters, etc. on desks to put into 3 equal groups.) Review at BB with whole class. Ps come out to BB to explain reasoning and write equations. Class agrees/disagrees. Mistakes corrected. If problems, demonstrate with Ps at front of class. (This is another opportunity for less able Ps to consolidate, while more able Ps calculate one third of, e.g. 45, 57, 78*, 81) *34 min*	Individual work, monitored, helped Drawn on BB or use enlarged copy master or OHP Discussion, reasoning, agreement, checking, praising BB: a) $15 \div 3 = 5$, $3 \times 5 = 15$ b) $9 \div 3 = 3$, $3 \times 3 = 9$ c) $21 \div 3 = 7$, $3 \times 7 = 21$ *78 = 30 + 30 + 18, so one third of 78 = 10 + 10 + 6 = 26
7	**Factorising** T writes the number '12' on the BB. Which numbers multiplied together make 12 (i.e. are factors of 12)? (e.g. 2×6) Are there any others? (e.g. 3×4) Any others? (1×12) T explains that all numbers have factors of 1 and the number itself. Let's concentrate on the other factors. T writes the other 2 suggestions in a diagram as opposite, gradually adding extra rows as required. Which numbers multiplied together make 2? (1×2) Any others? (No) Does 6 have any factors apart from 1 and 6? (2×3) T writes them in. Can we break the numbers down any further? (No, apart from 1 times the number itself.) Repeat for 3×4. Let's write the factors in both diagrams in increasing order. What do you notice? (Both diagrams end up with the same result, so it does not matter whether we wrote 2×6 or 3×4 at the start.) Repeat for another multiple of 2, 3, 5 or 10 suggested by Ps. *40 min*	Whole class activity Ps suggest the factorisation BB:  $2 \times 2 \times 3$ $3 \times 2 \times 2$ $12 = 2 \times 2 \times 3$ Ps copy equations into *Ex. Bks.* too Discussion, agreement, checking, praising
8	**Division with remainder** T calls 7 Ps out to stand in a line facing the class. Ps hold hands in pairs. How many Ps? How many pairs? (3) How many remain? (1) We can write it as a division like this. (BB) Who agrees? Let's check. Repeat for $10 \div 3$, $17 \div 3$, $21 \div 5$, $24 \div 5$. Ps dictate the equations. *45 min*	Whole class activity Demonstrate as long as needed BB: $7 \div 2 = 3$, remainder 1 *Check*: $3 \times 2 + 1 = 7$ etc.

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Bk2	R: Operations already learned **C: Multiplication and division by 3** *E: Logic and combinatoric problems. Division with remainders*	*Lesson Plan* *80*
Activity		***Notes***
1	**Mental practice** a) T says a number (e.g. 5), P_1 says the number 3 times T's number (15) If P_1 answers correctly, he/she says a number to P_2, . . . b) T says a multiple of 3 (e.g. 6), P_1 says the number which is one third of T's number. (2) If P_1 answers correctly, he/she says a number to P_2, . . . If a P says a number not exactly divisible by 3, class corrects it. *5 min*	Whole class activity (T modifies Ps' numbers if they exceed the learned facts.) Reasoning (where needed), agreement, checking, correcting At a good pace. Praising
2	***Book 2, page 80, Q.1*** Read: *The same shape stands for the same digit.* *Fill in the missing digits.* 1. Which number is different from the others? (the 3-digit number) What is the first 3-digit number (the only 3-digit number we have learned)? (100) Let's try that first. **A**, come and write '1' in all the triangles and '0' in all the stars. What should we do next? (If nobody knows T gives hints.) 2. Look at the 1st row. The units digit in the answer is 0, the units digit in the 3rd number from left is 0, so the units digits in the first and 2nd numbers (i.e. rectangle + rectangle) must add up to give a units digit of 0. What digit could the rectangles be? (5, because 5 + 5 = 10). **B**, come and write '5' in all the rectangles. 3. Look at the 1st row again. What does he 3rd number from the left equal? (100 – 55 – 15 = 30) So what digit does the hexagon represent? (3) **C**, come and write '3' in all the hexagons. Let's check that we are correct! (horizontally and vertically.) *Solution:* □ = 5, △ = 1, ☆ = 0, ⬡ = 3 *12 min*	Whole class activity Use enlarged copy master/OHP Give Ps the chance to suggest methods of solution at each step If Ps reach correct solution by trial and error, praise them but also demonstrate logical solution Discussion, reasoning, agreement, praising Check all the equations BB: $55 + 15 + 30 = 100$ $+ \quad + \quad - \quad -$ $31 - 11 + 30 = 50$ $- \quad - \quad + \quad -$ $33 - 13 - 5 = 15$ $= \quad = \quad = \quad =$ $53 - 13 - 5 = 35$
3	**Making multiplications** a) How many 2-factor multiplications could we make from the numbers 2, 3 or 5? Let's do it logically. Which numbers could be the first factor? (2, 3 or 5) T writes on BB: $2 \times \qquad 3 \times \qquad 5 \times$ If we start with the first factor as 2 (T points), which numbers could be the 2nd factor? (2, 3 or 5). Ps come out to BB to write the three multiplications: $2 \times 2 = 4$, $2 \times 3 = 6$, $2 \times 5 = 10$ Continue for $3 \times$ and $5 \times$ in a similar way. (Discuss that, e.g. $2 \times 3 = 3 \times 2 = 6$, so they are really the same multiplication.) BB: $2 \times 2 = 4$ $\quad 3 \times 3 = 9$ $\quad 5 \times 5 = 25$ $2 \times 3 = 6$ $\quad 3 \times 5 = 15$ $2 \times 5 = 10$ (6 different multiplications) b) How many different products could we make using 3 factors? As above. Discuss the case of equal multiplications in a different order, e.g. $2 \times 3 \times 5 = 5 \times 3 \times 2 = 30$, so the product is not different. * $3 \times 5 \times 5 = 3 \times 25 = 3 \times 20 + 3 \times 5 = 60 + 15 = 75$ * $5 \times 5 \times 5 = 5 \times 25 = 5 \times 20 + 5 \times 5 = 100 + 25 = 125$ *18 min*	Whole class activity. Ps suggest what to do (with T's help) Ps write multiplications in their exercise books too Discussion, reasoning, agreement, praising BB: b) $2 \times 2 \times 2 = 8$ $2 \times 2 \times 3 = 12$ $2 \times 2 \times 5 = 20$ $2 \times 3 \times 3 = 18$ $2 \times 3 \times 5 = 30$ $2 \times 5 \times 5 = 50$ $3 \times 3 \times 3 = 27$ $3 \times 3 \times 5 = 45$ *$3 \times 5 \times 5 = 75$ *$5 \times 5 \times 5 = 125$ (10 different products)

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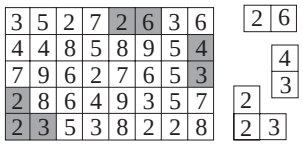
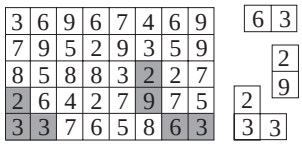
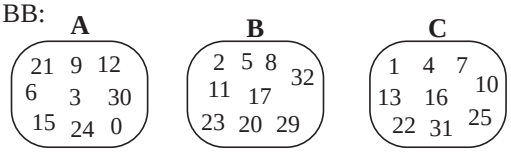
Bk2		*Lesson Plan 80*
Activity		***Notes***
4	**Interlude** Song, rhyme, exercises *20 min*	Whole class in unison
5	***Book 2, page 80, Q.2*** Read: *Find these shapes and colour them in the number grid if the product of the numbers in each shape is:* *a) 12 b) 18.* Deal with one part at a time. T explains task. Ps look at the diagrams in their books, then put up their hand when they have found a shape. T chooses a P to colour the shape in the grid and write the numbers in the shape. Who agrees? Who thinks something else? **D**, come and check that the product is correct. (Or done as individual work, monitored, helped and reviewed at BB.) *Possible solutions:* a)  b)  *28 min*	Whole class activity Drawn on BB or use enlarged copy master or OHP Agreement, checking, praising Ps colour/write in *Pb*s too. BB: e.g. a) $2 \times 6 = 12$ $4 \times 3 = 12$ $2 \times 2 \times 3 = 12$ b) $6 \times 3 = 18$ $2 \times 9 = 18$ $2 \times 3 \times 3 = 18$ Other solutions possible
6	***Book 2, page 80*** Q.3 What do you notice about the equations? (All to do with the 3 times table, 12 multiplications and 12 divisions.) Let's see how many of them you can do in 5 minutes! If you have time, check your answers. Review orally round class. Refer to multiplication table if problems. Mistakes corrected. Who had 24 out of 24? etc. *35 min*	Individual work, monitored, helped Checking, agreement Ps mark own work and count how many correct out of 24. Self-correction. Praising
7	**Number sets** What can you say about the numbers in each of the sets? BB:  Ps suggest common properties, class checks whether they are correct **A**: divisible by 3; multiples of 3; if divided by 3 there is no remainder **B**: If divided by 3 there is a remainder of 2. **C** If divided by 3 there is a remainder of 1. *40 min*	Whole class activity Drawn on BB or use enlarged copy master or OHP If nobody notices anything, T gives hint, e.g. 'divide them by 3' Agreement, checking praising BB: e.g. $29 = 3 \times 9 + 2$
8	***Book 2, page 80*** Q.4 Read: *Find the rule. Complete the table. Write down the rule.* Look at the first 3 columns already done. What could the rule be? (Ps agree on one form of rule, even if expressed only in words. e.g. Row *A* = 3 times Row *Q* plus Row *R*) Let's use this rule to complete the table. Review at BB with whole class. Mistakes corrected. How could we write the rule? T writes with help from Ps, saying the equation in words too. Could we write it another way? *45 min*	Individual work, monitored, helped (if too difficult, stop and do as whole class activity) Drawn on BB or use enlarged copy master or OHP Discussion, reasoning, agreement, checking, praising BB: $A = 3 \times Q + R$ $(R = A - Q \times 3)$ $(A \div 3 = Q$, remainder $R)$

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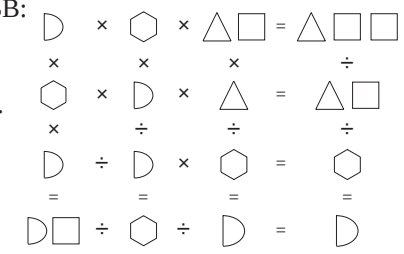
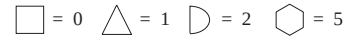
Bk2	R: Operations already learned **C: Revision and practice** *E: Calendar. Reminders*	*Lesson Plan* *81*
Activity		***Notes***
1	**Calendar** Let's study the calendar for the year 2000. T has calendar on BB, Ps have smaller copies on desks. • Let's say the months of the year. 'January, . . . December' How many months are there in 1 year? (12) • Let's list the months which have 31 days (30 days). Which month have we not mentioned? (February – usually 28 days) • Let's say the seasons. 'Spring, summer, autumn, winter' Which months does each season usually cover? • Who knows how many weeks (days) there are in a normal year? (52 weeks plus 1 day, 7 days per week, so 365 days) T points out that in a normal year, the 1st and last days of the year are the same. What is special about the number of days in the year 2016? (leap year, so 1 extra day: 366 days. Where is the extra day? (29 Feb.) • What is the date today? **A**, come and write it on the BB. Who can write it another way? (T could have various samples to show.) • Who would like to write a special date on the BB? (Ps come out to write and say date, giving reason for choice, e.g. birthday or holiday. *8 min*	Whole class activity Real calendar or use enlarged copy master or OHP In unison In unison Talk about weather, clothes, temperature, heating, etc. Check calendars from other years BB: Jan: 4 weeks + 3 days, ... Dec: 4 weeks + 2 days (Total: 48 weeks + 29 days = 52 weeks + 1 day in normal year) Discussion, agreement, checking on calendar BB: e.g. 29 / 2 / 2016, 29th February 2016 29 : 2 : 2016
2	***Book 2, page 81, Q.1*** Read: *Colour the rectangles as shown.* P reads the rules and another P shows the range of numbers each colour could be on the class number line. Class agrees/disagrees. What can you say about the rectangles? (5 rows , 9 columns, $5 \times 9 = 45$ additions and subtractions altogether) Deal with one column at a time. T points to each rectangle and P says the addition and answer, then says what colour it should be. T colours on BB and Ps in their books. If problems, show on number line. (T helps Ps to calculate quickly if they are stuck: add/subtract 10s first, then to next nearest whole ten, etc.) Elicit that: even ± even → even, even ± odd → odd odd ± odd → even, odd ± even → odd *18 min*	Whole class activity Drawn on BB or use enlarged copy master or OHP BB: $5 \times 9 = 45$ At a good pace Reasoning, agreement, checking, praising e.g. $82 - 36 = 82 - 30 - 6$ $= 52 - 2 - 4$ $= 50 - 4 = 46$ Discussion, agreement, checking
3	**Logic puzzle** Look carefully at the puzzle. The same colour means the same digit. Let's see who is clever enough to fill in the missing digits. T can give hint about the 3-digit number (100) if Ps are struggling. BB:  Review at BB with whole class, with Ps coming out to write in numbers and explaining reasoing. Class agrees/disagrees. Let's check that we are correct! (horizontally and vertically.) *24 min*	Individual work, monitored, helped Ps have copies of puzzle on desks, T has enlarged copy master on BB or OHP Discussion, reasoning, agreement, checking Self-correcting Praise Ps who worked it out *Solution:* 
4	**Interlude** Song or rhyme *26 min*	Whole class in unison

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Bk2

Lesson Plan 81

Activity		*Notes*
5	**Rule games** T has BB ready prepared. Deal with one part at a time. BB: a) △ | □ | ○ 2 | 3 | 6 7 | 5 | 35 10 | | 80 | 2 | 46 b) a | b | c 24 | 3 | 8 55 | 5 | 11 80 | 10 | 49 | | 7 c) x | y | z 23 | 11 | 12 40 | 17 | 23 51 | 6 | | 29 | 51 d) a | b | q | r 40 | 2 | 20 | 0 33 | 5 | 6 | 3 7 | 2 | | 1 17 | 3 | | 59 | 10 | | | 3 | 4 | 2 Think about what the rule might be. Ps come out to fill in the missing numbers and suggest the rule. Who agrees? Who can write it another way? etc. Deal with other parts in the same way. *Rules:* a) △ × □ = ○ ; △ = ○ ÷ □ ; ○ ÷ △ = □ b) $a \div b = c$; $b \times c = a$; $a \div c = b$ c) $x - y = z$; $x - z = y$; $y + z = x$ d) $a = b \times q + r$; $a + b = q$, remainder r *35 min*	Whole class activity Drawn on BB or use enlarged copy master or OHP More able Ps may copy into their books and add extra rows to each table (or make up their own table and rule) Discussion, reasoning, agreement, checking, praising T uses names of components (factor, product, remainder) Checking, praising Demonstrate if required
6	***Book 2, page 81*** Q.2 Read: *Marbles are packed into bags. Complete the tables and equations.* Deal with one part at a time. T asks Ps to explain what is required. (Top row of table is total number of marbles, middle row is number of packs of 3, bottom row is marbles left over.) Review at BB with whole class. Ps come out one after another to fill in a column and explain their reasoning. Class agrees/ disagrees. Mistakes corrected. (Demonstrate with pupils at front of class if required.) *40 min*	Whole class activity Drawn on BB or use enlarged copy master or OHP BB: a) $20 = 6 \times 3 + 2$ b) $24 = 4 \times 5 + 4$ Reasoning, agreement, checking ,praising
7	***Book 2, page 81*** Q.3 a) Read: *Continue the pattern. Continue numbering the terms of the sequence.* Let Ps work out the pattern for themselves first by colouring the squares and writing the numbers below. Who can explain the pattern? (3 squares, each shaded in turn, so the shading is repeated after every third shape.) b) Read: *List the numbers under the following shapes.* Ps say them in increasing order round class and T writes on BB. c) Read: *Draw the 6th, 7th, 14th, 24th, 29th, 30th, 31st shapes.* Review at BB with whole class. Elicit that: • the shape at every number which is a multiple of 3 has the lower RH square shaded; • the shape at every number which is 1 less (2 more) than a multiple of 3 has the lower LH square shaded; • the shape at every number which is 1 more (2 less) than a multiple of 3 has the top LH square shaded Who can come and draw the 21st (28th, 32nd) shape *45 min*	Individual work, monitored, helped Drawn on BB or use enlarged copy master or OHP Discussion, agreement, checking BB: a) 20 shapes in patterns of 3 b) : 2, 5, 8, 11, 14, 17, . . . : 1, 4, 7, 10, 13, 16, . . . : 3, 6, 9, 12, 15, 18, . . . c) Discussion, agreement, checking Praising

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Bk2	R: Mental operations **C: Revision and practice** *E: Day, hour, minute. Solids: cuboids*	*Lesson Plan* *82*
Activity	**** OHT 8 in MEP Transparency Collection at*** http://www.cimt.org.uk/projects/mepres/primary/ohptrans/transmen.htm	***Notes***
1	**Time** a) T has a model clock on BB. T says a whole hour, e.g. '2 o'clock,' and P comes out to set the clock. (Revise where the big and little hands should point.) Class agrees/disagrees. b) T sets the hands to show a time (whole hours and half past the hour). Ps read the time. Class agrees/disagrees. c) T asks questions, e.g. • What time do you wake up in the morning? • When does school start? • How many hours are you in school? • When do you have tea? • When do you go to bed? Ps say approximate time and show on the clock. Talk about the difference between, e.g. 7 o'clock in the morning (7 am) and 7 o'clock in the evening (7 pm). Elicit that: 1 hour = 60 minutes, half an hour = 30 minutes, 1 day = 24 hours *10 min*	Whole class activity Agreement, checking, praising At speed round the class Involve several Ps Ps can ask questions too Discussion about there being 12 hours (am) + 12 hours (pm) = 24 hours in 1 day Talk about 24 hour clock T writes on BB and Ps in their exercise books
2	***Book 2, page 82*** Q.1 Read: *Colour in the number of glasses which can be filled from the large jug. How much will be left in the jug? Write equations about the pictures.* Revise that 100 cl = 1 litre. Review at BB with whole class. a) 60 cl – 15 cl – 15 cl – 15 cl = 0 cl 60 cl ÷ 4 = 15 cl (60 cl ÷ 15 cl = 4 times) 4 glasses filled and no water left in the jug. If we shared the water equally among the 5 glasses, how much would be in each glass? (60 cl ÷ 5 = 12 cl) b) 1 litre = 100 cl 100 cl – 25 cl – 25 cl – 25 cl = 0 cl 100 cl ÷ 4 = 25 cl (100 cl ÷ 25 cl = 4 times) 4 glasses filled and no water left in the jug. If we shared the water equally among the 5 glasses, how much would be in each glass? (100 cl ÷ 5 = 20 cl) *15 min*	Individual work, monitored (helped) Drawn on BB or use enlarged copy master or OHP (or demonstrate with real jugs of water and plastic cups) Discussion, reasoning, checking, agreement, praising Ask Ps what other question could be asked about the pictures. e.g. How much water would be needed to fill all the glasses?
3	**Operations** T has 15 items stuck (or drawn) on BB. e.g. BB: ✻ ✻ ✻ ✻ ✻ ✻ ✻ ✻ ✻ ✻ ✻ ✻ ✻ ✻ ✻ Ps write additions, subtractions, multiplications, divisions about 15 in their books Encourage Ps to be creative! Review orally round class. Ps can draw own picture (or have items from their collection on desks for easier manipulation) and write operations about it. *20 min*	Individual work, monitored (low ability Ps helped) Discussion, agreement, checking, praising BB: e.g. 15 ÷ 2 = 7, remainder 1 15 = 2 × 7 + 1 15 ÷ 3 = 5, 3 × 5 = 15 15 – 7 = 8, 15 – 7 – 7 = 1, etc.
4	**Interlude** Exercises or action song *22 min*	Whole class in unison

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Bk2		*Lesson Plan 82*
Activity		***Notes***
5	**Logic Puzzle** ***(OHT 8)*** Look at these puzzles. What do you think the rule might be? (The number in the middle is the product of the 3 numbers around it. The same colour means the same number.) Let's look at the LH puzzle first. Where should we start? (e.g. with the '8' which is the product of 3 numbers which are all the same.) BB: 8 = □ × □ × □ (or with the 20: 20 = 5 × □ × □) **A**, come and write in the missing numbers. (2) Who agrees? Let's check. (2 × 2 × 2 = 4 × 2 = 8) **A**, write 2 in all the *violet* squares. Where should we go next? (e.g. 16 = 2 × 2 × □) **B**, come and write in the missing number. (4) Who agrees? Let's check. (2 × 2 ×4 = 4 × 4 = 16) **B**, write 4 in all the *pink* squares. Continue in this way until puzzle is completed Similarly for puzzle on RHS (e.g. start at 5 because the only factors of 5 are 1 and 5, so 5 = 1 × 1 × 5) *30 min*	Whole class activity If no OHP, use copy master, enlarged and coloured appropriately Ps suggest where to go next Checking, agreement, praising *Solutions:* a) b) Violet → 2 4 Pink → 4 2 Yellow → 3 3 Green → 1 5 Orange → 7 1 (Let Ps have own copies of puzzle to colour appropriately and solve if they wish.)
6	***Book 2, page 82*** Q.2 Read: *Write multiplications and divisions about the pictures.* Ps can make each shape on desks with bricks or plastic cubes. How many cubes are in each layer? How many layers? How many cubes all together? Review at BB with whole class. T demonstrates if necessary with large model. Mistakes corrected. BB: e.g. a) 1 × 3 × 6 = 18 3 × 6 = 18, 6 × 3 = 18, 18 ÷ 3 = 6, 18 ÷ 6 = 3 b) 2 × 2 × 6 = 24 4 × 6 = 24, 6 × 4 = 24, 24 ÷ 6 = 4, 24 ÷ 4 = 6 c) 3 × 3 × 3 = 27 3 × 9 = 27, 9 × 3 = 27, 27 ÷ 3 = 9, 27 ÷ 9 = 3 *35 min*	Individual work, monitored, helped Discussion, agreement, checking, praising (or 2 × 12 = 24, etc.)
7	***Book 2, page 82*** Q.2 Read: *Fill in the missing numbers.* Let's see how many you can do in 3 minutes! You may use your multiplication tables if you need to. The last one in each column is difficult and will need some thought! Review orally round class. Ps explain their reasoning for: 66 ÷ 2 = 33, 0 ÷ 5 = 0, 36 ÷ 3 = 12. Mistakes corrected. *40 min*	Individual work, monitored Ps mark own (or neighbour's) work and count how many correct out of 18. Reasoning, agreement, checking, praising
8	***Book 2, page 82, Q.4*** Listen carefully and show me the answer with number cards when I say. *(Hint:* Write it as an equation, then do the opposite operations.) *I thought of a number. I multiplied it by 3, then divided by 6 and got 2. What was the number I first thought of?* Show me with number cards . . . now! (4) **X**, explain how you got your answer. Who agrees? Who did it another way? Let's check. BB: □ × 3 ÷ 6 = 2, 2 × 6 ÷ 3 = 4 *45min*	Whole class activity T (and Ps) repeat slowly T gives hint on how to solve it. In unison Reasoning, agreement, checking, praising

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Bk2	R: Operations already learned **C: Revision and practice** *E: Days, hours, minutes*	*Lesson Plan* *83*
Activity		***Notes***
1	**Time** T has large model (or real) clock with movable hands. a) How many hours are there in 1 day? (24) How many hours are in 2 days (3 days, half a day)? (48, 72, 12) T revises the two halves of a day (am/pm: before/after 12 noon) Which hand shows the hours on the clock? (small hand) **A**, come and move the clock on 1 hour. (Is **A** correct?) b) How many minutes are in one hour? (60) Which hand shows the minutes on the clock? (big hand) How many minutes does the big hand move if it goes from – the '12' to the '1'? (5 minutes) So when the big hand is at the '1', we say the time is '5 minutes past the hour'. – from the '12' to the '2'? (10 minutes) So when the big hand is at the '2', we say the time is '10 minutes past the hour'. What do you think the time will be if the big hand points to the '3'? (15 minutes past the hour, or a quarter past the hour because the big hand has gone a quarter of the way round the clock) How many minutes has the big hand gone in if it points to the '6'? (30 minutes) What do we say the time is? (30 minutes past or half past the hour because the big hand has gone half-way round the clock) What do you think the time will be if the big hand points to the '9'? (We could say the time is 45 minutes past the hour, or 3 quarters past the hour because the big hand has gone 3 quarters of the way round the clock). But we usually think of it in another way. How many minutes has the the big hand still to go before it reaches the '12'? (15 minutes) So we say that the time is 15 minutes to the hour, or a quarter to the hour because it still has a quarter of the way to go. All through the above, T mentions different ways of saying the time, e.g. '8.30 or 'half past eight'; 3.15 or a quarter past three; '2.45' or 'a quarter to three'. c) T sets the clock at certain times and Ps shout out time. d) T says a time and a P comes out to set the clock. Class agrees/ disagrees. (Ps could have own model clocks on desks to set time and then show on command.) *12 min*	Whole class activity In unison, or individually at randomwith class agreeing/ disagreeing BB: 1 day = 24 hours 2 days = 2 × 24 = 48 hours 3 days = 3 × 24 = 72 hours 24 hours ÷ 2 = 12 hours BB: 1 hour = 60 minutes (Ps could write in exercise books) T starts off with the clock set at a time, e.g. 9 o'clock. Class chooses 'am' or 'pm' Demonstration, discussion, agreement. Ps repeat time in unison (If some Ps know all this already, let them explain) At each stage, T (or P) shows how time is written: BB: e.g. 9:00 am, 9.05 am, 9.10 am, 9.15 am, 9.30 am, 9.45 am Demonstration, discussion, agreement Ps repeat time after T In unison Copy master enlarged onto card, cut out and hands attached by paper fasteners
2	***Book 2, page 83*** Q.1 Read: *Compare the results. Write in the correct numbers and signs.* T explains task. (Add/subtract tens first, then the units.) Let's see how many you can do in 4 minutes! Start . . . . Stop! Review at BB with whole class. Mistakes corrected at class number line if necessary. Who did not finish them all? Who had them all correct? (1 mistake? What mistake?, etc.) *18 min*	Individual work, monitored (Chance for slow Ps to catch up. Practice in calculating quickly for all Ps) Written on BB or use enlarged copy master or OHP Agreement, checking, self-correction, praising
3	**Interlude** Song/game about time (e.g. *What's the time, Mr. Wolf?*) *20 min*	Whole class in unison

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Bk2

Lesson Plan 83

Activity		***Notes***
4	***Book 2, page 83*** Q.2 Read: *Write the product in the roof of each house.* *Colour the house red if it is an even number and blue if it is an odd number.* T explains task, making sure that Ps know what 'product' means. Review at BB with whole class. Note that: even × even = even; odd × odd = odd even × odd = even Who can say a multiplication/division about all the houses? Who can think of another one? *26 min*	Individual work, monitored (helped) Drawn on BB or use enlarged copy master or OHP Discussion, agreement, checking, praising BB: 3 × 5 = 15 5 × 3 = 15 15 ÷ 3 = 5 15 ÷ 5 = 3
5	**Jumps back along the number line** T has large number line on BB. Ps have own copies on desks. (0–40) a) *Bunny* can only jump back along the number line **2 units** at a time. His house is at zero. Mark on the number line: 0 5 10 15 20 25 30 35 40 i) in *red* the points from where Bunny can reach his house exactly. ii) in *green* the points from where Bunny **cannot** reach his house. What kind of numbers are those marked in *red*? (even, multiples of 2) Elicit that when starting from a *green* (odd) number Bunny will always end up 1 unit away from his house; i.e. when dividing by 2, the only possible remainder is '1'. b) *Fox* can only jump back along the number line **5 units** at a time. Mark in *blue* the points from where he can reach Bunny's house. Let's make a table to show where he will finish up and how far away he is away from Bunny's house. T draws on BB and Ps could draw in their exercise books. Which numbers could *Fox* start from? (Ps suggest possible numbers for top row of table and come out one at a time to complete.) Elicit that the only possible remainders are 0, 1, 2, 3 or 4. c) Repeat for *Squirrel*, who can only jump back **3 units** at a time. Mark in *yellow* the points from where he can reach Bunny's house. (Elicit that the only possible remainders are 0, 1 or 2)	Whole class activity (Division with/without a remainder) Use enlarged copy masters or OHP. Ps show jumps at BB. Ps have copies of copy master on desks too (1 per animal) Discussion, agreement, checking, praising Demonstrate if necessary with Ps at front of class BB: b) *Fox* (in 5s) e.g.
		Start number: 11 | 15 | 36 | .... Number of jumps: 2 Units remaining: 1
		c) *Squirrel* (in 3s) e.g.
		Start number: 12 | 17 | 31 | .... Number of jumps: 4 Units remaining: 0
Extension	Which number can they all start from and reach Bunny's house exactly? (30) Why? (30 is a multiple of 2, 3 and 5) *36 min*	BB: 30 ÷ 2 = 15 (jumps) 30 ÷ 5 = 6 (jumps) 30 ÷ 3 = 10 (jumps)
6	***Book 2, page 83*** Q.3 Let's practise multiplication. See how quickly you can do them! Review orally round class. Mistakes corrected. (T decides which Ps may use their multiplication tables.) *40 min*	Individual work, monitored T takes note of Ps who are having difficulty. Self-correction. Praising
7	***Book 2, page 83*** Q.4 Let's practise division. See how quickly you can do them. Review orally round class. Mistakes corrected. (T decides which Ps may use their multiplication tables.) *45 min*	Individual work, monitored T takes note of Ps who are having difficulty. Self-correction. Praising

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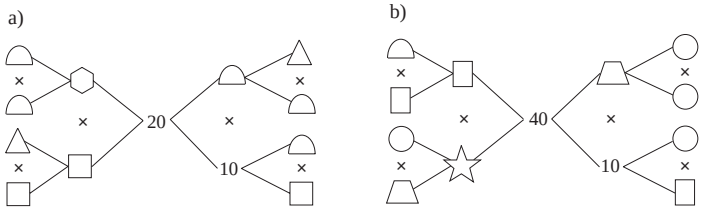
Bk2	R: Operations already learned **C: Revision and practice** *E: Year, season, month, week, day, hour, minute*	*Lesson Plan* **84**
Activity		***Notes***
1	**Counting on the calendar** a) How many months are there from 1 January this year to 1 December this year (next year)? (from 5 March this year to 5 September this year (next year)? (11, 23; 6, 18) b) How many days are there from 25 April to 31 May this year? (from 21 December this year to 3 January next year? (36, 13) c) Sequences of days in a month, e.g. The 1st January this year was a Saturday. Let's say the dates of all the Saturdays in January: '1, 8, 15, 22, 29' What day was the 1st February? (Tuesday) *8 min*	Whole class activity T has large calendar on BB and Ps have copies on desks Ps can suggest other dates to count the months and days Agreement, checking praising (Ps should try to answer without help of calendar)
2	**Time** a) T says a time, Ps show on clock (either on large model on BB or on own models). b) T show a time on clock, Ps read the time. c) How many hours are there from 7 am to 11 am (8 am to 3 pm, 11.30 pm to 4.30 am? (4, 7, 5) etc. d) How many minutes are there from 2 o'clock to half past 2 (five past three to a quarter past three, 7.20 to 7.45, 11 am to 12.30 pm)? etc. (30, 10, 25, 90) etc. T gradually increases the difficulty of the questions, gauging them to the ability of the class. *14 min*	Whole class activity Either one P after another to BB or all Ps show their clocks on command In relay round class, or shown with number cards T says the times in different ways Ps can ask questions too!
3	***Book 2, page 84*** Q.1 Read: *Draw different rectangular gardens in the grid so that twice as many lettuces can grow in them as are in this garden.* What can you say about the lettuces in the picture? (3 rows of 4 lettuces or 4 columns of 3 lettuces, 12 lettuces altogether) How many lettuces must you draw? ($2 \times 12 = 24$) *(Hint:* Think of the different pairs of numbers which make 24.) Review a BB with whole class. T writes multiplications on BB. *20 min*	Individual work, monitored, (helped) Grid drawn on BB or use enlarged copy master or OHP BB: $3 \times 4 = 4 \times 3 = 12$ Discussion, agreement, checking, praising BB: $24 = 1 \times 24 = 2 \times 12 = 3 \times 8 = 4 \times 6$
4	**Interlude** Action song *22 min*	Whole class in unison
5	**Logic puzzle** Which numbers are represented by which shapes? BB: a) b)  Deal with one part at a time. Where should we start? Ps come out to fill in a number, explaining their reasoning. Class agrees/disagrees (In both cases, start at the factor already given.). *28 min*	Whole class activity Drawn on BB or use enlarged copy master or OHP Discussion, agreement, checking, praising *Solution:* a) ⌓ = 2, ⬡ = 4, □ = 5, △ = 1 b) ◔ = 1, □ = 5, ○ = 2, ⏢ = 4, ☆ = 8

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Bk2

Lesson Plan 84

Activity		*Notes*
6	***Book 2, page 84*** Q.2 Read: *Write in the missing numbers and signs.* Deal with one part at a time. Do part a) on BB with whole class first, then Ps do b) in *Pb*s. Review at BB with whole class. Then do part c) with whole class, then part d) done by Ps in *Pb*s. Review at BB with whole class. Mistakes corrected. (Ps may have multiplication table on desks if necessary.) BB: a) $6 \xrightarrow{\times 5} \boxed{30} \xrightarrow{\div 10} \boxed{3}$; $\boxed{\div 5}$; $\boxed{\times 10}$ b) $35 \xrightarrow{\div 5} \boxed{7} \xrightarrow{\times 10} \boxed{70}$; $\boxed{\times 5}$; $\boxed{\div 10}$ c) $3 \xrightarrow{\times 6} \boxed{18} \xrightarrow{\div 2} \boxed{9}$; $\boxed{\times 3}$ d) $\boxed{3} \xrightarrow{\times 2} 6 \xrightarrow{\times 5} \boxed{30}$; $\boxed{\times 10}$	Whole class, then individual work Drawn on BB or use enlarged copy master or OHP Discussion, agreement, checking, praising a) and b) Inverse operations c) and d) Two operations replaced by one
	35 min	
7	***Book 2, page 84*** Q.3 Read: *Compare the results. Write in the missing numbers and signs.* Let's see how many you can do in 4 minutes! Review at BB with whole class. Ps read out the inequalities from left to right and right to left. Mistakes corrected at class number line. BB: $\underbrace{4 \times 5}_{\boxed{20}} \boxed{<} \underbrace{4 \times 10}_{\boxed{40}}$; $\underbrace{30 \div 10}_{\boxed{3}} \boxed{=} \underbrace{15 \div 5}_{\boxed{3}}$; $\underbrace{2 \times 3}_{\boxed{6}} \boxed{<} \underbrace{3 \times 3}_{\boxed{9}}$ $\underbrace{6 \times 5}_{\boxed{30}} \boxed{=} \underbrace{3 \times 10}_{\boxed{30}}$; $\underbrace{50 \div 5}_{\boxed{10}} \boxed{>} \underbrace{50 \div 10}_{\boxed{5}}$; $\underbrace{24 \div 3}_{\boxed{8}} \boxed{<} \underbrace{27 \div 3}_{\boxed{9}}$	Individual work, monitored, (helped) Written on BB or use enlarged copy master or OHP Discussion, agreement, checking, self -correcting Praising
Extension	Could we have worked out what the sign could be without doing the calculations? (Yes, e.g. 4 times an amount must be smaller than 4 times double the amount, etc.) Talk about 1 tenth, 1 fifth, 1 third, 1 quarter.	Discussion, agreement Ps look for examples of each in the question
	40 min	
8	***Book 2, page 84*** Q.4 Read: *Find a rule. Complete the table. Write the rule in different ways.* Look at the 2 columns already done. What could the rule be? (Ps agree on one form of the rule, even if expressed in words, e.g. 'the triangle times the square equals the circle', or 'the middle row times the top row equals the bottom row'. Let's use this rule to complete the table. Review at BB with whole class. Mistakes corrected. (Some numbers are beyond the multiplication table but can be worked out logically, e.g. $2 \times 12 = 2 \times 10 + 2 \times 2 = 20 + 4 = 24$ $3 \times 11 = 3 \times 10 + 3 \times 1 = 30 + 3 = 33$) How could we write the rule? T writes with help from Ps, saying the equation in words too. Could we write it another way? Ps suggest different ways. T or (P) writes on BB, Ps in their books.	Whole class introduction Drawn on BB or use enlarged copy master or OHP Ask several Ps what they think Individual work, monitored, helped Discussion, reasoning, agreement, checking, praising *Rule:* ● = ▲ × ■ ■ = ● ÷ ▲ ▲ = ● ÷ ■
	45 min	

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Bk2	R: Mental calculation **C: Multiplication and division table for 4** *E: Relationship between the 2 and 4 times multiplication tables*	*Lesson Plan* *85*
Activity		***Notes***
1	**Multiples of 4** T points to Ps to count from 1 onwards but on every 4th number the P shouts 'Boom' instead of the multiple of 4. (1, 2, 3, Boom!, 5, 6, 7, Boom!, 9, 10, 11, Boom!, . . .) Any P who makes a mistake must stand up! T chooses them again later on and they may sit down again if they are correct the 2nd time. *3 min*	Whole class activity Ps chosen at random by T At speed, in good humour! Good-natured teasing of Ps who make a mistake. Praising
2	**Problem** T could have real piece of clover to show class. Talk about how a piece of clover which has 4 leaves (as opposed to the normal 3 leaves) is thought to be very lucky because it is so rare! T: *Kate found 3 pieces of 4-leaf clover. How many leaves did the 3 pieces of clover have altogether?* Let's make them on the BB (on your desks). Ps come out to stick on leaves (or draw). Who can write it in a mathematical way? Who agrees? Who can think of another way? etc. Ps also write equations in their books. (*Heading*: Lesson 85 and date) *8 min*	Whole class activity Ps can illustrate on desks with counters and sticks or draw in their books. BB: $4 + 4 + 4 = 12$ $3 \times 4 = 12,\ 4 \times 3 = 12$ Agreement, checking, praising
3	**Number strips** (or Cuisennaire rods or multilink cubes) Ps have 9 number strips 2 cm and 4 cm long (or 9 lengths of 2 × 1 cm cubes and 4 × 1 cm cubes stuck together, or 9 '2' and '4' rods from Cuisennaire set) on desks. What is the total length of 3 '2 cm' strips? (3 '4 cm' strips, 6 '2' cm strips , 6 '4 cm' strips)? Ps show each on desks and write equations about it in their exercise books. Review at BB with whole class. Who notices a connection between the lengths? (3×4 cm = 6×2 cm) *13 min*	Individual or paired work Monitored, helped (Or T demonstrates on BB as whole class activity) BB: 3×2 cm = 6 cm 3×4 cm = 12 cm 6×2 cm = 12 cm 6×4 cm = 24 cm
4	***Book 2, page 85*** Q.1 Read: *Sparrow starts at 0 and jumps 4 units at a time. Frog also starts at 0 but jumps 2 units at a time. Draw their jumps on the number lines.* Ps draw jumps in their books How many jumps of 4 (2) units did you draw for Sparrow (Frog)? (10, 20) Read: *Fill in the table to show how far they have gone after these jumps.* Ps come to BB one after another to fill in a column each and say the relevant multiplications, (e.g. '$3 \times 2 = 6$', and '$3 \times 4 = 12$'). Read: *Who made longer jumps (more jumps)?* (Sparrow, Frog) How much longer? How many more? Elicit that: • Sparrow jumps twice as far each time so needs half as many jumps to cover the same distance as Frog, or • Frog jumps half as far so needs twice as many jumps to cover the same distance as Sparrow. *20 min*	Individual work in drawing jumps, monitored Use enlarged copy master or OHP Whole class activity in filling in the table. Ps fill in table in their books BB: $4 = 2 \times 2$ (twice 2) $2 = 4 \div 2$ (half of 4) Discussion, agreement, checking praising
5	**Interlude** Action song or rhyme *22 min*	Whole class in unison

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Bk2		*Lesson Plan 85*
Activity		***Notes***
6	***Book 2, page 85*** Q.2 Read: *Write down the amount, **half** the amount and **twice** the amount shown.* Ps may work in pairs with coins on desk to help them. Point out that in part c) 1 ten can be exchanged for 10 ones. Review at BB with whole class. Demonstrate on BB with large coins if necessary. Who can come and write an equation about the amounts? e.g. a) $2 \times 44 = 44 + 44 = 88$; $44 \div 2 = 22$ b) $2 \times 28 = 28 + 28 = 56$; $28 \div 2 = 14$ c) $2 \times 36 = 36 + 36 = 72$; $36 \div 2 = 18$ Compare the numbers which are 'half' and 'twice': 4 times, 1 quarter. e.g. 88 = 4 times 22; 22 = 1 quarter of 88. *27 min*	Individual work, monitored, helped (Paired work in modelling) Discussion, agreement, checking, praising Use enlarged copy master/OHP or large coins stuck to BB BB: a) b) *Amount:* 44 *Amount:* 28 *Half:* 22 *Half:* 14 *Twice:* 88 *Twice:* 56 c) *Amount:* 36 *Half:* 18 *Twice:* 72
7 **Extension**	***Book 2, page 85*** Q.3 Read: *Half the sweets belong to Anne and the other half to Jeremy.* *Colour Anne's sweets green and Jeremy's sweets yellow.* *Write equations for each part.* Deal with one part at a time. Demonstrate with real sweets (or cubes) and 2 Ps at front of class if necessary. Do part a) with whole class first. Who can tell me what the picture has to do with the equation? [Altogether there are 34 sweets (3 packets of 10 and 4 loose sweets). Half the number of sweets (10 + 5 + 2 = 17) are shaded light grey and half are shaded dark grey, i.e. half (17) are Anne's and half (17) are Jeremy's.] **B**, come and fill in the missing number. Who agrees? Who thinks something else? Let's check with a multiplication. Ps do parts b) and c) in their books. Review at BB with whole class, demonstrating where necessary. Mistakes corrected. If Anne shared her sweets equally with her little sister, how many would she have then? (e.g. (a) 8 and a half, or 8 and 1 remaining) *35 min*	Whole class activity to start Drawn on BB or use enlarged copy master or OHP (or real packets of sweets or multilink cubes with 2 Ps as Anne and Jeremy) Rest done as individual work, monitored, helped BB: a) $34 \div 2 = 17$ *Check:* $2 \times 17 = 34$ b) $46 \div 2 = 23$ *Check:* $2 \times 23 = 46$ c) $56 \div 2 = 28$ *Check:* $2 \times 28 = 56$ Use the words 'half', 'quarter', '4 times'. Praising
8	**Writing the 4 times table** How many legs does 1 cat have? (4) Who can come and write an equation about it on the BB? Let's write it in our exercise books too. How many legs do 2, (3, 4, 5, 6, 7, 8, 9, 10, 0) cats have? BB: $1 \times 4 = 4$ $2 \times 4 = 8$, etc. Let's find these numbers in our × tables. (Row and column of 4s) Let's say the multiples of 4 together. *40 min*	Whole class activity Ps come to BB, rest of class write in exercise books Agreement, checking, praising Discussion using *OHT 8* In unison (or in relay) forwards and backwards
9	**Mental practice** You are jumping along the number line. You start at zero and make 4 jumps of equal length. You must tell me where you get to. T says length of each jump, P says number reached. Class agrees or points out errors. Demonstrate on class number line if problems. *45 min*	Whole class activity At speed in relay round class Also T saying number reached and Ps saying length of jumps Praising

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Bk2

R: Mental calculation. Half, twice
C: Multiplication and division table for 4
E: Relationship with 2

Lesson Plan *86*

Activity		*Notes*
1	**Sharing** T has 12 apples in a basket (real apples or 12 balls), or drawn, cut out and stuck to BB (e.g. Bk2 copy master *LP 24/5*). T calls two Ps to front. Let's share these apples equally between **A** and **B**. **C**, come and show us how to do it. Is **C** correct? Who thinks something else? Who can write an equation about it? Who agrees? Ps can also write in their exercise books. (*Heading*: Lesson 86 and today's date) What part of the 12 apples does **A** (**B**) have? (half) Repeat with 3 and 4 Ps at front. (3 equal parts, each has 1 third; 4 equal parts, each has 1 quarter) Who has more? (All have the same.) When did a P have most (least) apples? (When each had 1 half, 1 quarter) *8 min*	Whole class activity Demonstration: 1 apple given to each P in turn, or moved to each side of BB. Discussion, agreement, checking, praising BB: $6 + 6 = 12$ $2 \times 6 = 12$ $12 \div 2 = 6$ $4+4+4=12$ $3+3+3+3=12$ $3 \times 4 = 12$ $4 \times 3 = 12$ $12 \div 3 = 4$ $12 \div 4 = 3$
2 **Extension**	**Coins** T has large cut-out coins stuck to BB and Ps have smaller coins on desks, e.g. Bk2 copy master *LP 22/4* (or beads threaded in tens + single beads, or lolly sticks bound in groups of 10 + single lolly sticks, etc.) • Lay out on your desks twice the amount I show on the BB. Who can come and write an equation about it? e.g. BB: (10) (1) (1) (1) (1) → Ps: (10) (1) (1) (1) (1) (10) (1) (1) (1) (1) $2 \times 10 = 20$ $2 \times 4 = 8$ $2 \times 14 = 28$ • Who can show what twice 28 is? Who can write equations about it? BB: (10) (1) (1) (1) (1) (10) (1) (1) (1) (1) → Ps: (10) (10) (1) (1) (1) (1) (1) (1) (1) (1) (10) (10) (1) (1) (1) (1) (1) (1) (1) (1) $2 \times 20 = 40$ $2 \times 8 = 16$ $2 \times 28 = 56$ 10 ones exchanged for one 10 • Repeat for 23 and 16. Elicit that multiplying by 4 is the same as multiplying by 2 twice. *15 min*	Whole class activity Ps may work in pairs to lay out coins, etc. on desks. Discussion, agreement, checking, praising Ps write equations in their exercise books too BB: $2 \times 14 = 28$ $2 \times 28 = 56$ } $4 \times 14 = 56$ T shows on BB, Ps exchange coins on desks $2 \times 23 = 46$ $2 \times 46 = 92$ } $4 \times 23 = 92$
3	***Book 2, page 86*** Q.1 Read: *How many legs do several hens and cats have? Complete the table.* Ask Ps what each row of table means (middle row is 2 times top row; bottom row is 4 times top row or 2 times middle row). Review at BB with whole class. Mistakes corrected. Let's read out the multiples of 2 (4) together. *20min*	Individual work, monitored (helped) Drawn on BB or use enlarged copy master or OHP Discussion, agreement, checking, praising In chorus
4	**Interlude** Action song *22 min*	Whole class in unison

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Bk2		*Lesson Plan 86*
Activity		***Notes***
5	**Dividing by 4** T sticks 20 (28) of the same element on the BB. (e.g. apples, hats, hexagons, triangles, flowers, chicks, etc.) Let's divide them up into groups of 4. Ps come out to BB to rearrange or circle in 4s. How many groups are there? (5, 7) **D**, come and write an equation about it and explain to us what you are doing. Who agrees? Who thinks something else? BB: e.g. 20 chicks ÷ 4 chicks = 5 (times), because 5 × 4 = 20 28 triangles ÷ 4 triangles = 7 (times), because 7 × 4 = 28 Check with additions/subtractions if necessary. Let's find them in the multiplication table. P comes out to BB to point to 20 and 28 on *OHT 8* or copy master, Ps find in own × tables.	Whole class activity Enlarged from Bk1 copy masters, coloured and cut out Class agrees/disagrees In unison Reasoning, agreement, checking, praising Encourage Ps to say the whole equation as they write. BB: e.g. 4 + 4 + 4 + 4 + 4 = 20 20 – 4 – 4 – 4 – 4 – 4 = 0
	28 min	
6	***Book 2, page 86*** Q.2 Read: *How many fruit jellies are in each box?* *Write a multiplication about it.* Tell Ps to circle the sweets in groups to match their multiplication. Review at BB with whole class. Mistakes corrected. Compare the various boxes. First give Ps chance to notice for themselves the relationships between the boxes. If nobdody does, T gives hints. Which box has twice (half, 4 times, 1 quarter) as many sweets as the box in, e.g. part f)? etc.	Individual work, monitored, helped Use enlarged copy master/OHP BB: (in 4's or 2's) e.g. a) 4 × 2 = 8 or 2 × 4 = 8 b) 4 × 4 = 16 or 2 × 8 = 16 Discussion, agreement, checking, praising
	35 min	
7	***Book 2, page 86*** Q.3 Read: *Divide up these 36 coins into 4 equal groups.* How could we do it? (e.g. by writing 1, 2, 3, 4 above the coins and joining a coin to each number in turn, or by choosing 4 colours and colouring in the coins one after the other in each of the different colours, or by putting 36 items from Ps' collections on desk and moving one after the other to the 4 corners of desk in turn. or by calculation: 36 ÷ 4). Ps use any of these to solve it. Read: *How many coins are in each part?* (9) Write a division about it and check it with a multiplication. Review at BB with whole class. Mistakes corrected. Demonstrate with 36 cubes and 4 Ps at front of class if necessary.	Individual work, monitored, (helped) 36 coins stuck to BB or use enlarged copy master or OHP Discussion, agreement. Ask several Ps what they think In unison, or with number cards BB: 36 ÷ 4 = 9 *Check:* 9 × 4 = 36 Discussion, agreement, checking, praising
	40 min	
8	***Book 2, page 86, Q.4*** T chooses 3 Ps to stand in front of BB. T writes their names on BB and beneath each name (above each child) sticks 24 cut-out sweets. T explains task and asks class to say who they think will finish their sweets first. Class keeps count of days and at each day the 3 Ps remove their allotted number of sweets (2, 3 or 4). Who finished first? (P who ate 4 per day) Who can come and write divisions about it. Who agrees? Who thinks something else? Let's check. Ps to BB to write multiplications. Ps write equations in their books too. (Or done as individual work, with Ps crossing out 2 (3, 4) sweets at a time and keeping a tally of days at side of their books or circling in groups of 2, 3, 4 and counting the groups). Compare the number of sweets/days.	Whole class activity Real demonstration or use enlarged copy master or OHP BB: ***Charlie:*** 24 ÷ 2 = 12 *Check:* 12 × 2 = 24 ***Leslie:*** 24 ÷ 3 = 8 *Check:* 8 × 3 = 24 ***Mary:*** 24 ÷ 4 = 6 *Check:* 6 × 4 = 24 Mary ate twice as many per day, so her sweets lasted half as long as Charlie's
	45 min	

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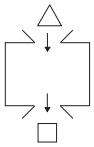
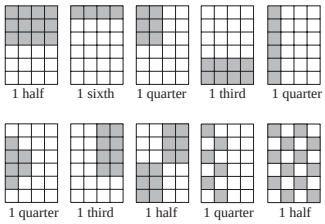
Bk2

R: Mental calculation
C: Multiplication and division table for 4
E: Factorisation

Lesson Plan 87

Activity		*Notes*
1	**Sequences** T starts off a sequence, then points to Ps to continue it. e.g. T: 0, 4, 8, 12, . . . ; 28, 24, 20, . . . ; 1, 5, 9, 13, . . .	Whole class activity At speed. T chooses Ps at random. Class points out errors
	5 min	
2	**Functions** T has diagram and table on BB. What could the machine be doing? BB: 	Whole class activity Drawn on BB or use enlarged copy master or OHP Ps may use their multiplication tables.
	△ | 2 | 3 | 5 | | | 10 | | 7 □ | 8 | 12 | | 16 | 24 | | 36 | □ = △ =	
	Ps come out to BB one after the other to fill in a missing number and explain their reasoning. Class agrees/disagrees. Who can come and write the rule? Who agrees? Who can write it another way? Let's check with values from the table. Let's say the rule together.	Discussion, agreement, checking, praising *Rule:* □ = 4 × △ △ = □ ÷ 4 In unison
	10 min	
3	***Book 2, page87*** Q.1 Read: *Write in the missing numbers. Learn and practise the 4 times table.* Deal with one column at a time. Review orally round class. Elicit that the answers to the multiplications (products) are the same as the first numbers in the divisions. In the next 2 minutes try to learn the multiplications by heart and then we will try to say them without looking at the books! Close your books and let's say the 4 times table together. 'zero times four equals zero, one times four equals four, . . .' Let's say it another way in a relay, starting with '4 times zero' Now let's say the divisions for 4: 'zero divided by four equals zero, . . .' (Demonstrate this first division if necessary.)	Individual work, monitored (helped) Class points out mistakes Ps correct their errors T asks for quiet so that everyone can concentrate In unison, at speed One P after another, at speed In unison, at a good pace, with T's help. Praising
	22 min	
4	**Interlude** Song, rhyme, exercises	Whole class in unison
	24 min	
5	**Fractions of 24** T sticks (or has drawn) 10 4 × 6 squared grids on BB, each with 1 half, 1 quarter, 1 third (or 1 sixth) shaded or coloured in. • Who can tell me something about these grids? (6 rows, 4 squares in each row, 24 squares in total; parts of the grids are shaded (coloured). • Who can come and point to the grid which has half (1 quarter, 1 third, 1 sixth) of the total number of squares shaded (coloured)? Who agrees? Who thinks another one? Let's check by counting the squares. Who can come and write a division about it? Who agrees? How can we check it is correct? (with a multiplication). (BB) e.g. 24 ÷ 2 = 12, 12 × 2 = 24; 24 ÷ 4 = 6, 6 × 4 = 24; etc	Whole class activity Drawn on BB or use enlarged copy masters or OHP (or blank grids coloured in) BB: 4 × 6 = 6 × 4 = 24 Discussion, agreement, checking, praising BB:
Extension	• Ps have blank grids on desks and colour in squares to show 1 eighth.	
	30 min	

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Bk2		*Lesson Plan 87*
Activity		***Notes***
6	***Book 2, page 87*** Q.2 Read: *Fill in the missing numbers.* T explains task. Deal with one part at a time. Review at BB with whole class. Mistakes corrected using multiplication square if necessary. In b), remind Ps that: $12 \times 4 = 10 \times 4 + 2 \times 4 = 40 + 8 = 48$ *35 min*	Individual work, monitored, (helped) Drawn on BB or use enlarged copy master or OHP Discussion, agreement, checking, praising
7	***Book 2, page 87, Q.3*** Read: *Tom made a square from 4 sticks. How many squares could he make from more sticks? Complete the table.* T demonstrates how Tom made 1 square on BB (with 4 sticks/straws). **A**, come and point to the column in the table which shows this. (1st column) Tell us what each row stands for. Is **A** correct? Can you say it as an equation? ($4 \div 4 = 1$, and no sticks remaining) Ps come out one at a time to choose a column and fill in the missing numbers, saying the matching equation. Class agrees/disagrees. (e.g. $23 \div 4 = 5$, and 3 sticks remaining, or $4 \times 5 + 2 = 22$) T should have enough sticks/straws to be able to demonstrate if there are problems. *40 min*	Whole class activity Drawn on BB or use enlarged copy master or OHP Done at a good pace T repeats incorrect equations correctly and writes on BB Discussion, reasoning, agreement, checking Praising (Ps could have sticks, etc. on desks too)
8	***Book 2, page 87*** Q.4 Read: *Fill in the missing signs.* Deal with one part at a time. T tells Ps that they can write down the results of the LHS and RHS before writing in the missing sign, but that they might not always need to do this. Review orally round the class, with Ps explaining reasoning Demonstrate on class number line/ multiplication square if problems. *Solution*: a) $5 \times 2 > 20 \div 4$, $25 \div 5 < 24 \div 4$, $10 \times 9 < 100 - 9$ b) $9 \times 3 < 10 \times 3$, $3 \times 8 > 4 \times 5$, $36 \div 4 < 20 \div 2$ c) $15 \div 5 < 15 - 5$, $10 \times 2 > 2 \times 8$, $5 \times 5 > 24 - 4$ d) $8 \times 2 = 8 + 8$, $12 \div 4 = 3 - 0$, $40 \div 4 < 7 + 4$ *45 min*	Individual work, monitored, helped Ps may use their $\times$ tables and number lines to help them. Class agrees/disagrees Point out that, e.g. 10×2 must be more than 8×2, so sign can be written without needing to work out the LHS and RHS Praising

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Bk2	R: Mental calculation **C: Multiplication and division table for 4** *E: Division with remainders*	*Lesson Plan* *88*
Activity		***Notes***
1	**Competition on the 4 times table** Open your books at your multiplication table. Check that you do know the multiplications for the numbers you have already coloured. Now colour in any new numbers if you are sure you know a multiplication and division about them. Who has coloured all the multiples of 4? Let's have a competition! T chooses 3 or 4 Ps who stand with heels against the back wall of the classroom. T (or Ps) ask them multiplications/divisions about the 2, 3, 4, 5 and 10 times tables. If a P answers correctly they take one step forward, if incorrect, they stand still. Rest of class checks their answers and cheers them on. The winner is the one who reaches the 'finishing line' first (previously agreed on by class). *10 min*	Whole class activity T can do a random check for a couple of minutes Ps stand up if they think they know them all Done at a good pace Competitors shout out the products or quotients Class give '3 cheers' to the winner!
2	**Mental practice** (chain operations) T says a sequence of calculations, pausing after each step. Ps nod their heads when they have done the calculation. e.g. T: '3 . . . × 3 . . . + 2 . . . – 1 . . . ÷ 2 . . . × 4' Show me the answer with number cards . . . now! (20) **A**, tell us how you got your answer. Who agrees? Where did you make your mistakes? Who can tell me different ways to describe the number 20? (e.g. 'the number 1 more than 19 and 1 less than 21', '2 × 10', '5 × 4', '16 + 4', 50 – 30, the first 2-digit number which has an even tens digit, etc. *15 min*	Whole class activity T waits until most Ps have nodded their heads before moving on In unison Agreement, checking, praising Involve several Ps Class agrees/disagrees and corrects inaccurate statements Praising
3	**Problem** Listen carefully and show me the answer as amultiplication (equation) on your desks using number and sign cards. a) *There are 4 girls in the room. Each girl is holding 3 books. How many books are they holding altogether?* **B**, tell us your equation. Who has the same? Who has a different one? b) *There are 3 boys in the room. Each boy is holding 4 books. How many books are they holding altogether?* **C**, tell us your equation. Who has the same? Who has a different one? Elicit that 4 × 3 = 3 × 4 = 12 *20 min*	Individual (or paired) work T repeats slowly Reasoning, agreement, checking, praising BB: a) 4 × 3 = 12 b) 3 × 4 = 12 Demonstrate with Ps at front of class if necessary
4	**Interlude** Song, rhyme, exercises *22 min*	Whole class in unison

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Bk2		*Lesson Plan 88*
Activity		***Notes***
5	***Book 2, page 88*** Q.1 Read: *Buster is jumping 4 units at a time back along the number line. . . .* Deal with one colour at a time. Ps read numbers out in relay round class (or in unison). What do you notice about them? *Red*: 4, 8, 12, . . ., 40; *Blue*: 5, 9, 13, . . ., 37; *Green*: 6, 10, 14, . . ., 38; *Black*: 7, 11, 15, . . ., 39; Elicit that *red* numbers are multiples of 4 and divide by 4 exactly; *blue (green, black)* numbers have remainder 1 (2, 3) when divided by 4; no other remainder is possible. Read: *Complete the table.* T first makes sure that Ps know what each row means by using the 1st column already filled in. Who can say an equation about the first column? Who agrees? Who knows another one? (BB) Ps come out to table to choose a column, write in the missing numbers and say the matching equation. Class agrees/disagrees. *28 min*	Individual work in drawing dots, monitored, helped Ask several Ps what they think Discussion, agreement, checking, praising Demonstrate if necessary with Ps showing jumps on class number line. Whole class activity, but Ps write in *Pb*s too BB: $11 \div 4 = 2$, remainder 3 $2 \times 4 + 3 = 11$ Reasoning, agreement, praising
6 **Extension**	***Book 2, page 88*** Q.2 Read: *A rabbit has 4 legs. How many legs could you see if there were several rabbits? Complete the table.* T should ask the question in two ways: for numbers missing from bottom row – as above; for numbers missing from top row – 'How many rabbits were there if you could see this number of legs?' Review at BB with whole class. Mistakes corrected. Who could write an equation for each row in the table? Who agrees? If I wanted the number '10' in the table, which row would it have to go in? (top row, as not divisible exactly by 4 so can't be the number of legs.) *34 min*	Individual work, monitored Drawn on BB or use enlarged copy master or OHP Agreement, checking, self-correcting, praising BB: Let number of: Rabbits = R, Legs = L $R = L \div 4$ $L = R \times 4$ Praising
7	***Book 2, page 88*** Q.2 Read: *Measure the lengths of the line segments. . . .* Deal with one part at a time. T revises how to measure accurately. • Ps measure the length of each line carefully and write the value in the first box. • Then they calculate each segment length and write it in the 2nd box. • Then they mark each segment on the line with a short, vertical line. • Then they draw over the correct segment in the correct colour. Review at BB with whole class. Elicit that 1 half of something is obtained by dividing by 2, 1 third by dividing by 3 and 1 quarter by dividing by 4. *42 min*	Ps have rulers on desks Individual work, but under T's instructions Discussion at BB, using enlarged copy master or OHP for demonstration only! BB: a) Half of 10 cm is 5 cm $10 \text{ cm} \div 2 = 5 \text{ cm}$ b) 1 third of 6 cm is 2 cm $6 \text{ cm} \div 3 = 2 \text{ cm}$ c) 1 quarter of 12 cm is 3 cm $12 \text{ cm} \div 4 = 3 \text{ cm}$
8	**Multiplication and division practice** • T says a multiplication/division (2, 3, 4, 5, 10) and P says answer. • T says a multiple of 2, 3, 4, 5 or 10 and P says a multiplication or division about it. (Some Ps may need to use their × tables.) *45 min*	Whole class activity At speed round class Class points out errors Praising

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