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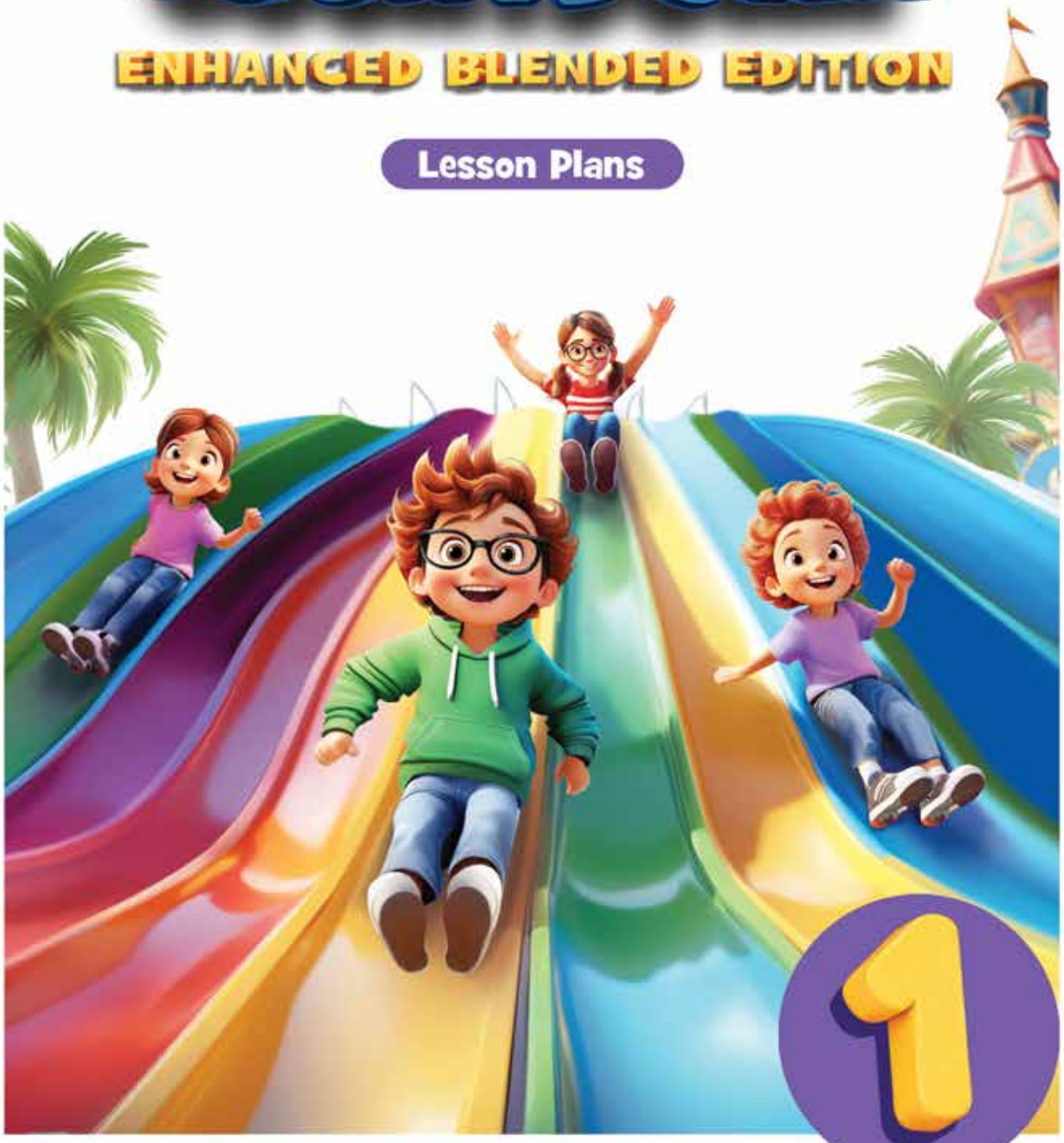
NEW COUNTDOWN

THIRD EDITION

ENHANCED BLENDED EDITION

Lesson Plans



1

SPACE FOR TITLE VERSO

Contents

1 Whole Number

Students Learning Objective:

- Identify 10 as a 2-digit number.
- Compare and order the numbers 0-10.
- Read numbers up to 99
- Write numbers up to 99
- Count forward and backward up to 99
- Recognise the place value of a specific digit in a 2-digit numbers (tens and ones)
- Identify the place value of the specific digit in a 2-digit number
- Decompose a number up to 99 to identify the value of a number in ten's and one's place.
- Compare 1-digit and 2-digit numbers
- Order the set of numbers from 0 to 99 in ascending and descending order.
- Identify which number (up to 99) comes.
  - Before and after a given number
  - Between two given numbers
- Count in Tens and recognise 100 as a 3-digit number.
- Identify and write missing numbers in a sequence from 1 to 100
- Count and write numbers of objects in a given set
- Identify the position of objects using ordinal numbers such as first, second, …, tenth, including representations 1st, 2nd,…,10th through pictures.
- Compare two or more groups of objects in terms of numbers.
- Match objects having one to one correspondence
- Identify the number of objects in two groups to show "more than" and "less than"

Suggested Time Frame: 8-10 lessons

Starter Activity: Distribute numeral cards and word cards for numbers 0-9 giving each pupil one face down on his or her desk. Be sure that there is a corresponding word card for each number cards. Tell the pupils that when you say go, they must turn their card face up, and find a pupil with the matching number/word. Once they have, as a team, they must gather that number of objects. Give them examples of objects they can find beforehand, like their own books or stationery. Encourage some healthy competition so that they try to work as quickly as possible.

At the end, ask the pupils to line up in order of the numbers they have in front of you. First in ascending order, and then in descending. Explain that pupils with the same number should be in the same place in the line.

Lesson Commentary:

- Repeat starter activity, but this time use cards for 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, and 100. Before starting, lay out some objects in packs of 10. These can be colour pencils in boxes, or even pens bound together with a rubber band. Make sure there are more than enough for each pair to pick up the right amount. You may also refer to ***Page 22 of New Countdown Book 1*** where 10 block-base models are used to help students identify and learn number names. At the end, ask one pair to volunteer. Ask them to come to the front of the class and write their number in numerals and alphabets. Then use this number, for example, 30 to explain the numbers between 30 and 40. Help the volunteer pupils to write 31-39 on the board (words and numbers) and explain that this applies to all multiples of 10. Then invite the pupils who had the number cards for 10 and have them write out 11 to 19 numerically. Explain that while the same rules apply to 20-90, 11 to 19 are slightly different as they are written as one word. One by one, invite each group to write down their numbers, and have the other pupils make note of the numbers and spellings.
- Ask pupils to come to the board one by one and write any number within 100 on the board. One by one, go through the numbers, and explain place value. For example, for 37, explain that 3 is in the tens and 7 is in the ones. Explain that the placing of the digit is the way of recognising this. Read out a series of two-digit numbers and ask pupils to only make note of the digit in the tens. Read out at least ten numbers and pause to have them peer review so you know they are up to speed. Then repeat the activity, but this time ask them to identify the digit in the place value of the ones. Connect this idea to decomposing numbers, and ask them, individually, to decompose all the numbers on the board.
- Make groups of three to five pupil. Provide up to twenty-five playing blocks to each group with different numbers written on each block with a permanent marker, for example, 33, 50, 41, 90, 86, 77 etc. (take 10 to 15 blocks at least). Ask them to build a tower with those blocks in ascending or descending order. Throughout ***Unit 1 of New Countdown Book 1,*** you will find the used of spiral approach where comparison and ordering of numbers is first done in multiples of 10 and then as more number names are introduced, the comparing and ordering is carried out with more complex numbers.
- Divide the class into 10 groups. Ask each group to pool all their pencils/pens in the middle and count how many they have in total and send one group member to the front of the class to write, in words, their total. Ask them then, that if the group with the most pencils was first, and the group with the least was last, then assign each group an ordinal number. Then tell them to do the same in reverse, i.e. if most was last and least was first. Write the ordinal numbers on the board as they say them (numerals and words) and ask them to revise them at home. ***New Countdown Book 1 Page 28-37*** can be used as a support for students to practice writing number names and numbers.
- Use cardsheets cut-outs of migratory birds used in ***New Countdown Book 1, Page 51*** to further elaborate on the concept of ordinal numbers.

Exercise Commentary:

Activities on Pages 17-21 of New Countdown Book 1 allow students to get familiar with the concept of place value and be prepared for more difficult practice questions. Set of objects in the group of tens and ones along with abacus help students understand the concept of tens and ones. Pages 23- 26 are simple comparing and ordering of tens using number line and identification of and counting in tens. The pages can be assigned as classwork. Pages 28-39 require students to count in tens and ones from the 21 to 99. These pages also focus on writing in numbers and thus writing number names. You can divide the pages into classwork and once students get a grasp of counting and writing, some pages can be assigned as homework.

Pages 38-40 introduce the number 100 as the first 3-digit number and complete the square grid by counting to 100. Page 42 exhibits spiral approach of finding a number, before, in between and after two numbers using larger numbers till 100. This page can be assigned as classwork. Pages 43-48 require students to compare and order 1- and 2-digit numbers. The use of crocodile mouth to explain the signs/symbols of inequality by showing that the crocodile always eats the greater number and that is where its open mouth will point. Page 44 and 45 can be completed as classwork while Pages 46 and 47 can be assigned as homework. Once the concept of comparing is clear to the students, ordering numbers will become easier.

Pages 49-54 focus on the concept of ordinal numbers. Pages 49- 52 can be done as classroom work. Supporting Page 53, you can ask the students to plan their own timetable for the week, as a project, where they decide which subject to study in the periods throughout the day and week.

Math Lab Tie-In: Math Lab 1, Pages 2 to 37

Plenary: Ask pupils why they think it is important to be able to count. Will it help in any way in their daily lives? If they are stuck, give them the example of knowing how many objects you have, so you will know if you lose one. Maybe point out how, if you were to go on a field trip, as the teacher in charge, you would be sure to do a head count at each stop, so you would know there was no one missing. Point out that this is much quicker than doing a roll call or checking each pupil individually. Tell them they do not have to raise their hands, but that they cannot interrupt each other. Spend 5 minutes on this discussion.

2 Addition

Students Learning Objective:

1. Compare numbers from 1 to 20 to identify "how much more" one is from another.
2. Recognise and use symbols of addition "+" and equality" ="
3. Add two 1-digit numbers sum up to 9.
4. Add a 2-digit numbers to a one-digit number
5. Add a 2-digit number to 10s
6. Add two, 2-digit numbers
7. Recognise the use of symbol to represent an unknown such as __+ 4 = 7, 3 + 4 = __, 4 + __ = 7 (include questions that sum up to 20)
8. Add the numbers (up to 20) by using real life examples
9. Construct addition sentence from given number stories

Suggested Time Frame: 3-4 lessons.

Starter Activity: Introduce this unit as a continuation of counting. Before explaining the concept of addition, teach them how to combine two numbers. For example, ask them how many books are in one pile, and how many books are in the other pile. Then ask them how many books altogether. Show them how to count on their fingers if they do not are there already know and show them that they simply need to count both piles of books together. Some pupils may count the books in one go without seeing them as separate. Encourage them to count one set one at a time. Do this by asking them how many books there would be in total if you removed one pile. Without pointing out the connection, make sure they grasp the idea that two and three together will make five, so removing two will leave three remaining. Do this with a few different objects that are familiar to them but keep the numbers in single digit. You can end with the fishing game, making a story as given below: 'I had 5 fish in my fishbowl. On my birthday, my friend gave me three more fish. How many fish do I have now?' Ask the same question with different numbers of fish.

Lesson Commentary:

- Set up two groups of objects and ask the pupils to make note of how many there are in each group. Then ask them how many total objects there are in both groups (the total should not be more than 20), and how many more are in one group than the other. After this, make groups of 3 to 4 pupils and give each group 20 objects. Ask them each to come up with three different pairs of numbers that will sum up to 20. This will familiarise them with the concept of adding. When they volunteer their answers. For

example,13 and 7, write them on the board as 13 + 7 = 20 to familiarise them with the symbols. Make the first half of the questions with single digit numbers only, but slowly introduce 2-digit numbers.

Assign up to ten sums that contain a 2-digit and a 1-digit number. Here are some examples below:

- 4 + 14 =
- 25 + 3 =
- 18 + 1 =
- 30 + 6 =

Ask the pupils to write down the completed sums in their notebooks. ***Pages 57, 58, and 63 of New Countdown Book 1*** can be used as support material for this exercise.

- Let students add sums horizontally with tens and ones number e.g. 16 + 3 = _____. Guide them to solve the sum mentally. Ask them to keep the bigger number i.e. 16 in their minds. Then ask them to take out their fingers according to the other number i.e. 3. Now ask them to count after the number which is in mind i.e. 16. Close your fist and open your fingers one by one while counting and saying 17, 18, and 19. Say 'the answer is 19'. Discuss with the class how 10 is an easier number to add than most because when you add 10, the number in the place of the tens just goes up by one. Conduct a rapid-fire round of questions making sums with 10s like ten plus six, ten plus four, ten plus eight, and slowly progress to two-digit numbers. Call on pupils to answer at random. Ask the pupils to write down the completed sums in their notebooks. ***Addition of tens in 2-digit numbers can be practiced by photocopying worksheets from New Countdown Book 1, Page 63.***
- Refer to the ***Challenge question on page 58 of New Countdown Book 1*** and conduct in class as a fun activity to prim students to tackle more difficult questions.
- Explain to the class what a number story is and give them an example of one. Then point out the addition or subtraction sentence in the number story. Explain that addition sentences are simply sums and point out the number sentence from your number story. For example, if the story was that Asad had two apples when his sister give him three more. How many apples does he have now? The number sentence would be 2 + 3 = 5. Ask the class for volunteers to tell number stories and ask the rest of the class to try to guess what the number sentence is. Allow the pupil who made up the story to write down the number sentence on the board after the class is done guessing. ***For better understanding, more number story sums can be done in class or given as homework from New Countdown Book 1***
- Number lines will be very helpful when understanding addition, as well as the pupil's ages. Each birthday, their age increases by 1, and this idea can help them wrap their heads around the concept of addition since it is familiar. Also, the page numbers from their textbooks. Make them understand that adding and subtracting is just like turning multiple pages at a time. Many pupils may find it useful to count on their fingers, so show them how to do this. ***This activity is supported by Pages 69 and 70 of New Countdown Book 1.***

Exercise Commentary:

Pages 57 carries on with the concept of comparing numbers through addition as 'how many more?'. This introduces the basic concept of adding numbers. Pages 59 and 60 used number stories relating to real-life to add two numbers up till 20. Pages 61-63 introduce the addition of three numbers and commutative property of addition which states that numbers can be added in any order and still give the same result. Challenge feature on page 58 can be used as supporting material. Pages 63-66 are addition of tens with tens and addition of two 2-digit numbers. Page 63-68 can be done as classwork where the students are assisted, however Page 66 can be assigned as homework. As a spiral approach of the previously taught concepts of addition, Activity on Page 67 can be done as a review for concept of three number addition and 2-digit number addition. Page 68 is the extension to number stories involving 2-digit numbers which can be done at this point for practice of higher order skills.

Math Lab Tie-In: Math Lab 1 Page 38 to 45.

Plenary: Ask pupils what they have learnt in this unit. Can they relate any of it to their daily lives? Tell them a number story and then encourage them to create their own. Allow them to move the conversation in whichever direction they please, but make sure it remains relevant to the unit, and give them cues where necessary. Ask them how they might use addition and subtraction in their daily lives from now on. Ask them if they found it hard to move from counting to addition. Spend 5 minutes on this discussion.

3 Subtraction

Students Learning Objective:

1. Compare numbers from 1-20 and find "how many less"
2. Recognise subtraction as a difference and take away, and use the symbol "-"
3. Subtract 1-digit number from 1-digit number
4. Subtract 1-digit number from 2-digit number
5. Subtract tens from 2-digit number
6. Subtract 2-digit number from 2-digit number (Which result in positive)
7. Recognise the use of symbol to represent an unknown such as
8. 9 – ___ = 7, 9 – 7 = ___
9. Subtract the numbers (up to 20)
10. Construct subtraction sentences from given number stories

Suggested Time Frame: 3-4 lessons.

Starter Activity: Display an empty number grid chart 1 to 99 on the board. Ask the students to count the numbers backwards from 99 to 1 and keep on filling the grid. Use simple questions, such as "If I take away 2 pencils from 3 pencils, how many are left?' Show them by removing pencils and encouraging them to answer. Move on to more complex numbers and use simple number stories such as, 'I have 10 cookies, I eat 7. How many cookies re left?' Encourage students to count backwards and determine the number of cookies uneaten.

Lesson Commentary:

- In two fishbowls, drop 5 and 3 fish, and label them A and B. Now, count fish in each bowl one by one. There are 8 fish altogether. Ask the students how many less fish there in Bowl B are than in Bowl A. Repeat this activity with different objects and focus on asking 'How many less..." for each example. Keep all numbers in single digits. If they add them correctly, it means they have understood the concept clearly. Repeat the activity several times by calling students to perform on their own and slowly move to double digits. ***Page 72 of New Countdown Book 1 can be photocopied and provided in class as a worksheet to reinforce the concept.***
- Discuss with pupils what the difference is between "more and less" and "plus and minus". They should be able to work toward the conclusion that more and less are descriptions and plus and minus are actions. Encourage students to always count from the bigger number to avoid overcounting and undercounting. Make sure they realise that even if the smaller number comes first in the sum, it will make no difference if they

switch them around. Also avoid chorus counting in class, and make sure pupils work individually.

- If pupils are having a hard time with subtraction, remind them that it is simply taking away. Show them how to subtract on their fingers, by counting backwards, but call it taking away. Ask the pupils to tell you real-life examples where they use addition or subtraction. Start by giving them examples in your own life. Use words like plus and minus and equals.
- Take three bundles of 10 straws and ask them how many straws they are, as they have already learnt counting in tens. Now take one bundle away and ask how many bundles are left. There will be two bundles left which means there are 20 straws. Explain the same result on number grid by colouring numbers 1 - 30. Show them that 30 makes three groups of 10s. Now cross out the numbers counting backwards from 21-30. Tell them that leftover numbers are 1-20 i.e. two groups of tens. Tell them that subtracting tens from tens is as easy as subtracting two one-digit numbers. We only must write zero at the ones place. ***Subtracting tens from 2-digit numbers can be practiced from New Countdown Book 1, Page 75.***
- After repeating the subtraction of tens several times, you can proceed to the subtraction of two-digit numbers. Start with the same straws, this time you will take some loose straws also to make numbers with tens and ones. Suppose you take one set of two tens and two loose straws making 22 and another set of one ten and one loose straws making 11. Now colour 1-22 on the number grid. Cross out 11 grids counting backwards from 22. The remaining grids will be the result. Subtraction can be done on an abacus also. Suppose 25 is subtracted from 47. Display 47 on abacus putting 7 beads on the ones place and 4 beads on the tens place. Now take out 5 beads from ones place and 2 beads from tens place leaving 2 beads on the ones place and 2 beads on the tens place making 22. A great deal of physical subtraction of 2-digit numbers is required with all the aids (using the objects in groups of 10 and ones) before working in the notebook. ***Pages 75-80 of New Countdown Book 1 are subtraction of tens and 2-digit numbers.***
- The students are now aware with addition, subtraction, and equals to sign, write numbers on the blackboard with no plus or minus sign, like so: 4 + 8 = 12 Then tell them to vote by raising their hands for an addition or subtraction sign. Gradually increase difficulty, but do not go over the 2-digit numbers. This will help them see addition as an increase and subtraction as a decrease. Have the pupils then rearrange these equations, for example: 4 + 8 = 12 would change to 12 – 8 = 4 or 12 – 4 = 8. This will not only enhance their addition and subtraction skills but also help them in creating number families. You may also refer to ***New Countdown Book 1 Page 87*** for number family practice.

Exercise Commentary:

Pages 72 carries on with the concept of comparing numbers through subtraction as 'how many less?'. This introduces the basic concept of subtracting numbers. Pages 73 and 74

uses number stories relating to real-life to subtract two numbers up till 20. Pages 75-80 are Subtraction of tens and 2-digit numbers. Page 75-78 can be done as classwork where the students are assisted, however Page 79-80 can be assigned as homework. Page 68 is the extension to number stories involving 2-digit numbers which can be done at this point for practice of higher order skills.

Pages 85-88 are review for addition and subtraction which can be used as a means of assessment for the previously taught concepts of number operations. Page 87 focuses on making number families that use addition and subtraction to understand the relation between three numbers.

Math Lab Tie-In: Math Lab 1 Page 38 to 45.

Plenary: Ask the pupils what the difference is between "more and less" and "plus and minus". They should be able to work toward the conclusion that more and less are descriptions and plus and minus are actions. Encourage students to always count from the bigger number to avoid overcounting and undercounting. Make sure they realise that even if the smaller number comes first in the sum, it will make no difference if they switch them around. Also avoid chorus counting in class, and make sure pupils work individually.

4 Measurement

Students Learning Objective:

1. Compare the heights/lengths of two or more objects using the following terms:
   - Long, longer, longest
   - Short, shorter, shortest
   - Tall, taller, tallest
   - High, higher, highest
2. Compare the masses of two or more objects using the terms:
   - Heavy, heavier, heaviest
   - Light, lighter, lightest

Suggested Time Frame: 3-4 lessons.

Starter Activity: Pupils will already know most of these keywords but might need some help distinguishing between when to use what. Start with the word 'long' and ask them to give you examples of what they would describe as long. If they use it to describe time periods, ask them to only describe objects, or things they can touch. Let them come up with at least three examples before moving on to the word 'short'. Once again, only asking them to describe things they can touch. Move through tall, high, heavy, and light, helping if they get stuck on any. They might particularly need help with the term 'high', so give them the example of the ceiling being very high, or a bird flying high. Ask them to think of other objects that are very high up.

Lesson Commentary:

- Ask the pupils to think which of their classmates has the longest hair, and who has the shortest. Once this is established, explain to them that if pupil X has the longest hair, and pupil Y has the shortest, the rest of them have longer hair than pupil X, and shorter hair than Y. Then ask them to divide into two groups. Have all long-haired pupils gather on the left side of the class and all short-haired pupils gather on the right. Establish that for girls, long hair is past the shoulders, and for boys, long hair is past the collar. Use this opportunity to explain that while long and short are descriptions, longer and shorter are comparisons. Shortest and longest are also relative. ***This activity can be supported using Page 90 and 91 of New Countdown Book 1.***
- Explain that these words always depend on the object. Use examples like, if an arm was as long as one class wall to another, it would be very long, but if a train was from one wall to another, it would be very short. Same with heavy and light. Assure them that it

is normal to find the new words confusing, but they will become more comfortable with practice, and in the mean while, they are able to ask.

- Pass around a basket of ribbons of assorted lengths, let each pupil choose and pick a ribbon from the basket. Now the pupils of each group will compare the length of the ribbons and find out the longest and shortest ribbons. Each group will show its longest and shortest ribbons. Ensure that they match up one end of the ribbons so that they are accurately comparing length.
- Pull out some short pencils and some long (barely sharpened) pencils (no more than 5 each). Hold them up one by one in front of the class and ask them which are long or short. Once you have two sets of pencils, hold up the short ones only, and ask them which is the longest out of them. Point out that even though all the pencils are short, some of them are still longer than the others. Do the same for the long pencils. ***Pages 93 and 94 of New Countdown Book 1 can be used along with this activity to reinforce the concepts and encourage students to independently arrange them in ascending or descending order.***
- Provide the children building blocks and give them 5 minutes to make a building on their desks. When they are done, make groups of 4 to 6 and ask them to identify each others' buildings as one of the following: short, shorter, shortest, tall, taller, tallest. Based on the size of the buildings, ask them to measure with fingers, or hands and give parameters for long and short, based on the average size of the buildings. Give them another 5 minutes to do this and ask each group at the end to put forth the tallest and the shortest, so that the tallest and shortest buildings in the class can be found. This pairs with Math Lab 2 Page 46. ***Pages 93 and 94 of New Countdown Book 1 can be used along with this activity to reinforce the concepts and encourage students to independently arrange them in ascending or descending order.***
- Tell the pupils the day before that you will be building paper planes in class, so that they can practice or research at home if they like (they do not have to). Then use some string or rope to create a line around 2.5 feet high, and have the pupils throw their planes in pairs. Tell them to try and see which one goes higher. Tell them that any plane over the line is high, but also comment things like, "that was the highest one yet" or "that one went even higher than the last". This will make them comfortable with the words. After this activity, the pupils will be aware of all 4 spatial measurement words. To avoid confusion, bring them back to the class and point out random objects and ask them what words would be appropriate to describe them. For example, is the window tall, or high? Is the pile of books long or tall?
- Pupils should now be completely comfortable with terminology. Read aloud sentences with a blank. Ask the pupils to silently make note of the missing word. Give them the following word bank on the board:

long **short** **tall** **high**

Remind them that some of the sentences will have tall and short, or long and short as

answers. In this case, they should write both. Some examples of sentences are given below:

- How has that bird flown high
- That tree is so tall/short
- This wire is very long/short
- The ceiling is so high
- The basketball net is too high
- The pole is very tall/short
- Her hair is very long/short

- Have an assortment of fruits available in the class, and have the pupils sort them by type. Then place them in the balancing scales. Place pieces of fruit in each side to demonstrate that the heavier side will always go down, while the lighter side will go up. Weigh the fruits one by one against each other to figure out which one is the heaviest and the lightest. Tell the pupils to make a list of all the fruits from heaviest to lightest. Then introduce a 500 gram weight. Explain that the weight is heavy, without getting into the specifics of how much it weighs. Put the weight on one side of the scale and add pieces of fruit one by one to the other side. For example, if you have apples, since one apple will surely be less than 500 g, it will stay up. This shows that one apple is light. When you eventually have enough apples to outweigh the weight, tell them that number of apples are the heavy when put all together. Continue adding apples to demonstrate how the scales will continue to tip, meaning that the sides with the apples are getting heavier.
  This activity pairs with New Countdown Book, Page 102 and Math Lab 1 Page 47.

Exercise Commentary:

Pages 89-94 uses comparison of length and mass to arrange objects in ascending or descending orders. The students are now aware of comparison and have previously developed the concept of short, long, high, tall, and heavy and light, so this should not be as difficult for them. In case they are stuck, revise the concepts of length and mass. Pages 95-100 moves towards higher order thinking skills. Measurement using metre and centimetre scales is introduced. It is encouraged to show students a metre rule is class so it may help them in comparing different objects to 1 metre of length as a support for Page 96. Measurement of curved lines in introduced on Page 99 and an exercise supporting the concept of measuring the length of different curved lines.

Pages 101-102 focuses on introducing the standard unit of measuring mass and the comparison of objects in terms of 1 kg. Page 103 compares objects in terms of their capacities.

Math Lab Tie-In: Math Lab 1 page 46 to 47.

Plenary: Ask pupils to bring their favourite toy to class. Remind them at the time that it

should not be too fragile as it will be used in class activities. In class, let them choose a partner and swap toys. Hand out chart papers and pencils, and have each pupil lie their toy down flat in the centre of the paper and mark the top and the bottom. Ask them each to think up a creative non-standard unit of measurement that is appropriate for the size of the toy. For example, a toy that is less than 5 inches tall could be measured with pencils. A taller one could be measured with a pencil case. Show them how to make markings as they measure and allow them to explore the class to look for objects to use as measuring tools. Once they have measured and made note of the measurement, ask them to come to the class one by one with their partner's toy and use the scales to weigh it. Put fruits or books on the other side of the scales, so that they can note down that their toy weighs the same as X books or fruits. After this is complete, ask them to discuss amongst each other which toy was the heaviest, the tallest, the shortest, and the lightest. For the toys that do not fall into any of these categories, ask the pupils to read out the details and ask the class to discuss whether they think they are light, heavy, tall, or short.

5 Money

Students Learning Objective:

1. Identify Pakistani currency coins (Rs 1, 2, 5 and 10)
2. Identify Pakistani currency notes (Rs 10, 20, 50 and 100)
3. Match a group of coins/notes to an equivalent group of different denominations
4. Add and subtract money using the prices of objects (transactions) (e.g. toys)
5. Recognise money change (up to 100) to its equivalents/denominations
6. Determine if enough money is available to make a purchase (up to 100)
7. Add different combinations of coins/notes (to make sum up to 100)

Suggested Time Frame: 2-3 lessons.

Starter Activity: Hold up each piece of currency in front of the class and ask them to try to name it. If they cannot, which might be the case, especially for the coins, tell them what they are. Make drawing of each banknote and coin on the board, so the pupils can check it if they forget. Point out how each banknote or coin will always have its value in numerals written on it, but they still look quite different from each other. At this point pass the currency around the class so that every child gets to hold them in their hands and examine them close. Ask them why they think all the banknotes and the coins were not made identical if one could simply read the numbers to see which was which. The most important reason is that when one is paying for something, there is not always time to stop and read each individual coin or banknote. If the pupils are not coming to this conclusion on their own, drop some hints. Ask them to think about when they have seen their parents paying for things. Do they stop and read every note? And would it take longer if they did? What would happen if each person had to stop reading their currency when they came to the till. Would the line be much longer?

Lesson Commentary:

- Set out currency in front of the class, and hold it up each, asking the pupils to identify them. After that, ask them to make rough drawings of each banknote on A4 paper using colour pencils. This will help them recognise the banknote without reading the number, by looking at the colour. Help cut up the papers to separate the banknotes. Ask them to partner up, and show their partner their banknotes one by one, while covering the number. The partner will try to guess which banknote they are being shown based on colour and design. Let the pairs discuss briefly and identify differences in the notes. ***The students can compare their sketches with the currency shown on Page 104 of New***

Countdown Book 1. This activity pairs with Math Lab 1, Page 48.

- Depending on how many coins are available, break the class into groups by giving each group a set of coins, and toothpicks or matchsticks. Ask them to arrange them from smallest to largest (in value) and trace them each out on their notebooks in that order. Then let each one of them choose a side of each coin and draw them in the circle they traced. If gold, silver, and bronze colour pencils are not available have them write down the colour. This activity pairs with Math Lab 1, Page 48.
- There is a lot of Pakistani currency which is no longer in use, such as Re 1, Re 2, and Rs 5 banknotes. You can ask pupils to ask their parents if they have any old currency at home that they can bring in to show the class.
- Give pupils ten random numbers to pupil and ask them to make equivalent numbers using banknotes and coins. For example, 25 would be 20 + 5 and 60 would be 50 + 10. Then divide the class into groups of 4 to 6 pupils and tell them that you are having a competition. Keep score on the board of who is answering questions correctly. Then announce a number and provide a selection of coins and banknotes. Each group will have to try and figure out how many possible combinations of coins and banknotes there can be to produce that number. Make sure there are never more than 8 different combinations. The first group in the class to come up with the answer and present it to the rest of the class will win that round. Make sure that you group the pupils who have trouble with more confident pupils so that they can learn from each other. Below are some examples of questions:
  - o Get 10 rupees using 2 and 5 (2 + 2 + 2 + 2 + 2 and 5 + 5)
  - o Get 100 rupees using 20 and 50 (20 + 20 + 20 + 20 + 20 and 50 + 50)
  - o Get 40 rupees using 10 and 20 (10 + 10 + 10 +1 0 and 20 + 10 + 10 and 20 + 20)
  - o Get 60 rupees using 10 and 20 (10 + 10 + 10 + 10 + 10 + 10 and 20 +20 + 10 + 10 and 20 + 10 + 10 + 10 + 10 and 20 + 20 + 20)

  Be sure to have the correct answers ready beforehand so that the game can move as quickly as possible. ***The concepts can be reinforced in the worksheet on Page 105-107 of New Count Book 1. This activity also pairs with Math Lab pages 49 and 50.***
- Have pupils solve word problems individually. Here are some examples:
  - o If Sheeza has Rs 50, and apples cost Rs 20, how many apples can Sheeza buy?
  - o Faisal is selling a cake for Rs 60. A customer gives him two 50-rupees notes. How much change does Faisal have to return?
  - o Alina only has 20-rupees notes. She wants to buy a book that costs Rs 75. How many notes should she give the shop keeper, and how much change will he return?
  - o Kamila has three 20-rupee notes, three 5-rupees coins, and five 2-rupee coins. What notes will she use to pay for a pencil that cost Rs 27?

- Mehrunnisa is selling brownies for Rs 8 each. A customer buys two brownies with a 20-rupee note. How many 2-rupee coins should Mehrunnisa give the customer as change?

  Additional real-life questions for practice are present on Pages 108-109 of New Countdown Book 1.

- Figuring out the denominations of money might be easier to teach if you refer to addition and subtraction. Show pupils that breaking down money is just like creating your own addition sums. The Math Lab 1 activity on page 45 might help pupils connect the concept.

Exercise Commentary:

Page 104 allows students to familiarise themselves with the currency used in our country. This page will help them identify all the banknotes and coins for further practice. Pages 105-107 are basic exercises that help students work with different denominations and equivalent sets of money to ensure they know how to deal with money and exchange when buying or selling. It is encouraged to solve these pages as classwork so you can help the students if/when they are stuck. You can also provide students with additional worksheets to help them grasp the concept better. Within class, you can also use dummy money.

Pages 108-111 focus on addition and subtraction using money. The concept works on the same principles of addition and subtraction of 2-digit numbers without carrying or borrowing. Real-life story sums are also present which can be done as classwork while add and subtract sums can be given as homework.

Math Lab Tie-In: Math Lab 1 page 46 to 50.

Plenary: Ask the class how confident they feel handling money now. Remind them that money needs to be handled with care, and they should always double check the amount before paying someone, because even adults can make mistakes. Ask them if this unit reminded them of what they learnt in any of the previous units, and if they say no, prompt them to link the decomposition of currency to addition and subtraction. Prompt their discussion further by asking what would happen if one did not know how to properly add money together to come to a specific total. Remind them that they not only would not be able to pay people properly, but they would also not know if someone has given them the wrong amount of money.

Time

Students Learning Objective:

1. Recognise the hour and minute hands of an analog clock
2. Read and tell time in hours from the analog clock for example 2 o'clock
3. Read and tell time in hours from the digital clock
4. Name in order days of the week
5. Identify which day comes after/before a particular day
6. Name (orally) the solar months of the year
7. Name (orally) the Islamic months of the year

Suggested Time Frame: 3-4 lessons.

Starter Activity: Start this unit by asking the pupils what time they wake up. It is possible that not all of them will know, but some might. Then ask them about what time they go to sleep. Discuss the fact that every part of their day starts at a certain time. School starts at a set time, math class starts at a set time, and school ends at a set time. Ask them what it would be like if there was no time. How would people know when to wake up, and when to get to school. Lead them to the conclusion that time is a way of organising ourselves, and coordinating. Ask them examples of other things that people do at a specific time. After this, bring up the fact that the "time of day" is not the only thing people use to organise themselves. Ask them if they can think of any other way that people know when to do things. Give them a minute to guess, and if they do not, say the days of the week, and/or the months of the year. Ask them which days they do not come to school. Explain that these are all different ways one can measure and organise time. Explain the difference between solar months and Islamic months, explaining that the school follows the solar months, which is how they know when to have summer holidays, but the Islamic calendar is what is used to figure out when Islamic holidays are. Use the example of Ramadan and explain that it is the ninth month of the Islamic calendar. Allow the pupils to ask questions here, as they might find the concept of two calendars confusing and might wonder why we do follow one. Remind them that we follow the Islamic calendar to track Islamic events, and we follow the solar calendar because it is important for us to move with the rest of the world. Explain that many countries and religions have their own calendars, but they also make use of the solar months.

Lesson Commentary:

- Show pupils an analogue clock and explain what the minute hand and the hour hand is.

You may also refer to Page 112 of New Countdown Book 1 for this activity. Ask them how they think they can differentiate between the two. If they do not realise themselves, point out that one of them moves much faster. Then give them a chart paper and instruct them to do the following: Draw a circle (not too large) – cut it out – write the numbers of a clock – Draw the minute hand pointing to 12 – cut the hour hand out of the remaining chart paper – make a small hole in the centre of the circle and the base of the hour hand – use the butterfly pin to attach the hour hand to the clock as it would attach in the real clock. Help them as they go, and if possible, have one with them, so they can watch you if they are confused. Use this clock to show them how to tell time to the hour. ***This activity pairs with New Countdown Book 1, Page 113 and Math Lab 1, Pages 51 to 54.***

- Read out a time (without minutes) and ask the pupils to arrange their hour hands to reflect that time, and then raise them simultaneously. Look around to see if they have all been arranged correctly, and if not, explain the clocks again using one of the fake clocks as a sample. If pupils are still confused, make this a group activity.
- Give each pupil an A4 paper and use whatever scraps of the chart paper are left from the previous activity, ask them to cut out 14 strips. Give them a rough way to measure the length of the strips, like one handspan. They may need extra chart paper. After they have everything prepared, show them how to read a digital watch, either by drawing on the board, or by using a real one. Then ask them to each pick a chit out of a bowl. Write a time on each chit in hours, like 9 o'clock, and ask them to paste their strips onto the A4 sheet to resemble a digital clock showing that time. Since the time is in hours, ask them to draw on the zeros the minute side, as well as the colon in between.

08:00

As they work, move through the class to make sure that all the pupils are on the right track. Ask each one to come to the front of the class one by one and hold up their digital clock. Ask the rest of the pupils to raise their hands to answer what time it says. ***This pairs with Math Lab page 57. For more questions and examples of digital time, Page 114 of New Countdown Book 1 can be used as support.***

- Divide the class into 6 teams. Hold up your digital clock and show the class various times, calling upon the first pupil who raises his or her hand. The one to get the right answer will earn a point for their team. Do this 12 times so that there is no repetition. After explaining the days of the week in order, divide the pupils into groups of 5 to 6. Ask each group to come up with a song to help them recall the order. Some may simply sing the days in a rhythm, while some may come up with lyrics to go in between. Move through the class as they work and encourage them to be creative. Any originality should be rewarded and encourage them to share ideas. Tell them that at the end, each group will sing their song for any of their other teachers who will be available. When making the groups, be sure to group the more confident pupils with the less confident pupils. Whichever group has the best song will teach their song to the rest of the class.

This pairs with Math Lab page 57.

- Display three flash cards with days' names and ask them to call out the names of the days which are missing. Display the names of the days in order. Show them a calendar explaining how the days are displayed in each month and how they can find the corresponding day for a particular date. Now put the enlarged page of the calendar on the board and ask different questions. For example, which day comes after Tuesday, what is the day on 25th of the month, what is the day before 7th of the month?
- Provide students with slips of paper and let them write the days of the week on each slip. Once they are done writing, provide them with a strip of paper. Let them paste the names of the days on that strip with the help of glue then join the ends of each strip to make a ring and demonstrate the cyclic nature of each week. The same activity can be repeated for months.
- After telling the pupils the solar months in order, and orally going through them a few times to familiarise them, ask 12 pupils to volunteer. Write a month each on a post it and stick it on each volunteers' forehead. This way, everyone will know what day they have except for the pupil. Request 2 more volunteers and ask them to arrange the 12 pupils in a line in the correct order, without saying aloud what months they each have. Once they are arranged, check if they are done, correctly, and one by one, ask each pupil to look around and guess which month they have on their foreheads. Repeat this activity once with different pupils. This activity pairs with Math Lab page 59. ***Recall from Page 115 whereas the calendar exercise on Page 116 of New Countdown Book can be photocopied and distributed to students as reinforcement.***
- Display three flash cards with Islamic months' names and ask them to call out the names of the months which are missing. Display the names of the Islamic months in order. Now put the enlarged calendar on the board and ask different questions. Here are the months of the Islamic calendar, in order, for your reference:

  Muharram, Safar, Rabi-ul-awwal, Rabi-ul-Sani, Jammadi-ul-Awwal, Jammadi-ul-Sani, Rajab, Sha'ban, Ramadan, Shawwal, Zul-Qadah, Zul-Hajjah. ***As a support, Page 117 of New Countdown Book 1 can be used.***
- This exercise will be a rapid-fire round. Tell the pupils that you will be calling out either a day of the week, or a month (solar or Islamic), and they must raise their hands to tell you the name of the day or month that comes after. So, if you shout out "Wednesday", a pupil should raise their hand to say "Thursday". For the first few rounds, let them answer as a class so that they can get used to the activity. Remind them that they should not worry about getting it wrong because it is not a competition. Before starting, go through the orders once more with the class.

Exercise commentary:

The chapter introduces both analogue and digital clocks. Pages 112 and 113 focus on analogue clock while page 104 focuses on digital clock.

Pages 112 and 113 are basic exercises of analogue where the student is either required to read the time in o'clock or draw the hands of the clock to show the time. Page 114 requires students to read and write the time displayed on the clock or to show the time on the digital clock. All questions for time emphasise on o'clock only. Dummy clock can be used within class for better understanding on the students.

Pages 115 to 117 are based on the solar and lunar calendar. These pages require students to read the calendar and learn the months of the year. Students can use a calendar to work with these pages.

Maths Lab Tie-In: Math Lab 1 page 51 to 59.

Plenary: Refer to starter activity and ask the pupils why they think there are so many different units of time. Let them discuss it, and if they need it, prompt them by pointing out that each unit of time measures a different part. Ask them to discuss which one they think is the most important, reminding them that there is no right answer, but they should be able to explain their reasoning. Talk about the different uses of all these measures of time. We discussed in the starter activity that we use time to synchronise ourselves as communities, so that we can be more organised, but what else is time used for. Drop hints until the class concludes that units of time are also used record events and when they happened. Ask them what would be lost if we stopped using time entirely.

7 Geometry

Students Learning Objective:

1. Recognise and identify shapes of similar objects in daily life.
2. Identify the following basic shapes
   - o Rectangle
   - o Square
   - o Circle
   - o Triangle
3. Match similar basic shapes in daily life.
4. Distinguish basic shapes by considering their attributes (sides).
5. Classify 2D shapes according to number of sides and corners.
6. Identify the next shape in the patterns with 2 or 3 elements
7. Extend a given pattern of 2 or 3 elements
8. Identify whether an object is placed
   - o Inside or outside
   - o Above or below
   - o Over or under
   - o Far or near
   - o Before or after of a given object

Suggested Time Frame: 3-4 lessons.

Starter Activity: Ask the pupils if they know what a shape is. Allow them to have a class discussion for a couple of minutes to compare ideas, as they will likely have some prior knowledge of shapes. Then, ask them if they can name any. Ask them to raise their hands, and when you call on them, have them name their shape, and draw it on the board. If they make any mistakes, help them correct it. Do not add any shapes to the board even if the ones taught in the unit are missing. Once they have put all the shapes they know on the board, ask them if any of these shapes look like anything that is found in real-life. Be sure to use the words "look like" so that they know you are not looking for exact matches, but rather resemblances. Encourage them to be creative with their examples, and make sure they know they are not limited to objects only in the class. If they are stuck, give them some interesting examples to get them going. If there is a triangle on the board, ask if any of them

Lesson Commentary:

- Show cut-outs of 2-D shapes to the students in turn, asking students to describe them in their own words. Introduce any vocabulary that they do not use. Encourage them to hold each shape and run a finger along the outer edge, counting the sides and then

the vertices. Name each shape and compare their properties. Let them observe similar shapes in various orientations/environment. ***The activity pairs with Page 118-120 of New Countdown Book 1 and Math Lab pages 51 to 54.***

- Draw all four shapes on the board and write their names below. Give pupils a very basic description and be sure to point out that the difference between a square and a rectangle is that a square has equal sides. Give each pupil a piece of foam paper and scissors, and ask them to choose any shape they like, and it out. Then ask some of them why they chose that shape. This will lead to the children describing the shapes. They might say "I like the circle because it's it is different" at which point you should as what makes it different, or they might say "I like the triangle because it is the only one with three sides". Make note of all the differences they point out on the blackboard. Do not initially tell them that you are looking for differences, just let them tell you what stands out to them. At the end of this activity, ask them to copy these down, making sure the number of corners and sides are mentioned for each shape. Keep the foam shapes for later. The activity pairs with Math Lab pages 60 to 63.
- The following exercise is to be done in silence. Tell the pupils that you will be reading out some characteristics of each shape, and they should make note of which shape they think you are talking about. So, if the first thing you say is "This shape only has no corners", they should write down circle. If you say "this shape has two longer and two shorter sides" they should write rectangle. Be sure to use number of corners and sides as characteristics and tell the class beforehand that square and rectangle might both be the right answer for some questions. ***This activity can be paired with the Activity o Page 119 of New Countdown Book 1.***
- The square and the rectangle are both quadrilaterals, meaning they have four sides. The circle is the only shape out of the above that is not a polygon because it is curved. Explain to the pupils that counting a shape's sides and corners is always crucial when identifying it. Tell them that comparing the length of its sides, as one does to tell the difference between a square and rectangle is secondary, and only needs to be done if two shapes have the same number of sides and corners.
- Take the class to an area where there are plenty of identifiable 2-D shapes if there are not in the class. Be sure to explain to them beforehand how to spot a 2-D shape on a 3-D shape. For example, a book can be a rectangle, and the rim of a glass can be a circle. If necessary, add more objects to the play area that they can use. Then make groups of 5 to 7 pupils and ask them all to play. I spy, with shapes. So, if a pupil says, "I spy, with my little eye, something triangle shaped", the other pupils in his or her group will have to guess which triangular object they are talking about. These can even be pictures if objects are not available. A poster of a slice of pizza could be identified as a triangle. Tell them that it is against the rules to use the same object that another group member has previously used.
- If the pupils are having trouble distinguishing between squares and rectangles, remind them about how they learnt to measure with non-standard units. If they want to be sure,

they can use their hands and figures to ensure something really does have equal sides before calling it a square.

- Ask the pupils which shape they think should come after the last triangle. Be clear that you are asking which shape should logically come after, and not which shape they personally feel should follow. After they say circle, draw another pattern on the board alternating any 2 shapes, and ask them to add 4 more shapes. Once they get comfortable with the concept, explain to them that completing the pattern is all about identifying what rules are already in place. The next pattern you give them should still only involve 2 shapes, but the pattern should be slightly more complicated, and longer. Perhaps something like this:

Instead of immediately asking them what comes next, first ask them if they can identify the rules of the pattern, and then ask them to add six more shapes. Gradually increase the number of shapes, and the difficulty. Once they are comfortable with having up to 3 shapes in one pattern, give them each an A4 sheet and ask them to draw two of their own patterns.
Tell them they must use 2 to 3 shapes, and they must draw the first 25 shapes of their pattern, leaving space for 10 more shapes to be added. Once they have done this, shuffle the worksheets so they can solve each other's puzzles. Make sure they put their initials on the sheets before you shuffle, so that if a pupil gets stuck, the creator of the pattern can help. This activity pairs with Pages 123-125 of New Countdown Book 1 and Math Lab pages 65 and 66.

- Place a basket in the middle of the class and give pupils small objects that they can throw into it. Ask every pupil to take turns throwing the objects. Make sure they are not heavy or bulky so that no one gets hurt. After every object is thrown, ask the class, if it is inside or outside the basket? Did it go above or below the top of the basket? Is it far or near? Let each pupil have a turn before picking up the scattered objects so that you can discuss their positions as compared to each other. Are they far or near each other? Did any of them land on a desk, and become above the rest? ***This activity will help pupils understand spatial positions as a concept. This activity pairs with Math Lab pages 67 and 68.***
- Write the following words on the board; inside, outside, above, below, over, under, far, near, before, after. Ask the pupils to help you write what they mean on the board. Help them if they get stuck by pointing out examples. After all the meanings are written, ask for one example for each word in a real-life situation. For example, when you stand at the front of the class, the front row of desks comes before the second, or the desks are under the ceiling. Have them copy this down and come up with their own personal examples for each word.

- The words above and below may seem interchangeable with over and under, and in some cases, they might be. However, there are some differences. If something is touching or covering another, you use it over and under: pour the cream over the pie. We also only use these in reference to numbers, like there are over a hundred pages in this book, as opposed to there are above a hundred pages in this book. Above and below are generally used to indicate objects that are on a higher or lower level, like her office is six stories above the ground. As reinforcement, Page 127 of New Countdown Book 1 can be used.

Exercise Commentary:

Pages 118-120 focus on 2-D shapes. The exercises encourage students to identify the 2D shapes according to their characteristics. You may use Activity on Page 119 as a support to the topic. Once the students finish doing the Activity, you may give/use Remember feature on Page 119 as summary for the topic. Page 120 may be new for students as it shows the properties of 2D shapes with more than six sides. As support, you may use cardboard cutouts of shapes and quiz students about their characteristics. Pages 121 and 122 emphasises on the 3D shapes and their characteristics. For 3D shapes, it is encouraged to use different objects, so it is easier for students to identify and recognise all the characteristics. Additional worksheets, such as the ones provided on Pages 144 and 145, can also be provided.

Pages 123-125 concerns patterns using different 2D and 3D shapes and objects. Pages 123 and 124 can be taught in class while Page 125 can be given as homework. Pages 126 and 127 teach position of objects using prepositions. This concept sets foundation for later of movement and direction.

Math Lab Tie-In: Math Lab 1 page 60 to 68.

Plenary: Ask the pupils if they thought this unit was different from the other units. Lead them to the realisation that they barely used numbers throughout this unit. Ask them if they think maths must involve numbers. Explain at this point that shapes and patterns are also parts of math and remind them that they do involve numbers even if numbers are not the focal point of the unit. Explain to the class that math is a way of understanding the world, and since shapes and patterns can be seen everywhere, they will naturally be studied in math. Allow 5 minutes for this discussion.