**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 1 | STRAND: Number and Algebra | **SUB-STRAND:** Whole Numbers 1 | **WORKING MATHEMATICALLY:** MA1-3WM & MA12WM |
| OUTCOMES: MA1-4NA |  **Applies place value, informally, to count, order, read and represent two- and three-digit numbers** |
| **CONTENT:**  | * Count forwards and backwards by ones from a given two-digit number
* Identify a number before and after a given two-digit number
* Estimate, to the nearest ten, the number of objects in a collection and check by counting, eg estimate the number of children in a room to the nearest ten.
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | Observation of students during warm up/drill.  |
| WARM UP / DRILL | Ask the students to stand in a circle. Have a bucket with filled with numeral cards 11-90. Explain and discuss with the students that there are numbers in the bucket and that they may be selected to take a random number from the bucket, but before they select their number they have to decide if they will start counting from the number ‘one less then’ or the number ‘one more then’ that number. Select a student to make the rule and then select a number. Once the number is selected the students will count 1 number each around the circle (eg if the number 34 is pulled out and the student said ‘one less then’ the student says 33, the next student says 32, the next 31 etc). If counting on continue to 100, if counting back continue to 0. Repeat this a couple of times, starting from a few different 2 digit numbers. |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  |  |
| QUALITY TEACHING ELEMENTS | **INTELLECTUAL QUALITY** | **QUALITY LEARNING ENVIRONMENT** | **SIGNIFICANCE** |
| * Deep knowledge
* Deep understanding
* **Problematic knowledge**
* Higher-order thinking
* **Metalanguage**
* Substantive communication
 | * Explicit quality criteria
* **Engagement**
* High expectations
* Social support
* **Students’ self-regulation**
* Student direction
 | * Background knowledge
* Cultural knowledge
* **Knowledge integration**
* Inclusivity
* Connectedness
* Narrative
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| RESOURCES | Numeral cards 11 to 90 in a small bucket or container, bunches of paddle pop sticks, Targeting Maths worksheet (Year 1, Page 7),A variety of small to medium containers with a variety of items eg counters, paddle pop sticks, Workbooks, White boards (for each student) and markers. |

**TEACHING AND LEARNING EXPERIENCE**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Explicitly communicate lesson outcomes and work quality.Teach and Review:How to make an estimation. How to check (count) to find the amount of items. Why it is important to check how many.**Define and reinforce metalanguage used in the unit:** nearest ten, estimate, more than, less than, difference,  | LEARNING SEQUENCERemediationES1  | -Work with amounts up to 10-Substitute worksheet for ES1 estimating worksheet. |
| LEARNING SEQUENCES1 | -Prepare a range of small and medium sized containers. Place random amounts (up to 20) of items such as paddle pop sticks, beads or counters in each container. In small groups provide students with 4 or 5 containers. Students need to look at the items, discuss how many items they think there could be. Students then write their estimations in their workbooks. Once all students have completed their estimations ask each group to check (count) the items to see what the amount is. Students record their answers in their workbooks. To conclude discuss findings as a whole class.**Investigation:** In pairs provide students with a bundle of paddle pop sticks, a white board and markers. Ask them to create columns on the white board, one for estimating and one for counting and checking. The students take turns to take a handful of paddle pop sticks and estimate how many they think they have to the nearest ten. Write their estimate in the column. Then check by counting and write that amount in the count and check column. Encourage students to discuss their results by posing questions such as: What is the difference between what you thought you had and what you did have? Did anyone in the class guess the correct amount? What are some situations you might be in where you will need to estimate the number of something?**Worksheet:** -Introduce and discuss what the students need to do to complete the worksheet. Discuss the word ‘Estimate’ and pose/answer questions about when we might need to estimate something. Students complete the worksheet, ‘Estimation’ from Targeting maths, Year 1, page 7.**Assessment:**Questioning, discussing and observing student involvement in lessons. Refer to the worksheet.  |
| LEARNING SEQUENCEExtension Early S2 | * Work with bundles of items eg: 20 paddle pop sticks per bundle, encourage students to count by 20 when estimating.
* Substitute worksheet for Primary Mathematics, Book B, ‘Estimating and grouping’ page 67.
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| **EVALUATION & REFLECTION** |  |

* All assessment tasks should be written in **red** and planning should be based around developing the skills to complete that task.
* Assessment rubrics or marking scale should be considered.

**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TERM:  | WEEK: 2 | STRAND: Number and Algebra | **SUB-STRAND:** Whole Numbers 1 | **WORKING MATHEMATICALLY:** MA1-1WM, MA1-3WM |
| OUTCOMES: MA1-4NA | **Applies place value, informally, to count, order, read and represent two- and three-digit numbers** |
| **CONTENT:**  | * Count forward and back by 1 from a given two-digit number,
* Identify the number b4/after a given two-digit number
* Describe the number before as ‘one less than’ and the number after as ‘one more than’ a given number
* Reads and uses the ordinal numbers to at least 31st.
 |
| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | Worksheet: Primary Mathematics, Book B, “Ordinal Numbers”, page 44. |
| WARM UP / DRILL |  Ask all the students to find a space in the room where they can stand without touching another person. As a group watch and do “Get fit counting by 1’s” on the IWB (students will count aloud from 1-100 whilst doing the exercises). Repeated with “Get fit counting by 2’s” |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  |  |
| QUALITY TEACHING ELEMENTS | **INTELLECTUAL QUALITY** | **QUALITY LEARNING ENVIRONMENT** | **SIGNIFICANCE** |
| * Deep knowledge
* **Deep understanding**
* Problematic knowledge
* Higher-order thinking
* **Metalanguage**
* **Substantive communication**
 | * **Explicit quality criteria**
* **Engagement**
* High expectations
* Social support
* Students’ self-regulation
* **Student direction**
 | * **Background knowledge**
* Cultural knowledge
* **Knowledge integration**
* Inclusivity
* **Connectedness**
* Narrative
 |
| RESOURCES | IWB (you tube), worksheet from Primary Mathematics, a large calendar, ordinal number cards 1st-31st , workbooks, post it notes, blank calendar worksheet.  |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Teach and Review:How to read and use a calendar to locate days and dates. How to read and say ordinal numbers.**Define and reinforce metalanguage used in the unit:** eg: ordinal, st, nd, rd, th, date, day, month, year, time.**IWB:** Get fit counting songs and exercises. Explicitly communicate lesson outcomes and work quality. | LEARNING SEQUENCERemediationES1  | * Lesson 1: Break this up into smaller content lessons. Introduce days, weeks and then the month as a whole.
* Game: begin with selecting 1st -10th. Asking 10 students at a time to order themselves.
* Worksheet, fill in the missing ordinal number on a number pattern.
 |
| LEARNING SEQUENCES1 | **Whole class:** Look at and discuss one of the months in the calendar. Ask students questions to encourage reading of the calendar such as, What month is it? How many full weeks in this month? How can we check? How many Mondays are in this month? How do we know? Count the days in the month and then discuss the term “ordinal numbers” and what it means. Starting at 1st count the days using ordinal number titles. **Game:** Cut out number cards with ordinal numbers from 1st to 31st. Hand out 1 number card per students and ask the class to order themselves on a line from 1st to 31st (or class total). Then ask each student to state their number using ordinal language. Repeat, ensuring that each student has a different card the second time.**Investigation: What ordinal number am I?**Students look at a calendar page and select an ordinal number but do not tell peers or the teacher what number they have picked. Students write the ordinal number on a post it note and stick it to the inside of the back cover of their workbook. Students then go to the next blank page in their workbooks and write 5 questions they can ask another student with the aim of guessing what ordinal number they have chosen. To assist the class you can brain storm a range of questions before they begin and write them on the board. Encourage students to use ordinal language. In pairs students then ask their questions to each other. To conclude discuss findings from this activity as a whole class.**Assessment:**Worksheet: Fill in a blank calendar page. Ask each student to recite ordinal numbers as you point to them in sequence and in random order.Questioning, discussing and observing student involvement in lessons.  |
| LEARNING SEQUENCEExtension Early S2 | Ask students to come up with questions to identify the month, week and day that their peer has selected from the calendar. |
| **EVALUATION & REFLECTION** |  |

* All assessment tasks should be written in **red** and planning should be based around developing the skills to complete that task.
* Assessment rubrics or marking scale should be considered.

**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TERM:  | WEEK: 3 | STRAND: Number and Algebra | **SUB-STRAND:** Whole Numbers 1 | **WORKING MATHEMATICALLY:** MA1-1WM |
| OUTCOMES: MA1-4NA | **Applies place value, informally, to count, order, read and represent two- and three-digit numbers** |
| **CONTENT:**  | * Identify, sort, order and count money using the appropriate language in everyday contexts, eg coins, notes, cents, dollars
* Recognise the total amount can be made using different denominations eg 20c can be 2 10c
* Recognise the symbols of $ and c
 |
| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | Look at images of each coin, note, $ and c symbol on the white board and ask students to identify the value/name of each image. |
| WARM UP / DRILL | IWB: Mathletics money game. Discuss the amounts shown and pose questions to the students as they solve the problems such as, how did you know that answer?  |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  |  |
| QUALITY TEACHING ELEMENTS | **INTELLECTUAL QUALITY** | **QUALITY LEARNING ENVIRONMENT** | **SIGNIFICANCE** |
| * Deep knowledge
* **Deep understanding**
* Problematic knowledge
* Higher-order thinking
* Metalanguage
* **Substantive communication**
 | * **Explicit quality criteria**
* **Engagement**
* High expectations
* Social support
* **Students’ self-regulation**
* **Student direction**
 | * **Background knowledge**
* **Cultural knowledge**
* **Knowledge integration**
* **Inclusivity**
* **Connectedness**
* Narrative
 |
| RESOURCES | Money flash cards, IWB and Mathletics login, post it notes, student workbooks, pencils, white board and marker, plastic cups, pretend money coins (as listed below, enough for each student). |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Explicitly communicate lesson outcomes and work quality.Teach and Review: the value of Australian coins and notes. That amounts of money can be made up using different denominations.**Define and Reinforce metalanguage used in the unit:** dollars, cents, coins, notes, money, less than, more than.**IWB:** viewing monetary images, Mathletics. | LEARNING SEQUENCERemediationES1  | * Only use single item flash cards, discuss each card with the students.
* Ask students to bring in a toy from home. Students then use a post it note to price their toy between $1.00 and $5.00. Set up a toy shop with that students can buy a toy from using pretend money, each student is given $5.00. Students take turns (in pairs) to be the cashier with teacher support as required.
 |
| LEARNING SEQUENCES1 | **Class discussion/Game:** Using money flash cards, students answer question posed by the teacher: “how much is this?” Students call out when they see the card (Use both 1 item per card and simple combinations such as 2 10c pieces). Other questions could include: is this dollars or cents? Is this a note or coin? What is this symbol?**Worksheet:** ‘More than and Less than’. Page 3,Targeting maths, year 1.**Investigation:** Give students 3 post it notes each. Ask them to write 3 prices on each post it note and then place their post it notes on items around the class room. As a whole class discuss the items selected and make 4 lists of the different items students priced. Divide the class into 4 groups. Each group is allocated one of the lists. Students then move around the classroom to locate the items on their list and write the price in their workbook.Students then work out the total cost of the items on their list.Conclude the lesson by discussing what students discovered about their list: what was the total cost of each list? Which list was the most expansive? Which was the cheapest? **Investigation:** In a large circle give each student a plastic cup containing the following coins: x10: 5c, 10c, 20c. x4: 50c and x5 $1, $2 coins. Hold up a written value and ask students to use their coins to create that value. Look at the different ways that student make up the total amount with coins and discuss. Highlight the idea that the total can be made up using different denominations.**Assessment:** Worksheet: Adding up values, downloadable from: [www.homeschoolmaths.net/worksheet-table-australian-money](http://www.homeschoolmaths.net/worksheet-table-australian-money)And observation and questioning throughout investigation lessons.  |
| LEARNING SEQUENCEExtension Early S2 |  |
| **EVALUATION & REFLECTION** |  |

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**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TERM:  | WEEK: 4 | STRAND: Number and Algebra | **SUB-STRAND:** Whole Numbers 1 | **WORKING MATHEMATICALLY:** MA1-1WM |
| OUTCOMES: MA1-4NA | **Applies place value, informally, to count, order, read and represent two- and three-digit numbers** |
| **CONTENT:**  | * Round numbers to the nearest ten
* Choose an appropriate strategy to solve problems, including trial and error and drawing a diagram
* Describe the number before as ‘one less than’ and the number after as ‘one more than’ a given number
 |
| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | Discussion and questioning students during the whole class discussion (written below). |
| WARM UP / DRILL | Guess who? Ask students to guess what number you have written on the white board (ensure students can’t see the number). Give the students a range eg it’s a number between 10 and 20. As each student predicts, reply with ‘the number I have is less than ….’ Or ‘the number I have is more than…’. If the number is close say ‘the number I have is one more than….’ Or ‘……one less than…’. Select students to come up the front to write a number for their peers to guess and answer questions using the language of more than and less than. |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  |  |
| QUALITY TEACHING ELEMENTS | **INTELLECTUAL QUALITY** | **QUALITY LEARNING ENVIRONMENT** | **SIGNIFICANCE** |
| * **Deep knowledge**
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 | * **Background knowledge**
* Cultural knowledge
* **Knowledge integration**
* Inclusivity
* **Connectedness**
* Narrative
 |
| RESOURCES | Worksheets: problem solving and rounding numbers, white board and markers, magazines, scissors, student workbooks. |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Explicitly communicate lesson outcomes and work quality.Teach and Review: How to round numbers up and down to the nearest 10. What numbers we round up and down. How to draw a diagram/pictures to help solve a number problem and why.**Define and reinforce metalanguage used in the unit:** nearest ten, more than, less than, rounding numbers, number before, number after.  | LEARNING SEQUENCERemediationES1  | * Use a vertical number line from 1-20 for Guess who game.
* Replace rounding numbers activity with ordering numerals activities such as hang it in the line or sandwich boards (from Sharon Tooney, Maths program ES1)
 |
| LEARNING SEQUENCES1 | **Worksheet:** ‘Problem solving, page 8, Targeting maths, year1’ . Explain to students before they begin, how they will draw the problem and then write about it.**Whole class discussion:** Draw a set of steps with 10 levels on the board. Write 0 at the bottom and 10 at the top. Then write 4 and 5 on the appropriate steps. Explain that when rounding numbers if the number is 4 or below we round it down to 0. Draw an arrow from 4 to 0 to demonstrate the direction of down. Explain that when rounding numbers if the number is 5 or more then we round the number up to 10. Draw an arrow from 5 to 10 to demonstrate rounding up. Write the number 3 on the board and ask students if we would round this number up to 10 or down to 0? Discuss. Write the number 7 and repeat the question. Discuss. Ask students to come up and write a number, then decide as a group if this number is rounded up or down.**Worksheet:** Mathletics, Numbers series C. Page 39, ‘Number Sense: Rounding’. Show the worksheet to the students, point out the steps at the top of the worksheet that can help them to work out if they go up or down.**Investigation:** In pairs students cut numbers out of magazines and paste them into 2 columns: column 1 is numbers we round down to 0 and column two is numbers we round up to 10. You can also extend students to numbers between 10 and 20.**Assessment:** Observation of student participation during lessons, questioning and results from worksheet. |
| LEARNING SEQUENCEExtension Early S2 | * Guess who: use numbers between 100 and 1000. Ask students to represent the number as being less than or more than using < and > on the board.
* Adapt rounding number discussion and activity to the nearest 100 rather than the nearest 10.
 |
| **EVALUATION & REFLECTION** |  |

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