



THE PRESIDENT'S
RECOVERY
PRIORITIES

Education

Ministry of
Education,
Science and
Technology

Lesson plans for
PRIMARY
Mathematics

2
CLASS

2
TERM

Foreword

Our country's future lies in the education of our children. The Government of Sierra Leone is committed to doing whatever it takes to secure this future.

As Minister of Education, Science and Technology since 2007, I have worked every day to improve our country's education. We have faced challenges, not least the Ebola epidemic which as we all know hit our sector hard. The Government's response to this crisis – led by our President – showed first-hand how we acted decisively in the face of those challenges, to make things better than they were in the first place.

One great success in our response was the publication of the Accelerated Teaching Syllabi in August 2015. This gave teachers the tools they needed to make up for lost time whilst ensuring pupils received an adequate level of knowledge across each part of the curriculum. The Accelerated Teaching syllabi also provided the pedagogical resource and impetus for the successful national radio and TV teaching programs during the Ebola epidemic.

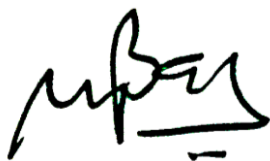
It is now time to build on this success. I am pleased to issue new lesson plans across all primary and JSS school grades in Language Arts and Mathematics. These plans give teachers the support they need to cover each element of the national curriculum. In total, we are producing 2,700 lesson plans – one for each lesson, in each term, in each year for each class. This is a remarkable achievement in a matter of months.

These plans have been written by experienced Sierra Leonean educators together with international experts. They have been reviewed by officials of my Ministry to ensure they meet the specific needs of the Sierra Leonean population. They provide step-by-step guidance for each learning outcome, using a range of recognised techniques to deliver the best teaching.

I call on all teachers and heads of schools across the country to make best use of these materials. We are supporting our teachers through a detailed training programme designed specifically for these new plans. It is really important that these Lesson Plans are used, together with any other materials you may have.

This is just the start of education transformation in Sierra Leone. I am committed to continue to strive for the changes that will make our country stronger.

I want to thank our partners for their continued support. Finally, I also want to thank you – the teachers of our country – for your hard work in securing our future.



Dr. Minkailu Bah

Minister of Education, Science and Technology

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Introduction to the Lesson Plan Manual

These lesson plans are based on the National Curriculum and meet the requirements established by the Ministry of Education, Science and Technology.

- 1  The lesson plans will not take the whole term, so use spare time to review material or prepare for exams
 - 2  Teachers can use other textbooks alongside or instead of these lesson plans.
 - 3  Read the lesson plan before you start the lesson. Look ahead to the next lesson, and see if you need to tell pupils to bring materials for next time.
 - 4  Make sure you understand the learning outcomes, and have teaching aids and other preparation ready – each lesson plan shows these using the symbols on the right.
 - 5  Quickly review what you taught last time before starting each lesson.
 - 6  Follow the suggested time allocations for each part of the lesson. If time permits, extend practice with additional work.
 - 7  Lesson plans have a mix of activities for the whole class and for individuals or in pairs.
 - 8  Use the board and other visual aids as you teach.
 - 9  Interact with all students in the class – including the quiet ones.
 - 10  Congratulate pupils when they get questions right! Offer solutions when they don't, and thank them for trying.
-  Learning outcomes
 Teaching aids
 Preparation

Lesson Title: Patterns in pictures involving subtraction	Theme: Algebra – Number Patterns - Subtraction	
Lesson Number: M-02-061	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson pupils will be able to recognise and make repeating patterns in pictures involving subtraction.	 Teaching Aids None	 Preparation Draw this pattern: 5 bananas 4 bananas 3 bananas 2 bananas
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Opening (2 minutes)

1. **Say:** We will now return to learning about patterns.
2. **Say:** In previous lessons, we learned to use patterns and addition together. Today we will learn to use patterns and subtraction together.

Introduction to the New Material (5 minutes)

1. Point to the drawing on the board.
2. **Say:** I have drawn a pattern on the board.
3. **Say:** It is a subtraction pattern.
4. **Say:** This group has 5 bananas. This group has 4 bananas. This group has 3 bananas. And this group has 2 bananas.
5. **Say:** As you can see in the pattern, I am subtracting one banana each time.
6. **Say:** Now I will complete the pattern.
7. Draw one banana.
8. **Say:** The pattern is minus one.
9. Write '-1' on the board.

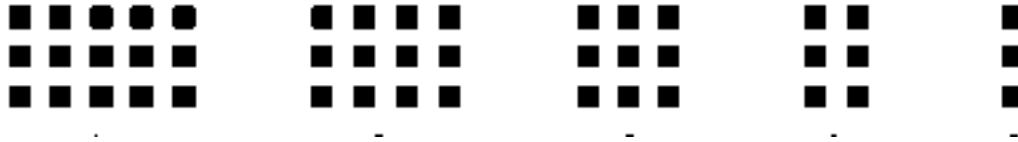
Guided Practice (12 minutes)

1. Draw the next pattern on the board:



2. **Say:** Here is another pattern.
3. **Say:** We will complete this pattern together.
4. **Say:** Let's count the number of squares together. The first set has: 1, 2, 3, 4, 5, 6, 7. 7 squares.
5. Write '7' under the first set of squares.
6. **Say:** Now let's count the next set of squares. 1, 2, 3, 4, 5. The second set has 5 squares.
7. Write '5' under the second set of squares.
8. **Say:** Now let's count the last set of squares. 1, 2, 3. The last set has 3 squares.
9. Write '3' under the last set of squares.
10. **Ask:** What is the subtraction pattern? (Answer: subtract 2 squares)

11. Write '-2'
12. **Say:** The pattern is - 2
13. Draw the next pattern:



14. **Say:** Here is a new pattern.
15. **Say:** We will complete this pattern together.
16. **Say:** Let's count the number of squares together. The first set has: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15. 15 squares.
17. Write '15' under the first set of squares.
18. **Say:** Now let's count the next set of squares. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12. The second set has 12 squares.
19. Write '12' under the second set of squares.
20. **Say:** Now let's count the next set of squares. 1, 2, 3, 4, 5, 6, 7, 8, 9. The third set has 9 squares.
21. Write '9' under the third set of squares.
22. **Say:** Now let's count the next set of squares. 1, 2, 3, 4, 5, 6. The fourth set has 6 squares.
23. Write '6' under the third set of squares.
24. **Say:** Now let's count the last set of squares. 1, 2, 3. The last set has 3 squares.
25. Write '3' under the third set of squares.
26. **Ask:** What is the subtraction pattern? (Answer: subtract 3 squares)
27. Write '-3'
28. **Say:** The pattern is - 3




Independent Practice (15 minutes)

1. **Say:** Now it is your turn to create your own subtraction patterns from the examples I have shown you.
2. **Say:** Once you have created a pattern, trade with your neighbour and continue the pattern they have started.
3. **Say:** You may create as many patterns to trade with your neighbour as time allows.
4. Walk around the room and assist pupils needing help.

Closing (1 minute)

1. **Say:** Today we have learned to make repeated patterns using pictures and subtraction. Next, we will learn about subtraction patterns with sound.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Patterns that involve subtraction using sound	Theme: Algebra – Number Patterns - Subtraction	
Lesson Number: M-02-062	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson pupils will be able to recognise and make repeating patterns that involve subtraction using sound.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

1. **Say:** In a previous lesson, we learned how to recognise and make repeating patterns using sound and addition.
2. Do the following: Clap... clap clap... Clap clap clap... clap clap clap clap.
3. **Say:** Today we will create more patterns using sound and subtraction.

Introduction to the New Material (4 minutes)

1. **Say:** I am going to make some sounds/actions that create a pattern. Watch carefully and see if you can spot the pattern. Once you spot the pattern, please join in.
2. Do the following: Clap clap clap clap clap clap clap (7)... Clap clap clap clap clap clap (6)... Clap clap clap clap clap (5)... Clap clap clap clap (4)... Clap clap clap (3)... Clap clap (2)... Clap (1).
3. **Ask:** What was the pattern? (Answer: Subtracting a clap every time.)
4. **Say:** This is an example of creating patterns using sound and subtraction.

Guided Practice (10 minutes)

1. **Say:** Now I will show you a new pattern.
2. Do the following: Clap stomp snap clap... Clap stomp snap... Clap stomp... Clap.
3. **Ask:** Did you spot the pattern? (Answer: Subtracting an action every time the pattern is performed.)
4. **Ask:** Here is a new pattern.
5. Do the following: Clap clap stomp clap clap... Clap clap stomp clap... Clap clap stomp...
6. **Ask:** What comes next in the pattern? (Answer: 2 claps and then 1 clap)
7. **Say:** In the pattern, I subtracted an action every time.
8. **Ask:** Who would like to share a pattern with the class?
9. Select a volunteer to demonstrate a pattern. Guide them to demonstrate a pattern using subtraction.
10. **Ask:** What was the pattern?
11. **Ask:** Who else would like to share a pattern with the class?
12. Select another volunteer, alternating between boys and girls, to demonstrate a pattern.
13. **Ask:** What was the pattern?




Independent Practice (13 minutes)

1. **Say:** Find a partner.
2. **Say:** You will take turns sharing patterns with subtraction with your partner. One of you will create a pattern and the other will have to guess what the pattern is.
3. **Say:** Once you have each taken a turn showing a pattern, choose one of the patterns to add words to.
4. Practise so you can show the class.

Closing (6 minutes)

1. Ask 6 pairs to volunteer to come to the front of the class and show the subtraction patterns with the sounds and words that they have created. Have the class guess the pattern.
2. **Say:** Well done, you all made very good subtraction patterns with sound. Thank you class. Pupils say: Thank you.

Lesson Title: Drawing patterns for number sequences that involve subtraction	Theme: Algebra – Number Patterns - Subtraction	
Lesson Number: M-02-063	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson pupils will be able to draw patterns for number sequences that involve subtraction.	 Teaching Aids 100 chart (at the end of the lesson).	 Preparation Create a 100 chart on the board.
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Opening (2 minutes)

1. Do the following: Clap, clap, clap, clap, clap, clap, clap (7)... clap, clap, clap, clap, clap (5)... clap clap (3)... clap (1)
2. **Say:** In the previous lesson, we learned how to recognise and make repeating patterns using sound and subtraction. Today we will use numbers and subtraction to create patterns.

Introduction to the New Material (5 minutes)

1. Write the following on the board: 9 ___ 7 ___ 5 ___ 3 ___ 1
2. **Say:** Here is an example of a number pattern involving subtraction.
3. **Say:** In this pattern, I have skipped a number. The first missing number is 8.
4. Write an 8 on the first line.
5. **Say:** The second missing number is 6.
6. Write a 6 on the second line.
7. **Say:** The third missing number is 4.
8. Write a 4 on the third line.
9. **Say:** The last missing number is 2.
10. Write a 2 on the last line.
11. **Say:** We have finished the pattern by adding the missing numbers. In this case, all the multiples of 2 were missing.

Guided Practice (8 minutes)

1. **Say:** Now we will complete the next pattern together.
2. Write: 28 24 20 ___ ___ ___ (three blank spaces)
3. **Ask:** Can anyone tell me what the pattern is? (Answer: subtracting by 4)
4. **Ask:** What is the next number in the pattern? Use the 100 chart if you need help. (Answer: 16)
5. Write 16 on the first line.
6. **Ask:** What is the next number in the pattern? (Answer: 12)
7. Write 12 on the second line.
8. **Ask:** What is the next number in the pattern? (Answer: 8)
9. Write 8 on the third line.
10. **Say:** In this pattern, we subtracted 4 from the previous number to continue our pattern.
11. **Say:** Now we will complete a new pattern together.

12. Write: 80 75 70 65 ____ ____ ____ (three blank spaces)
13. **Ask:** Can anyone tell me what the pattern is? (Answer: subtracting by 5)
14. **Ask:** What is the next number in the pattern? Use the 100-chart if you need help. (Answer: 60)
15. Write 60 on the first line.
16. **Ask:** What is the next number in the pattern? (Answer: 55)
17. Write 55 on the second line.
18. **Ask:** What is the next number in the pattern? (Answer: 50)
19. Write 50 on the third line.
20. **Say:** In this pattern, we subtracted 5 from the previous number to continue our pattern.

Independent Practice (15 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. **Say:** You will complete this activity on your own.
3. Write the following patterns on the board:
 - a. 29 27 ____ 23 ____ 19 17 ____ (Answer: 29, 27, **25**, 23, **21**, 19, 17, **15**)
 - b. 83 ____ 63 ____ 43 ____ ____ 13 ____ (Answer: 83, **73**, 63, **53**, 43, **33**, **23**, 13, 3)
 - c. 60 ____ 48 ____ 36 30 ____ 18 (Answer: 60, **54**, 48, **42**, 36, 30, **24**, 18)
 - d. 99 ____ 77 ____ 55 ____ 33 ____ 11 (Answer: 99, **88**, 77, **66**, 55, **44**, 33, **22**, 11)
4. **Say:** First, identify the pattern of the numbers. (Answers: a. subtract 2, b. subtract 10, c. subtract 6, d. subtract 11)
5. **Say:** Then fill in the missing numbers to complete the pattern. You may use the 100-chart to help you.
6. Give pupils 10 minutes to complete.
7. Ask 4 volunteers (2 boys and 2 girls) to write the missing numbers on the board.
8. **Say:** Check your answers are correct.




Closing (5 minutes)

1. **Say:** Today we learned how to complete patterns using numbers and subtraction.
2. **Ask:** What was your favourite pattern?
3. Ask 4 volunteers (2 boys and 2 girls) to share their favourite patterns.
4. **Say:** Well done. Thank you class. Pupils say: Thank you.

[100 CHART]

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Lesson Title: Finding and describing patterns out of the classroom – Lesson 1	Theme: Algebra – Number Patterns - Subtraction	
Lesson Number: M-02-064	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson pupils will be able to find and describe (verbally or through pictures) patterns outside the classroom.	 Teaching Aids None	 Preparation Make note of patterns inside the classroom.
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Opening (2 minutes)

1. **Say:** We have learned a lot about patterns in the last few weeks. Today, we are going to go on a hunt outside the classroom to look for patterns.

Introduction to the New Material (3 minutes)

1. **Say:** Before we go outside the classroom, let's see if we can spot any patterns inside the classroom.
2. Point out any patterns you identified inside the classroom. Describe the pattern.

Guided Practice (4 minutes)

1. **Say:** I will give you some instructions first before we go outside the classroom.
2. **Say:** Your task is to find patterns in the school, outside of the classroom.
3. **Say:** You must stay on the school grounds and be able to see me at all times.
4. **Say:** You cannot enter another classroom without asking the teacher first. We do not want to disrupt other classes.
5. **Say:** Once you have identified a pattern, draw what you see in your exercise book. Write down the location where you found the pattern.
6. **Say:** You may work with a partner or by yourself.
7. **Say:** When you hear my signal, please return to the classroom.
8. **Say:** Remember not to disrupt the other classes.
9. **Ask:** Are there any questions? (Answer any questions the pupils may have)

Independent Practice (18 minutes)




1. **Say:** Now we will start our hunt for patterns.
2. **Say:** If you need help, please find me. I will be walking around the school grounds with you.
3. Allow pupils to explore the school grounds hunting for patterns. Discuss patterns with the pupils as you walk around with them.

Closing (8 minutes)

1. Bring all the pupils back inside the classroom.

2. **Ask:** Who would like to share a pattern they found?
3. **Say:** Please come to the board and draw your pattern. Remember to tell us where you found it.
4. Allow 4 volunteers (2 boys and 2 girls) to share their patterns with the class.
5. **Say:** Well done. We found lots of patterns around our school today! Thank you class. Pupils say:
Thank you.

Lesson Title: Finding and describing patterns out of the classroom – Lesson 2	Theme: Algebra – Number Patterns - Subtraction	
Lesson Number: M-02-065	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of this lesson pupils will be able to find and describe (verbally or through pictures) patterns outside the classroom.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

1. **Ask:** Can anyone tell me what we did in our previous lesson? (Answer: We went on a pattern hunt.)
2. **Say:** In the previous lesson, we went on a pattern hunt outside of the classroom. Today, we will continue our search.

Introduction to the New Material (2 minutes)

1. **Say:** Remember that a pattern is something that repeats in the same way. You may find patterns in a building. You may find them on a tree. You may find them on the ground. Patterns are everywhere. Look carefully and try to find a pattern no one spotted last lesson.

Guided Practice (4 minutes)

1. **Say:** Here is a reminder of the instructions from yesterday.
2. **Say:** Your task is to find patterns in the school, outside of the classroom.
3. **Say:** You must stay on the school grounds and be able to see me at all times.
4. **Say:** You cannot enter another classroom without asking the teacher first. We do not want to disrupt other classes.
5. **Say:** Once you have identified a pattern, draw what you see in your exercise book. Write down the location of where you found the pattern.
6. **Say:** You may work with a partner or by yourself.
7. **Say:** When you hear my signal, please return to the classroom.
8. **Say:** Remember not to disrupt the other classes.
9. **Ask:** Are there any questions? (Answer any questions the pupils may have)




Independent Practice (15 minutes)

1. **Say:** Now we will continue our hunt for patterns.
2. **Say:** If you need help, please find me. I will be walking around the school grounds with you.
3. Allow pupils to explore the school grounds hunting for patterns. Discuss patterns with the pupils as you walk around with them.

Closing (12 minutes)

1. Bring all the pupils back inside the classroom.
2. **Ask:** Who would like to share a pattern they found?
3. **Say:** Please come to the board and draw your pattern. Remember to tell us where you found it.
4. Allow 6 volunteers (3 boys and 3 girls) to share their patterns with the class.
5. **Say:** Well done. Patterns are everywhere! Thank you, class. Pupils say: Thank you.

Lesson Title: Expressing and comparing areas in everyday language (review)	Theme: Measurement and Estimation – Areas and Mass	
Lesson Number: M-02-066	Class/Level: Class 2	Time: 35 minutes

 <p>Learning Outcomes By the end of the lesson pupils will be able to:</p> <ol style="list-style-type: none"> Express area in everyday language. Compare area in everyday language. 	 <p>Teaching Aids</p> <ol style="list-style-type: none"> Book (any size). 	 <p>Preparation None</p>
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Opening (2 minutes)

- Say:** In previous lessons, we learned how to measure the size and the perimeter of an object or space. Today we will learn about ‘area’ and how to describe and compare areas of items and spaces.

Introduction to the New Material (5 minutes)

- Say:** Before we learn about area, let’s review the math terms you already know.
- Say:** Length is the measurement of the long side of an object or space. We remember that length is the long side because they both begin with the letter L.
- Say:** Height is the measurement of how tall or how high an object is. We remember that height is related to high because they both begin with the letter H.
- Say:** A new math term for today is width. Width is how wide an object or space is. We can remember how wide width is because they both begin with the letter W.
- Say:** Area is the last new term we will learn today. Area is the measure of space inside a flat object or a flat place.

Guided Practice (11 minutes)

- Say:** Look at the top of your desk. Now look at this book. Think about the length of the book and the length of the desk. Think about the width of the book and the width of the desk.
- Ask:** Which has a greater area? Greater is the same thing as larger. (Answer: the desk)
- Say:** Yes, the desk. Both the length and width of the desk are larger than the length and width of the book.
- Say:** Now look the window of the classroom and look at this book.
- Ask:** Which has a smaller area? (Answer: the book)
- Say:** Yes, that’s correct, the book. The length of the window is bigger than the length of the book and the width of the window is wider than the width of the book.
- Say:** Now let’s talk about an even greater area. The classroom. Think about the floor of the classroom. It is a flat space.
- Ask:** Which has a greater area, the classroom floor or the window? (Answer: the classroom).

9. **Say:** Yes, the classroom definitely has a much greater area than the window.
10. **Say:** Now let's think about the classroom floor and the washroom floor. Which has a smaller area? (Answer: the washroom)
11. **Say:** Yes, that is correct. The washroom has a smaller area than the classroom.

Independent Practice (15 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following set of items on the board, read them aloud as you write:

hand or book

window or door

paper or seat

house or classroom

desk or door




head teacher's office or classroom

3. **Say:** Now it is your turn to compare the two items or spaces above. Think really hard about the area of both.
4. **Say:** Copy the words in your book. Circle the one you think is LARGER.
5. **Say:** Once you have completed the work, check your work with a friend to see if they came up with the same answers.

Closing (2 minutes)

1. **Say:** Today we learnt how to describe and use the correct terms for area. We also learned how to compare different areas. In the next lesson, we will learn how to estimate a small area by using non-standard units.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Estimation and measurement of small areas using non-standard units of measurement	Theme: Measurement and Estimation – Areas and Mass	
Lesson Number: M-02-067	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson pupils will be able to estimate small areas and measure small areas using non-standard units.	 Teaching Aids Small items to help measure an area.	 Preparation Collect any small items you can that can be used to measure area.
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Opening (2 minutes)

1. **Say:** In previous lessons, we learned how to talk about area and compare areas in everyday language. **Ask:** What are some of the words we used to compare area? (Example answers: larger, smaller)
2. **Say:** Today we will learn how to estimate and measure small areas using non-standard units of measurement.

Introduction to the New Material (5 minutes)

1. **Say:** First, let's review what non-standard units are.
2. **Say:** Look at your neighbour's hand. Compare your hand to their hand. Is it the same size?
3. The pupils should compare hand sizes either by putting hands next to each other or palm to palm. You may need to demonstrate this.
4. Most pupils will say, 'no.'
5. **Say:** Hands are non-standard units. They are not all the same size.
6. **Say:** Non-standard units are things we use to measure that may vary.
7. **Say:** What are some small non-standard units we can use to measure area?
8. Write the answers on the board. Encourage pupils to think small.
9. If they haven't thought of the following, write: hands, fingernails, thumbs, coins, corn kernels.

Guided Practice (11 minutes)

1. **Say:** Look at the top of your desk. We can choose a non-standard unit of measure and first estimate how many units it would take to fill up the whole area of the desk.
2. **Say:** Let's estimate using our hands. How many hands would it take to cover the whole desk?
3. Write 'estimate' on the board and the numbers suggested by 4 volunteers (2 boys and 2 girls).
4. **Say:** Now using our hands, let's measure how many hands it actually takes.
5. Demonstrate by placing hands on the desk and then moving one at a time while counting aloud. Do not measure the whole desk as you want pupils to measure it themselves.
6. **Say:** Use both hands and alternate them on your desk as you count like I have shown you. If you share a desk, you may use your hands and your desk mate's to measure together.
7. Give pupils a few minutes to measure their desks using their hands.

8. Once all pupils are finished, **ask:** How many hands did it take to cover your desk?
9. Write 'actual' on the board and the numbers.
10. **Ask:** Was the measurement close or far away from your estimate?




Independent Practice (15 minutes)

1. **Say:** Now it is your turn to make an estimate and measure an item.
2. **Say:** You will be working on your own to estimate how many thumbs it takes to cover your paper. Write the word 'estimate' and your number next to it.
3. **Say:** Once you have written down an estimate of the number of thumbs, use your thumbs and measure.
4. **Say:** Write the word 'actual' and your number next to it.
5. Give pupils 12 minutes to measure and write.
6. Ask 8 volunteers (4 boys and 4 girls) to share the number of thumbs it took to cover their page. Have the class raise their hands if they used the same number of thumbs.
7. **Say:** We had some different answers to the same problem. This is because our thumbs are not all the same size. Our unit of measure was 'non-standard'.

Closing (2 minutes)

1. **Say:** Today we learned how to estimate the number of non-standard units it would take to cover an item. Then we measured to get an actual number of non-standard units it would take to cover the same item.
2. **Say:** Well done, you measured area very well today. Thank you class. Pupils say: Thank you.

Lesson Title: Estimation and measurement of large areas using non-standard units of measurement	Theme: Measurement and Estimation – Areas and Mass	
Lesson Number: M-02-068	Class/Level: Class 2	Time: 35 minutes

 <p>Learning Outcomes By the end of the lesson pupils will be able to estimate large areas and measure large areas using non-standard units.</p>	 <p>Teaching Aids None</p>	 <p>Preparation</p> <ol style="list-style-type: none"> 1. Mark off a square or rectangular space outside the classroom with string or with rocks. 2. Make it large enough to fit at least three quarters of the class but not everyone.
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Opening (2 minutes)

1. **Say:** In our previous lesson, we learned how to estimate and measure small areas with non-standard units.
2. **Say:** Today we will learn how to estimate and measure large areas using non-standard units of measurement.

Introduction to the New Material (6 minutes)

1. **Say:** Yesterday we talked about what small non-standard units we could use to measure.
2. **Ask:** What were some of the units we talked about (Answers: Hands, fingernails, thumbs, coins, corn kernels and any others that were mentioned)
3. **Ask:** What are some larger non-standard units we could use to measure area?
4. Record responses on the board.
5. If pupils do not mention anything, you can suggest the following: Feet, cars, bodies, baskets, bicycles, etc.
6. **Say:** I'm going to make an estimate. I estimate that 150 people could fit inside my home.
7. **Ask:** Does that sound like a reasonable estimate? (Answer: no)
8. **Ask:** Why not? (Answer: There will not be enough space for 150 people in your home.)

Guided Practice (10 minutes)

1. **Say:** Let's start by estimating the area of our classroom.
2. **Ask:** How many pupils are in class today?
3. Write the answer on the board.
4. **Ask:** How many pupils would it take to cover the area of the classroom?
5. Write 'estimate' and then the numbers suggested by volunteers on the board.
6. **Ask:** How about bicycles? How many bicycles would it take to cover the classroom floor?
7. Write the estimates on the board.
8. **Ask:** What if we were to use cars as our non-standard unit? How many would it take to cover the classroom floor?

9. Write the estimates on the board.
10. **Ask:** How about monkeys? How many monkeys could we fit on the classroom floor?
11. **Ask:** What would be too big to fit inside the classroom?




Independent Practice (15 minutes)

1. **Say:** Now we will actually measure a large area together as a class.
2. **Say:** Follow me outside please.
3. When you get to the area you will measure, make sure pupils are not standing in it.
4. Point to the area you will measure and **Ask:** How many pupils do you think can fit in this area?
5. Have pupils share their estimates.
6. **Say:** Now we will measure the number of pupils it takes to fill the area.
7. **Say:** I will point to one pupil at a time and they will step into the area. The class will count as each pupil steps in.
8. Point to pupils and count aloud with the class until the area is full. Make sure it is not overfull.
9. **Say:** The number of pupils that it took to fill this space was _____.

Closing (2 minutes)

1. **Say:** Today we learned how to estimate and measure the number of non-standard units it would take to cover a large area. In the next lesson, we will begin learning about mass.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Expressing and comparing mass in everyday language (review)	Theme: Measurement and Estimation – Areas and Mass	
Lesson Number: M-02-069	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson pupils will be able to express and compare mass in everyday language.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

1. **Say:** We have been working on measuring and estimation. In our last two lessons, we learned how to estimate and measure small and large areas. **Ask:** What is 'area'? (Answer: Area is the measure of space inside a flat object or a flat place.)
2. **Say:** Today we will review how to express mass and we will practise comparing mass.

Introduction to the New Material (5 minutes)

1. **Say:** We will begin by reviewing the terms used to describe mass.
2. Write: Heavy Heavier
3. **Say:** Here are the words heavy and heavier. We use the word 'heavy' to describe when something weighs a lot, like a hippopotamus. A hippopotamus is heavy.
4. **Say:** The word 'heavier' is a word used to compare. We can say that a hippopotamus is heavier than a monkey. We know this is true because a monkey weighs less than a hippopotamus.
5. Write: Light Lighter
6. **Say:** Here are the words light and lighter. We use the word 'light' to describe when something weighs only a little, like a feather. A feather is light.
7. **Say:** The word 'lighter' is a word used to compare. We can say that a monkey is lighter than a hippopotamus. We know this is true because a hippopotamus weighs more than a monkey.

Guided Practice (14 minutes)

1. **Say:** Look at your desk. Now look at this book.
2. **Ask:** Which is lighter? (Answer: the book)
3. **Ask:** Why do you say the book is lighter? (Answer: Because the book weighs less than the desk/because the desk weighs more than the book.)
4. **Say:** Think about a tree and a basket.
5. **Ask:** Which is heavier? (Answer: a tree)
6. **Ask:** Why do you say it is heavier? (Answer: Because the tree weighs more than a basket/because the basket weighs less than the tree.)
7. **Ask:** What is lighter than a bicycle? (Example answer: a leaf)
8. **Ask:** What is heavier than an orange? (Example answer: a watermelon)
9. **Ask:** What is heavier than a shoe? (Example answer: a chair)
10. **Ask:** What is lighter than an antelope? (Example answer: a small bird)

Independent Practice (12 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following set of items on the board:

book or paper

desk or chair

pencil or paper

antelope or pupil

monkey or hippo




auto or bicycle

3. **Say:** Write these sets of words in your book.
4. **Say:** Working on your own, compare the two items and circle the one you think is HEAVIER.
5. **Say:** Once you have completed the assignment, check your work with a friend to see if they came up with the same answers.

Closing (2 minutes)

1. **Say:** Today we reviewed the words used to describe mass. We then learned how to compare mass for different items. In the next lesson, we will learn how to estimate large mass using non-standard units.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Estimation and measurement of a large mass using non-standard units of measurement	Theme: Measurement and Estimation – Areas and Mass	
Lesson Number: M-02-070	Class/Level: Class 2	Time: 35 minutes

 <p>Learning Outcomes By the end of the lesson pupils will be able to estimate and measure a large mass using non-standard units.</p>	 <p>Teaching Aids 1. A basket/bucket of rocks. 2. A wooden plank. 3. A wooden log or rounded tube.</p>	 <p>Preparation 1. Gather medium or large rocks in a basket/bucket. 2. A wooden plank no more than one metre that can be used as a scale. 3. A wooden log or rounded tube.</p>
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Opening (2 minutes)

1. **Say:** In our previous lesson, we reviewed how to express mass and we practised comparing mass.
2. **Ask:** What are some of the words we used to compare mass? (Answers: Heavy, heavier, light, lighter)
3. **Say:** Today we will learn how to estimate and measure a large mass using non-standard units.

Introduction to the New Material (3 minutes)

1. **Ask:** What are some items we could use as non-standard units of measurement for mass?
2. Record the responses from pupils on the board.
3. If they have not been mentioned you could suggest: Pupils, books, oranges, large rocks, etc.
4. **Say:** Remember when we estimate, we are making our best guess.
5. **Say:** I estimate that a hippopotamus weighs less than a pupil.
6. **Ask:** Does that sound like a good estimate? (Answer: no)
7. **Ask:** Why not? (Answer: Because a hippopotamus is much bigger than a pupil.)
8. **Say:** Then I will practise estimating mass along with you.

Guided Practice (10 minutes)

1. **Ask:** How many pupils do you estimate it would take to equal a hippopotamus?
2. Write the estimates on the board.
3. **Say:** Since we don't have a hippopotamus in our room, we will have to estimate and measure something smaller.
4. Point to the wooden plank.
5. **Say:** We are going to use this as a scale to measure the mass of an object.
6. **Say:** We are going to measure the objects using these stones. We will put the object on one end and the basket on the other. We will add stones until the scale is balanced.
7. **Ask:** How many stones will it take to equal one book?
8. Write the estimates on the board.

9. **Say:** Now we will measure.
10. Place the wooden plank on a round tube or piece of wood. Place the book at one end of the plank. Place the basket on the other end. A pupil may have to hold it so it does not fall off.
11. **Say:** Count with me as I place the stones in the basket.
12. Place the stones, one at a time, in the basket and count aloud.
13. When the scale is even or close to even, **Say:** The book weighs _____ stones.




Independent Practice (12 minutes)

1. **Say:** We will practise estimating mass by exploring the school.
2. **Say:** With a partner, you will walk around inside the school boundaries. Write the name of an item.
3. **Say:** Estimate the mass of that item using one of the non-standard units we have discussed.
4. **Say:** When you hear my signal you will return to the classroom.
5. Make sure to walk around and assist the pupils with their estimates.

Closing (8 minutes)

1. **Ask:** Who would like to share what they saw around the school and their estimation using non-standard units?
2. Ask volunteers who raise their hands to share their answers.
3. Once the pupil has given their estimate to the class, **Ask:** Does this estimate sound correct? Should it be more or less? Why?
4. Continue asking volunteers to share (alternating between boys and girls) until the time is up.
5. **Say:** Today we learned how to estimate and measure items made of a large mass. In the next lesson, we will learn how to measure items made of a small mass.
6. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Estimation and measurement of small mass using non-standard units of measurement	Theme: Measurement and Estimation – Areas and Mass	
Lesson Number: M-02-071	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson pupils will be able to estimate and measure a small mass using non-standard units.</p>		<p>Teaching Aids 1. Pebbles/small stones. 2. A flat wooden stick. 3. A rounded tube. 4. A piece of fruit.</p>		<p>Preparation 1. Gather some small pebbles or stones in a small cup or basket. 2. A flat wooden stick. 3. A rounded tube or a wooden log. 4. 1 piece of fruit.</p>
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Opening (2 minutes)

1. **Say:** In our previous lesson, we learned how to estimate and measure a large mass using non-standard units.
2. **Say:** Today we will learn how to estimate and measure a small mass using non-standard units.

Introduction to the New Material (3 minutes)

1. **Ask:** What are some items we could use as non-standard units of measurement to measure the mass of small items like a piece of fruit?
2. Record the responses from pupils on the board.
3. If they do not mention anything you could suggest: Pencils, pebbles/stones, corn kernels.
4. **Ask:** What does it mean to estimate? (Answer: To make a smart guess.)
5. **Say:** I estimate that a feather weighs more than a rock.
6. **Ask:** Does that sound like a good estimate? (Answer: no)
7. **Ask:** Why not? (Answer: Because feathers are very light.)
8. **Say:** Then I will practise estimating a small mass along with you today.

Guided Practice (10 minutes)

1. **Ask:** Let's do a survey. What do you think weighs more, a pencil or a piece of chalk?
2. Record the answers from pupils as tally marks on the board.
3. Tally up the marks and **Say:** _____ pupils think a pencil weighs more. ____ think a piece of chalk weighs more.
4. **Say:** Today we are using a smaller scale, as our items are smaller.
5. **Say:** I will place a pencil on one end and a piece of chalk on the other. The one that dips lower is heavier.
6. Place the wooden stick over the round tube or wooden log. Lay a pencil across one end and a piece of chalk across the other.
7. **Say:** Using the scale, the _____ weighs more.
8. **Say:** Let's estimate some other items.

9. **Say:** What do you think weighs more? This piece of fruit or this cup of pebbles?
10. Record the answers from pupils as tally marks on the board.
11. Tally up the marks and **Say:** _____ pupils think this piece of fruit weighs more. ____ think the cup of pebbles weighs more.
12. **Say:** I will place the piece of fruit on one end and the cup of pebbles on the other. The one that dips lower is heavier.
13. Place the wooden stick over the round tube or wooden log. Place the piece of fruit at one end and the cup of pebbles on the other.
14. **Say:** Using the scale, the _____ weighs more.




Independent Practice (12 minutes)

1. **Say:** We will practise estimating a small mass by exploring the school.
2. **Say:** With a partner, you will walk around inside the school boundaries. Write the name of a small item.
3. **Say:** Estimate the mass of that item using one of the non-standard units we have discussed.
4. **Say:** When you hear my signal you will return to the classroom.
5. Make sure to walk around and assist the pupils with their estimates.

Closing (8 minutes)

1. **Ask:** Who would like to share what they saw around the school and their estimation using non-standard units?
2. Ask a volunteer who raises their hand to answer.
3. Once the pupil has given their estimate to the class **Ask:** Does this estimate sound correct? Should it be more or less? Why?
4. Continue asking volunteers to answer (alternating between boys and girls) until the time is up.
5. **Say:** Today we learned how to estimate and measure items of a small mass. In the next lesson, we will learn how to compare and order areas using non-standard units.
6. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Comparing and ordering areas using non-standard units	Theme: Measurement and Estimation – Areas and Mass	
Lesson Number: M-02-072	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson pupils will be able to compare and order areas using non-standard units.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

- Say:** In our previous lessons, we learned how to estimate and measure small and large areas using non-standard units. **Ask:** What does the word ‘area’ mean? (Answer: Area is the measure of space inside a flat object or a flat place.)
- Say:** Today we will learn how to compare and order areas using non-standard units.

Introduction to the New Material (6 minutes)

- Ask:** What are some of the items we used as non-standard units of measurement for an area?
- Record the responses from pupils on the board.
- Say:** I’m now going to show you how to use one non-standard unit to compare multiple areas.
- On the board write: Book, chalkboard, desk
- Say:** Using the non-standard unit of a hand, I can look at a book and a desk and say with certainty that it will take more hands to cover the desk than the book.
- Say:** I can look at a desk and the chalkboard and say with certainty that it will take more hands to cover the chalkboard than the desk.
- Say:** Therefore, in order of largest to smallest I can say the following.
- Write: Chalkboard, desk, book
- Say:** The chalkboard is the largest, the desk is the second largest, and the book is the smallest.

Guided Practice (8 minutes)

- Ask:** Let’s do the next one together.
- Write: desk, classroom, paper
- Ask:** What non-standard unit should we use to compare?
- Say:** Using the unit _____, I can say that the desk is _____ than the classroom. (Answer: smaller)
- Say:** Using the unit _____, I can say that the classroom is _____ than the paper. (Answer: bigger)
- Ask:** Can someone share the order from smallest to largest?
- Write the order on the board. (Answer: paper, desk, classroom)




Independent Practice (12 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate
2. **Say:** Now it is your turn to work on your own and decide what order the items should go in.
3. **Say:** Copy down these items and put them in order from smallest to largest.
4. Write the following on the board:
paper, classroom, head teacher's office (Answer: paper, head teacher's office, classroom)
window, door, desk (Answer: desk, window, door)
village, school, house (Answer: house, school, village)
5. **Say:** Once you have written down the order you think they should go in, compare your answers with a friend.
6. **Say:** Once you have worked with a friend, write down as many items you can think of from the smallest area to the largest area.

Closing (7 minutes)

1. **Ask:** Who would like to share the items they thought up from smallest to largest? Ask 4 volunteers (2 girls and 2 boys) to share.
2. **Say:** In the next lesson, we will compare and order items by mass.
3. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Comparing and ordering mass using non-standard units	Theme: Measurement and Estimation – Areas and Mass	
Lesson Number: M-02-073	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson pupils will be able to compare and order mass using non-standard units.</p>		<p>Teaching Aids None</p>		<p>Preparation None</p>
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Opening (2 minutes)

1. **Say:** In our previous lessons, we learned how to compare and order an area using non-standard units.
2. **Say:** Today we will learn how to compare and order mass using non-standard units.

Introduction to the New Material (6 minutes)

1. **Ask:** What are some of the items we used as non-standard units of measurement for mass?
2. Record the responses from pupils on the board.
3. **Say:** I'm now going to show you how to use one non-standard unit to compare multiple items of mass.
4. On the board write: Chair, pupil, book
5. **Say:** Using the non-standard unit of an orange, I can look at a book and a chair and say with certainty that it will take more oranges to equal the weight of a chair than the weight of a book.
6. **Say:** I can look at a chair and a pupil and say with certainty that it will take more oranges to equal the weight of pupil than the weight of a chair.
7. **Say:** Therefore, in order of heaviest to lightest.
8. Write: Pupil, chair, book
9. **Say:** The pupil weighs the most, the chair weighs the second most and the book weighs the least.

Guided Practice (8 minutes)

1. **Ask:** Let's do the next one together.
2. Write: Hippopotamus, pupil, orange
3. **Ask:** What non-standard unit should we use to compare?
4. **Say:** Using the unit _____, I can say that the hippopotamus weighs _____ than the pupil. (Answer: more)
5. **Say:** Using the unit _____, I can say that the pupil weighs _____ than the orange. (Answer: more)
6. **Ask:** Can someone share the order from lightest to heaviest?
7. Write the order on the board. (Answer: orange, pupil, hippopotamus)




Independent Practice (12 minutes)

1. **Say:** Now it is your turn to work on your own and decide what order the items should go in.
2. **Say:** Copy down these items and put them in order from lightest to heaviest.
3. **Write:** paper, lime, bicycle (Answer: Paper, lime, bicycle)
mango, car, desk (Answer: mango, desk, car)
book, broom, banana (Answer: book, banana, broom)
4. **Say:** Once you have written down the order you think they should go in, compare your answers with a friend.
5. **Say:** Once you have worked with a friend, write down as many items as you can think of from lightest to heaviest.

Closing (7 minutes)

1. **Ask:** Who would like to share the items they thought up from lightest to heaviest. Ask 4 volunteers (2 boys and 2 girls) to share their list.
2. **Say:** In the next lesson, we will be solving word problems involving areas.
3. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Word problems involving areas using non-standard units	Theme: Measurement and Estimation – Areas and Mass	
Lesson Number: M-02-074	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson pupils will be able to solve word problems involving area using non-standard units.	 Teaching Aids 100 chart (at the end of the lesson).	 Preparation Create a 100 chart on the board.
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Opening (2 minutes)

1. **Say:** In our previous lessons, we have been working a lot with numbers and area. Today we will be working with words and area to solve problems.

Introduction to the New Material (6 minutes)

1. **Say:** First, I will demonstrate how to solve an area word problem using non-standard units and then we will solve the next ones together.
2. **Say:** This classroom can fit 100 pupils. The classroom next door can fit 75 pupils. Which classroom has a larger area? (Answer: this classroom)
3. **Say:** Just from listening to the question we can guess which one is larger, but we need to verify this. We can tell by the words that we need to find the difference in the two rooms. Therefore, we need to subtract.
4. Write: $100 - 75 =$
5. **Say:** Using the 100 chart, we start at 100. We then take away 70 and we are at 30. We take away 5 more and we are at 25.
6. Finish the equation. $100 - 75 = 25$
7. **Say:** This classroom is larger and can hold 25 more pupils.

Guided Practice (10 minutes)

1. **Say:** Let's do the next one together.
2. **Say:** Aminata's family's land can fit 15 houses. Her grandfather's land can fit 25 houses. Which land has a larger area and by how many houses?
3. **Ask:** Is this an addition or a subtraction question? (Answer: subtraction)
4. Write: $25 - 15 =$
5. **Say:** Here is the equation for the word problem.
6. **Ask:** Can someone share the answer with me? (Answer: 10)
7. **Ask:** How did you figure out the answer? (Pupils' explanations will vary)
8. **Say:** We will do one more together.
9. **Say:** Tamba can fit 35 chickens in the pen on his land. Tamba's uncle can fit 63 chickens in the pen on his land. How many chickens can they fit in all?
10. **Ask:** Is this an addition or subtraction question? (Answer: addition)
11. Write: $35 + 63 =$

12. **Say:** Here is the equation for the word problem.
13. **Ask:** Can someone share the answer with me? (Answer: 98)
14. **Ask:** How did you figure out the answer? (Pupil explanations will vary)

Independent Practice (12 minutes)

1. **Say:** Now you will work with a partner.
2. **Say:** Your task is to create a word problem together involving area. Write down any important details of the problem.
3. **Say:** Once you and your partner have created a problem, swap questions with another pair.
4. **Say:** Work out the problem given to you on a piece of paper. Check and see if you have the correct answer. If not, please try again.
5. **Say:** Find a new pair to share with if there is enough time and both pairs have solved the problems correctly.




Closing (5 minutes)

1. **Ask:** Which pair would like to share their problem with the class?
2. **Say:** In the next lesson, we will be solving word problems involving mass.
3. **Say:** Well done. Thank you class. Pupils say: Thank you.

[100 CHART]

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Lesson Title: Word problems involving mass using non-standard units	Theme: Measurement and Estimation – Areas and Mass	
Lesson Number: M-02-075	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson pupils will be able to solve word problems involving mass using non-standard units.	 Teaching Aids 100 chart (at the end of the lesson).	 Preparation Create a 100 chart on the board.
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Opening (2 minutes)

1. **Say:** In our previous lessons, we solved word problems involving area and non-standard units. Today we will solve word problems involving mass.

Introduction to the New Material (6 minutes)

1. **Say:** First, I will demonstrate how to solve a mass word problem using non-standard units and then we will solve the next ones together.
2. **Say:** The largest tree branch on the right side of the tree can hold 23 pupils at one time. The largest tree branch on the left side of the tree can hold 45 pupils at one time. Which tree branch can hold more mass? (Answer: left)
3. **Say:** Just from listening to the question, we can guess which tree branch can hold more mass, but we need to verify this. We can tell by the words that we need to find the difference in the two branches. Therefore, we need to subtract.
4. Write: $45 - 23 =$
5. **Say:** Using the 100-chart, we start at 45. We then take away 20 and we are at 25. We take away 3 more and we are at 22.
6. Finish the equation. $45 - 23 = 22$
7. **Say:** The tree branch on the left side can hold 22 more pupils.

Guided Practice (10 minutes)

1. **Say:** Let's do the next one together.
2. **Say:** Mity's basket can hold 33 oranges before it breaks. Zinab's basket can hold 29 oranges before it breaks. Which basket can hold more mass?
3. **Ask:** Is this an addition or a subtraction question? (Answer: subtraction)
4. Write: $33 - 29 =$
5. **Say:** Here is the equation for the word problem.
6. **Ask:** Can someone share the answer with me? (Answer: 4)
7. **Ask:** How did you figure out the answer? (Pupils' explanations will vary)
8. **Say:** We will do one more together.
9. **Say:** Musa can carry 15 kilos of rice. Jusu can carry 16 kilos of rice. How much mass of rice can they carry all together?
10. **Ask:** Is this an addition or subtraction question? (Answer: addition)

11. Write: $15 + 16 =$
12. **Say:** Here is the equation for the word problem.
13. **Ask:** Can someone share the answer with me? (Answer: 31)
14. **Ask:** How did you figure out the answer? (Pupils' explanations will vary)

Independent Practice (12 minutes)

1. **Say:** Now you will work with a partner.
2. **Say:** Your task is to create a word problem together involving mass. Write down any important details of the problem.
3. **Say:** Once you and your partner have created a problem, swap with another pair.
4. **Say:** Work out the problem given to you on a piece of paper. Check and see if you have the correct answer. If not, please try again.
5. **Say:** Find a new pair to share with if there is enough time and both pairs have solved the problems correctly.




Closing (5 minutes)

1. **Ask:** Which pair would like to share their problem with the class?
2. Have pairs of pupils come to the front of the class to share their word problems.
3. **Say:** Well done, you solved word problems involving mass using non-standard units. Thank you class. Pupils say: Thank you.

[100 CHART]

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Lesson Title: Counting from 0 – 1,000 forward	Theme: Number and Numeration – Knowing and understanding numbers to 1,000	
Lesson Number: M-02-076	Class/Level: Class 2	Time: 35 minutes

 <p>Learning Outcomes By the end of the lesson pupils will be able to:</p> <ol style="list-style-type: none"> 1. Count forward from 0-1,000 from any number. 2. Recognise numbers up to 1,000. 	 <p>Teaching Aids None</p>	 <p>Preparation None</p>
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Opening (4 minutes)

1. **Ask:** What is the largest number you know?
2. Record the answers provided on the board.

Introduction to the New Material (10 minutes)

1. **Say:** Today we are going to learn how to count all the way to 1,000!
2. **Say:** You already know how to count to 100; the number 1,000 has one more zero!
3. **Say:** First, we will start by counting by 100s.
4. Write the number and then say aloud. 100 200 300 400 500 600 700 800 900 1000
5. **Say:** Do you hear the pattern? One-hundred and then two-hundred? Only the first word changes until we get to one-thousand.
6. **Say:** Now that you know how to count by hundreds, we can add the tens and ones. You will remember this from the 100 chart that we have.
7. Write this number on the board: 56
8. **Ask:** What is this number? (Answer: 56)
9. **Ask:** Did you know that I can add 200 to it and make it two hundred and fifty-six?
10. Write a 2 in front of the 56 so it looks like this: 256
11. **Say:** I can make an even bigger number!
12. Erase the 2 and replace it with an 8 so it reads: 856
13. **Say:** Now it says eight hundred and fifty-six.
14. **Say:** I have changed the number in the hundreds place from a 2 to an 8.
15. **Say:** Now all I have to do is count like I would on the 100 chart.
16. Write the number and say aloud: 856, 857, 858, 859, 860
17. **Say:** I could keep counting all the way to 1,000!
18. **Say:** Now we will practise together.

Guided Practice (10 minutes)

1. **Say:** Write the number six-hundred on your paper.
2. Give pupils a minute and then write: 600 on the board.

3. **Say:** Raise your hand if you wrote the same as I did.
4. **Ask:** What number comes after 600? (Answer: 601)
5. **Say:** Write the number three hundred and twenty-three on your paper. Pay attention to the first word I said.
6. Give students a minute and then write: 3 2 3
7. Point to the 3 in the hundreds place.
8. **Say:** This 3 is in the hundreds place. It represents the number three-hundred.
9. Write 'hundred' under the first three. Point to the 2 in the tens place.
10. **Say:** This 2 is in the tens place. It represents the number twenty.
11. Write 'tens' under the two.
12. Point to the 3 in the ones place.
13. **Ask:** What place is this three in? (Answer: the ones place)
14. **Ask:** What number does it represent? (Answer: 3)
15. Write 'ones' under the second 3.
16. It should look like this:

3	2	3
hundreds	tens	ones
17. **Ask:** What number comes after 323? (Answer: 324)
18. Write: 324
19. **Ask:** Can you count up the next 6 numbers for me? (Answer: 325, 326, 327, 328, 329, 330)
20. **Say:** Now it is your turn to practise.




Independent Practice (10 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. **Say:** You will be working on your own to practise counting large numbers.
3. Write the following numbers on the board in a list:
 - 457 (Answer: 458, 459, 460, 461, 462)
 - 762 (Answer: 763, 764, 765, 766, 767)
 - 219 (Answer: 220, 221, 222, 223, 224)
 - 978 (Answer: 979, 980, 981, 982, 983)
 - 525 (Answer: 526, 527, 528, 529, 530)
4. **Say:** Write these numbers on your paper.
5. **Say:** Then write the next 5 numbers after each number. Be careful and check your work!
6. Walk around the class and help any pupils needing assistance. Give pupils 9 minutes to write the numbers. Ask pupils to hold up their work for you to see.

Closing (1 minute)

1. **Say:** You have learned to count forward to 1,000. In the next lesson, we will count backwards from 1,000.
2. **Say:** Well done, you counted very well today. Thank you class. Pupils say: Thank you.

Lesson Title: Counting from 1,000 – 0 backwards	Theme: Number and Numeration – Knowing and understanding numbers to 1,000	
Lesson Number: M-02-077	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson pupils will be able to count backwards from 1,000 from any number.	 Teaching Aids None	 Preparation None
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Opening (4 minutes)

1. **Say:** In the previous lesson, we learned how to count forward from any number, up to 1,000.
2. **Say:** Let's count together from 842. Count with the pupils to 900.
3. **Say:** Today we will learn how to count backwards from 1,000.

Introduction to the New Material (10 minutes)

1. **Say:** First, we will start by counting backwards from 1,000 by hundreds.
2. Write the number and then say aloud. 900 800 700 600 500 400 300 200 100 0
3. **Say:** Do you hear the pattern? Again, only the first word changes until we get to zero.
4. **Say:** Now that you know how to count by hundreds, we can add the tens and ones. You will remember this from the 100 chart we have.
5. Write this number on the board: 856
6. **Ask:** What is this number? (Answer: eight hundred and fifty-six)
7. **Ask:** Did you know I can subtract 100 to it and make it seven hundred and fifty-six?
8. Write: 756
9. **Say:** I have changed the number in the hundreds place from an 8 to a 7.
10. **Say:** Now all I have to do is count backwards like I would on the 100 chart.
11. Write the number and say aloud: 756, 755, 754, 753, 752, 751, 750
12. **Say:** I could keep counting all the way to 0.
13. **Say:** Now we will practise together.

Guided Practice (10 minutes)

1. **Say:** Write the number nine-hundred on your paper.
2. Give students a minute and then write: 900
3. **Say:** Raise your hand if you wrote the same as I did.
4. **Ask:** What number is one less than 900? (Answer: 899).
5. Write 8 9 9 on the board.
6. Point to the 8 in the hundreds place.
7. **Say:** This 8 is in the hundreds place. It represents the number eight-hundred.
8. Write 'hundreds' under the eight.
9. Point to the 9 in the tens place.
10. **Say:** This 9 is in the tens place. It represents the number ninety.

11. Write 'tens' under the nine.
12. Point to the 9 in the ones place.
13. **Ask:** What place is this nine in? (Answer: the ones place)
14. **Ask:** What number does it represent? (Answer: 9)
15. Write 'ones' under the second 9.
16. It should look like this:

8	9	9
hundreds	tens	ones
17. **Ask:** What number is one less than 899? (Answer: 898)
18. Write: 898
19. **Ask:** Can you count down the next 6 numbers for me? (Answer: 897, 896, 895, 894, 893, 892)
20. **Say:** Now it is your turn to practise.




Independent Practice (10 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. **Say:** You will be working on your own to practise.
3. Write the following numbers on the board in a list:
 - 357 (Answer: 356, 355, 354, 353, 352)
 - 862 (Answer: 861, 860, 859, 858, 857)
 - 419 (Answer: 418, 417, 416, 415, 414)
 - 778 (Answer: 777, 776, 775, 774, 773)
 - 535 (Answer: 534, 533, 532, 531, 530)
4. **Say:** Please write these numbers on your paper.
5. **Say:** Then count backwards five numbers from each number and write them on your paper.
6. **Say:** Be careful and check your work!
7. Walk around the class and help any pupils needing assistance.

Closing (1 minute)

1. **Say:** You have learned to count forward and backward to and from 1,000. In the next lesson, we will be using multiples of 2 to count up to 1,000.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Counting in multiples of 2 from 0-1,000	Theme: Number and Numeration – Knowing and understanding numbers to 1,000	
Lesson Number: M-02-078	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson pupils will be able to count in multiples of 2 from 0 – 1,000 from any number.</p>		<p>Teaching Aids 100 chart (at the end of the lesson).</p>		<p>Preparation Create a 100 chart on the board.</p>
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Opening (2 minutes)

1. **Say:** In our previous lessons, we learned how to count backward and forward to and from 1,000.
2. **Say:** Today we will learn to count by 2s up to 1,000.

Introduction to the New Material (7 minutes)

1. **Say:** First, let's practise counting by 2s again as we did in one of our earlier lessons.
2. **Say:** Please say the number as I point to it.
3. Start at 0 and go up to 50 pointing to only the even numbers.
4. **Say:** From here, I could go all the way up to 100.
5. **Say:** I can count from any number by 2s, up to 1000.
6. **Say:** I will start at 400 and count by 2s to 450.
7. Write: 400
8. **Say:** Now I will count by 2s. Count with me.
9. Say the number as you write it down: 402, 404, 406, 408, 410, 412... (Count up to 450)
10. **Say:** We can start from any number and count up to 1,000 by 2s.

Guided Practice (10 minutes)

1. **Say:** Now we will work on this together.
2. Write 250 – 280 on the board.
3. **Say:** We will count from 250 to 280 by 2s.
4. **Say:** Begin by writing 250 on your paper.
5. **Say:** Now as we count by 2s to 280, write the number we say on your paper.
6. **Say:** 250, 252, 254, 256, 258, 260, 264, 266, 268, 270, 272, 274, 276, 278, 280
7. Make sure you are writing the numbers down as the class says the number. Make sure you give them time to write the number before going on to the next one.

Independent Practice (15 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. **Say:** Now you will be working on your own to practise.
3. Write the following sets of numbers on the board:

120 - 140 830 – 852 440 - 464 314 - 340

4. **Say:** Choose one of the sets of numbers and write it on your paper.
5. **Say:** Starting with the first number, count by 2s and write all the numbers until you get to the second number.
6. **Say:** Be careful and check your work!
7. When you finish one set of numbers, you can choose another set.
8. Walk around the class and help any pupils needing assistance.




Closing (1 minute)

1. **Say:** Today we learned to count up to 1,000 by 2s. In the next lesson, we will learn to count to 1,000 by 5s.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

[100 CHART]

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Lesson Title: Counting in multiples of 5 from 0-1,000	Theme: Number and Numeration – Knowing and understanding numbers to 1,000	
Lesson Number: M-02-079	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson pupils will be able to count in multiples of 5 from 0 – 1,000 from any number.	 Teaching Aids 100 chart (at the end of the lesson).	 Preparation Create a 100 chart on the board.
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Opening (2 minutes)

1. **Say:** In our previous lesson, we learned how to count forward to 1,000 by 2s.
2. **Say:** Let's count together by 2s from 568. Count with the pupils up to 600.
3. **Say:** Today we will learn to count by 5s up to 1,000.

Introduction to the New Material (7 minutes)

1. **Say:** First, let's practise counting by 5s again as we did in one of our earlier lessons.
2. **Say:** Say the number as I point to it. We will start at 25 on the 100-chart.
3. Start at 25 and go up to 80 by 5s.
4. **Say:** I can count from any number by 5s, up to 1000.
5. **Say:** I will start at 520 and count by 5s to 580.
6. Write: 520
7. **Say:** Now I will count by 5s. Count with me.
8. Say the number as you write it down: 520, 525, 530, 535, 540, 545, 550, 555, 560, 565, 570, 575, 580
9. **Say:** We can start from any number and count up to 1,000 by 5s.

Guided Practice (10 minutes)

1. **Say:** Now we will work on this together.
2. Write 355 – 430 on the board.
3. **Say:** We will count from 355 to 430 by 5s.
4. **Say:** Begin by writing 355 on your paper.
5. **Say:** Now as we count by 5s to 430, write the number we say on your paper.
6. **Say:** 355, 360, 365, 370, 375, 380, 385, 390, 395, 400, 405, 410, 415, 420, 425, 430
7. Make sure you are writing the numbers down as the class says the number. Make sure you give them time to write the number before going on to the next one.

Independent Practice (15 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. **Say:** Now you will be working on your own to practise.
3. Write the following sets of numbers on the board:

100 - 180 805 – 860 725 - 790 205 - 230

4. **Say:** Choose one of these sets of numbers and write it on your paper.
5. **Say:** Starting with the first number, count by 5s and write all the numbers until you get to the second number.
6. **Say:** Be careful and check your work!
7. **Say:** When you finish one set, you can choose another set.
8. Walk around the class and help any pupils needing assistance.




Closing (1 minute)

1. **Say:** Today we learned to count up to 1,000 by 5s. In the next lesson, we will learn to count to 1,000 by 10s.
2. **Say:** Well done, you are very good at counting! Thank you class. Pupils say: Thank you.

[100 CHART]

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Lesson Title: Counting in multiples of 10 from 0-1,000	Theme: Number and Numeration – Knowing and understanding numbers to 1,000	
Lesson Number: M-02-080	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of this lesson pupils will be able to count in multiples of 10 from 0 – 1,000 from any number.	 Teaching Aids 100 chart (at the end of the lesson).	 Preparation Create a 100 chart on the board.
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Opening (2 minutes)

1. **Say:** In the previous lesson, we learned how to count forwards to 1,000 by 5s.
2. **Say:** Let's count together by 5s from 440. Count with the pupils by 5s to 550.
3. **Say:** Today we will learn to count by 10s up to 1,000.

Introduction to the New Material (7 minutes)

1. **Say:** First let's practise counting by 10s again as we did in one of our earlier lessons.
2. **Say:** Say the number as I point to it. We will start at 10 on the 100-chart.
3. Start at 10 and go up to 100.
4. **Say:** I can count from any number by 10s, up to 1000.
5. **Say:** I will start on 320 and count by 10s to 440.
6. Write: 320
7. **Say:** Now I will count by 10s. Count with me.
8. Say the number as you write it down: 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440
9. **Say:** We can start from any number and count up to 1,000 by 10s.

Guided Practice (10 minutes)

1. **Say:** Now we will work on this together.
2. Write 880 – 1,000 on the board.
3. **Say:** We will count from 880 to 1,000 by 10s.
4. **Say:** Begin by writing 880 on your paper.
5. **Say:** Now as we count by 10s to 1,000, write the number we say on your paper.
6. **Say:** 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1,000
7. Make sure you are writing the numbers down as the class says the number. Make sure you give them time to write the number before going on to the next one.

Independent Practice (15 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. **Say:** Now you will be working on your own to practise.
3. Write the following sets of on the board:

100 - 200 820 – 910 730 - 860 210 - 330

4. **Say:** Choose one of the sets and write the numbers on your paper.
5. **Say:** Starting with the first number, count by 10s and write all the numbers until you get to the second number.
6. **Say:** Be careful and check your work!
7. **Say:** When you have finished one set, you can choose another set of numbers.
8. Walk around the class and help any pupils needing assistance.




Closing (1 minute)

1. **Say:** Today we learned to count up to 1,000 by 10s. In the next lesson, we will learn to read and write numerals and words up to 1,000.
2. **Say:** Well done. You can now count forwards and backwards between 0 and 1,000 by 1s, 2s, 5s and 10s! Thank you class. Pupils say: Thank you.

[100 CHART]

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Lesson Title: Reading and writing numerals in words up to 1,000	Theme: Numbers and Numeration – Reading/Writing/Ordering up to 1,000	
Lesson Number: M-02-081	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson, pupils will be able to read and write numbers up to 1,000 in words.</p>		<p>Teaching Aids None</p>		<p>Preparation 1. Write the words for multiples of one-hundred up to 1,000 (words only, not numerals). 2. Write the words for multiples of 10 up to 100 on the board.</p>
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Opening (2 minutes)

1. **Say:** In one of our earliest lessons, we learned to read and write numbers up to 100. Today, we will learn to read and write numbers up to 1,000.

Introduction to New Material (8 minutes)

1. Point to the words 'one hundred' on the board. Write the number 100 next to them.
2. **Say:** These are the words for 'one hundred'. These are the numerals for 100.
3. Point to the words 'two hundred' on the board. Write the number 200 next to them.
4. **Say:** These are the words for 'two hundred'. These are the numerals for 200.
5. Point to the words 'three hundred' on the board. Write the number 300 next to them.
6. **Say:** These are the words for 'three hundred'. These are the numerals for 300.
7. Point to the words 'four hundred' on the board. Write the number 400 next to them.
8. **Say:** These are the words for 'four hundred'. These are the numerals for 400.
9. Point to the words 'five hundred' on the board. Write the number 500 next to them.
10. **Say:** These are the words for 'five hundred'. These are the numerals for 500.
11. Point to the words 'six hundred' on the board. Write the number 600 next to them.
12. **Say:** This is the word for 'six hundred'. These are the numerals for 600.
13. Point to the word 'seven hundred' on the board. Write the number 700 next to them.
14. **Say:** This is the word for 'seven hundred'. These are the numerals for 700.
15. Point to the words 'eight hundred' on the board. Write the number 800 next to them.
16. **Say:** These are the words for 'eight hundred'. These are the numerals for 800.
17. Point to the words 'nine hundred' on the board. Write the number 900 next to them.
18. **Say:** These are the words for 'nine hundred'. These are the numerals for 900.
19. Point to the words 'one thousand' on the board. Write the number 1,000 next to them.
20. **Say:** These are the words for 'one thousand'. These are the numerals for 1,000.
21. **Say:** As you will see, these numbers do not require a hyphen in between them, like the numbers under 100 do.

Guided Practice (12 minutes)

1. **Say:** We learned the new words and numerals. Now, let's put them together with what we learned previously about numbers under 100. With numbers under 100, when there are 2 words, they must be separated by a hyphen.
2. Write '22' on the board. **Say:** 22.
3. Write 'twenty-two'. **Say:** Now we will make the number 522.
4. Write '522' on the board. **Say:** Five hundred and twenty-two.
5. Write 'five hundred and twenty-two' on the board. Underline the words 'five' and 'hundred'. Underline the number 5.
6. **Say:** You will see the words 'five' and 'hundred' written here, and you will see the numeral written here.
7. Underline the words 'twenty-two' and underline 22 in the number.
8. **Say:** You will see the words for twenty-two written here and the numerals written here. Together, they make up the words for the number 522.
9. **Say:** Let's do another one together.
10. Write '636' on the board. **Ask:** What is this number? (Answer: six hundred and thirty-six)
11. **Ask:** What words come first? (Answer: six hundred)
12. Write 'six hundred' on the board.
13. **Ask:** What words come next? (Answer: thirty-six)
14. Write 'thirty-six' on the board.
15. **Say:** The number 636 can be written with the words 'six hundred and thirty-six'.




Independent Practice (12 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following numbers on the board:
486 (Answer: four hundred and eighty-six)
721 (Answer: seven hundred and twenty-one)
980 (Answer: nine hundred and eighty)
339 (Answer: three hundred and thirty-nine)
163 (Answer: one hundred and sixty-three)
547 (Answer: five hundred and forty-seven)
3. **Say:** Write the words that match the numbers. Work on your own.
4. **Say:** When you are finished with your work, find a friend. Read the numbers and the words aloud together with your friend.

Closing (1 minute)

1. **Say:** Today you learned how to read and write numerals up to 1,000. In the next lesson, we will learn more about numerals and place value.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Writing numbers in words from 100 - 500 as numerals using place value	Theme: Numbers and Numeration – Reading/Writing/Ordering up to 1,000	
Lesson Number: M-02-082	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson, pupils will be able to write and read numerals from 0 – 1,000 using place value.</p>		<p>Teaching Aids Place Value Chart (at the end of the lesson).</p>		<p>Preparation Draw a Place Value Chart on the board.</p>
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Opening (2 minutes)

1. **Say:** In our previous lesson we learned to read and write numbers up to 1,000 in words. Today, we will learn to read and write numbers up to 1,000 using place value.

Introduction to New Material (8 minutes)

1. Point to the place value chart on the board.
2. **Say:** This is the thousands place. When we have a number that has the word thousand in it, the number goes here in this place.
3. Point to the second line and the word ‘hundreds’.
4. **Say:** This is the hundreds place. When we have a number that has the word hundred in it, the number goes right here in this place.
5. Point to the third line and the word ‘tens’
6. **Say:** This is the tens place. You are familiar with this place already. When we have a number that is ten or ends with –ty, such as thirty or fifty, the number goes right here in this place.
7. Point to the fourth line and the word ‘ones’.
8. **Say:** This is the ones place. You know this place well. Any number that is less than ten goes right here in this place.
9. Write 965 in the Place Value Chart.
10. Point to the nine. **Say:** The 9 is in the hundreds place.
11. Point to the six. **Say:** The 6 is in the tens place.
12. Point to the five. **Say:** The 5 is in the ones place.
13. **Say:** The number is nine hundred and sixty-five.

Guided Practice (10 minutes)

1. **Say:** Now let’s work on it together.
2. Erase the numbers in the place value chart but leave the lines and the words.
3. **Say:** Our new number is 831.
4. **Ask:** Where should I put the 8 in the place value chart? (Answer: In the hundreds place.)
5. Write 8 in the hundreds place.
6. **Ask:** Where should I put the 3? (Answer: In the tens place.)
7. Write 3 in the tens place.

8. **Ask:** Where should I put the 1? (Answer: In the ones place.)
9. Write 1 in the ones place.
10. **Ask:** Who would like to read the number for me? (Answer: 831)
11. **Say:** Let's do another one together.
12. Erase the numbers in the number place chart.
13. Write 'four hundred and sixty-nine' on the board.
14. **Ask:** Who would like to read the number for me? (Answer: 469)
15. **Ask:** Where should I put the 4 in the place value chart? (Answer: In the hundreds place.)
16. Write 4 in the hundreds place.
17. **Ask:** Where should I put the 6? (Answer: In the tens place.)
18. Write 3 in the tens place.
19. **Ask:** Where should I put the 9? (Answer: In the ones place.)
20. Write 9 in the ones place.
21. **Say:** The number is four hundred and sixty-nine.

Independent Practice (14 minutes)

1. **Say:** I will read some numbers to you. Write them down on your paper as you hear them.
2. **Say:** 276.
3. Wait for the pupils to write it down.
4. **Say:** 127.
5. Wait for the pupils to write it down.
6. **Say:** 833.
7. Wait for the pupils to write it down.
8. **Say:** 924.
9. Wait for the pupils to write it down.
10. **Say:** 361.
11. Wait for the pupils to write it down.
12. **Say:** 745.
13. Wait for the pupils to write it down.
14. **Say:** Find a partner and work on this task together. Take turns first saying a number, and then saying what place each numeral is in.




Closing (1 minute)

1. **Say:** Today we have learned to read and write numerals up to 1,000 using place value. In the next lesson we will put numbers up to 1,000 in order. Thank you class. Pupils say: Thank you.

[PLACE VALUE CHART]

Thousands	Hundreds	Tens	Ones
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Lesson Title: Ordering whole numbers from 0 – 1,000	Theme: Numbers and Numeration – Reading/Writing/Ordering up to 1,000	
Lesson Number: M-02-083	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson, pupils will be able to order whole numbers from 0 – 1,000 by their magnitude.</p>		<p>Teaching Aids Place Value Chart (at the end of the lesson).</p>		<p>Preparation Write a Place Value Chart on the board.</p>
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Opening (2 minutes)

1. **Ask:** Can someone remind the class what we did in our previous lesson? (Answer: We learned about place value for numbers up to 1,000.)
2. **Say:** Today we will use our knowledge of place value to order numbers from least to greatest and greatest to least.

Introduction to New Material (8 minutes)

1. Point to the Place Value Chart on the board:
2. **Say:** As you will remember, we used the Place Value Chart to help us understand the place of each numeral in a number. This will help us when we need to compare numbers to determine what order they go in.
3. Write the numbers 457 and 454 on the board. **Say:** We can use the Place Value Chart to determine which of these numbers is greater.
4. Underline the 4 in 457 and underline 4 in 454. **Say:** When comparing numbers, we start at the number on the left. In this case, we are comparing numbers in the hundreds place.
5. **Say:** Both the numbers in the hundreds place are 4s, so they are equal. Therefore we do not know which is greater yet.
6. Erase both lines under the 4s. **Say:** So we go on to the next number, which is in the tens place.
7. Underline the 5 in 457 and the 5 in 454. **Say:** Both of the numbers in the tens place are 5s, so they are also equal. Therefore, we still do not know which number is greater.
8. Erase both lines under the 5s. **Say:** So we go on to the last numbers, which are in the ones place.
9. Underline the 7 in 457 and the 4 in 454. **Say:** In the ones place, in the number 457, there is a 7. In the ones place, in the number 454, there is a 4. **Say:** The 4 is less than the 7.
10. **Say:** Since the hundreds place and the tens place are the same, this ones place decides which number is less. 4 is less than 7. Therefore, 454 is less than 457.
11. Write the numbers 454 and 457 on the board.
12. **Say:** I wrote the numbers in order from least to greatest.

Guided Practice (12 minutes)

1. **Say:** Now let's work together to put three numbers in order from least to greatest.
2. Write the following numbers on the board: 902 112 326. **Say:** Here are the three numbers we will put in order.

3. **Ask:** What place in the numbers should we compare first? (Answer: hundreds)
4. **Say:** Yes, we will begin with the hundreds. Underline the 9 in 902, the 1 in 112 and the 3 in 326.
Ask: Which number is the least? (Answer: 1)
5. **Say:** The 1 is the least. Therefore, the number 112 is the least of all three numbers.
6. Write the following on the board: 112 _____ . **Say:** Now we have only two numbers left. 902 and 326.
7. **Ask:** Which number is least in the hundreds place? (Answer: 3) **Say:** The 3 is the least. Therefore the number 326 is less than 902.
8. Write 326 next to the 112 on the board: 112 326 _____. **Say:** The only number left is 902. It goes in the last space, because it is the greatest.
9. Write the final number on the board next to the others: 112 326 902.
10. **Say:** Now let's order numbers from greatest to least.
11. Write the following numbers on the board: 206 463 421. **Say:** Here are the three numbers we will put in order. **Ask:** What place in the numbers should we compare first? (Answer: hundreds)
12. **Say:** Yes, we will begin with the hundreds. Underline the 2 in 206, the 4 in 463 and the 4 in 421.
13. **Ask:** Which number is the greatest? (Answer: 4) **Say:** 4 is the greatest number, but there are two numbers with 4 in the hundreds place. The 2 is the least so we know that is the least number all together.
14. Write the following on the board: _____ 206 **Say:** Since the two remaining numbers both have 4 in the hundreds place, we will move on to the tens place to compare 463 and 421.
15. Underline the tens place: 463 and 421. **Ask:** In the tens place of the two remaining numbers, which number is greater? (Answer: 6)
16. **Say:** Since both numbers have a 4 in the hundreds place, and the number 6 is greater than the number 2 in the tens place, 463 is greater than 421.
17. Write the numbers on the board as follows: 463 421 206. **Say:** Together we have ordered the numbers from greatest to least.

Independent Practice (12 minutes)

1. Write the following sets of numbers on the board:

489 464 521 (Answer: 464, 489, 521)	876 123 591 (Answer: 123, 591, 876)	
349 782 245 (Answer: 245, 349, 782)	612 409 321 (Answer: 321, 409, 612)	
2. **Say:** Please write these numbers down on your paper. Work together with a partner to put the numbers in order from least to greatest. You should each write the answers on your own paper.




Closing (1 minute)

1. **Say:** Today we have learned to order numbers from least to greatest and greatest to least. In the next lesson, we will learn how to locate numbers up to 1,000 on a number line. Well done.

[PLACE VALUE CHART]

Thousands	Hundreds	Tens	Ones

Lesson Title: Locate numbers from 0 to 1,000 using a number line	Theme: Numbers and Numeration – Reading/Writing/Ordering up to 1,000	
Lesson Number: M-02-084	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson, pupils will be able to locate numbers up to 1,000 on the number line.	 Teaching Aids Number line from 0 – 1,000 (at the end of the lesson).	 Preparation Draw a number line from 0-1,000 on the board.
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Opening (2 minutes)

- Say:** In previous lessons, we learned how to locate numbers on a number line from 0 – 100. Today, we will be learning how to locate numbers on a number line from 0 – 1,000.

Introduction to New Material (8 minutes)

- Point to the 0 – 1,000 number line.
- Say:** This number line starts at 0 and ends at 1000. Each long mark is a multiple of 100. Each short mark is a multiple of 10.



- Place a large dot on the 200 mark.
- Say:** This is 200 on the number line.
- Place a large dot at 620.
- Say:** This is 620 on the Number Line. First I found 600. Then I moved one line to the right to be at 610 and one more line to the right to be at 620.
- Place a large dot at 770.
- Say:** This is 770 on the number line. First I found 700 and then moved 7 spaces to the right. I moved one space for each set of 10 to make 70.

Guided Practice (15 minutes)

- Say:** Now we will work together to locate numbers on the number line.
- Say:** Begin by drawing a number line on your paper just like this number line here. Draw long lines for multiples of 100 and short lines for multiples of 10.
- Say:** Start at 0 and label all the multiples of 100 up to 1,000.
- Say:** Place 9 shorter marks between the hundreds. You do not need to label these.
- You will need to give the pupils time to create their number line.
- Place a dot on 900.
- Say:** Begin by placing a dot at 900 to show where 900 is on the number line.
- Place a dot on 300.
- Say:** Now place a dot on 300 to show where 300 is on the number line.

10. Place a dot on 630.
11. **Ask:** What number is this on the number line? (Answer: 630)
12. **Ask:** How did you figure it out?
13. Place a dot on 820.
14. **Ask:** What number is this on the number line? (Answer: 820)
15. **Ask:** How did you figure it out?

Independent Practice (8 minutes)

1. **Say:** First, you will work on your own. Then, you will work with a partner.
2. **Say:** On your own, place 5 dots at different places on your Number Line, either on a large mark or a short mark. Make the dots nice and clean so that you can tell where they are located.
3. **Say:** Once you have placed all 5 dots, find another pupil who is also finished to be your partner.
4. **Say:** Trade papers with your partner.
5. **Say:** Write the number above the dot where on the number line the dot is located. Make sure you are careful to count the correct number of marks.
6. Walk around the room. Help pupils who are having difficulties.




Closing (2 minutes)

1. **Say:** Today you learned how to located numbers on the number line from 0 — 1,000. Well done!
2. **Say:** In the next lesson, we will learn how to compare numbers on the number line up to 1,000.
3. **Say:** Well done. Thank you class. Pupils say: Thank you.

[0-1,000 NUMBER LINE]



Lesson Title: Compare numbers up to 1,000 using a number line	Theme: Numbers and Numeration – Reading/Writing/Ordering up to 1,000	
Lesson Number: M-02-085	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson, pupils will be able to compare numbers up to 1,000 on the number line.	 Teaching Aids Number line from 1 – 1,000 (at the end of the lesson).	 Preparation Draw a number line from 1-1,000 on the board.
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Opening (1 minute)

1. **Say:** In the previous lesson, we learned how to locate numbers on the number line up to 1,000.
2. **Say:** Now that we know how to locate the numbers, we can begin comparing numbers. We will be able to find out which numbers are smaller and which numbers are larger.

Introduction to New Material (8 minutes)

1. Point to the 0 – 1,000 number line.
2. **Say:** As you will remember, this number line starts at 0 and ends at 1000. Each long mark is a multiple of 100. Each short mark is a multiple of 10.



3. **Say:** The numbers on the number line grow larger as you move from right to left.
4. Point your finger at the 0 and move it to the right, all the way to 1,000.
5. Place a large dot on the 200 mark.
6. **Say:** This is 200 on the number line.
7. Place a large dot on the 400 mark.
8. **Say:** This is 400 on the number line.
9. **Say:** The number 400 is farther to the right than the number 200. Therefore, 400 is greater than 200.
10. Place a dot at 150.
11. **Say:** This is 150 on the number line.
12. Place a dot at 180.
13. **Say:** This is 180 on the number line.
14. **Say:** The number 180 is farther to the right than 150. Therefore 180 is greater than 150.

Guided Practice (10 minutes)

1. **Say:** Now, we will work together to compare numbers.
2. **Say:** Begin by drawing a number line on your paper just like this number line here. Draw long lines for multiples of 100 and short lines for multiples of 10.
3. **Say:** Start at 0 and label all the multiples of 100 up to 1,000.

4. **Say:** Place 9 shorter marks between the hundreds. You do not need to label these.
5. You will need to give the pupils time to create their number line. Then, place a dot on the number 600. Place a dot on the number 800.
6. **Say:** Place a dot on the number line at 600 and a dot on the number line at 800.
7. **Ask:** Which number is greater? (Answer: 800)
8. **Ask:** How did you figure it out?
9. Place a dot on the number 100. Place a dot on the number 350.
10. **Say:** Place a dot on the number line at 100 and a dot on the number line at 350.
11. **Ask:** Which number is greater? (Answer: 350)
12. **Ask:** How did you figure it out?

Independent Practice (15 minutes)

1. Write the following sets of numbers on the board:

230 or 450	670 or 690	610 or 590	420 or 440
380 or 330	590 or 790	140 or 180	760 or 880

2. **Say:** Write these sets of numbers on your paper. Use the 0 – 1,000 Number Line to find out which number is greater. Circle the greater number in each pair of numbers. (Answers: 450; 690; 610; 440; 380; 790; 180; 880)




Closing (1 minute)

1. **Say:** Today you learned how to compare numbers on the number line from 0 to 1,000.
2. **Ask:** What is your favorite number on the number line?
3. **Say:** Well done. Thank you class. Pupils say: Thank you.

[0-1,000 NUMBER LINE]



Lesson Title: Revising addition of numbers from 0 - 100 using a number line	Theme: Addition and Subtraction up to 1,000	
Lesson Number: M-02-086	Class/Level: Class 2	Time: 35 minutes

 <p>Learning Outcomes By the end of the lesson, pupils will be able to add two digit numbers to 100 using the number line.</p>	 <p>Teaching Aids 1. Number line from 0 – 100 (at the end of the lesson). 2. Small marker with tape on the back.</p>	 <p>Preparation 1. Draw a 0-100 number line on board. 2. Make sure the marker will stick to the number line.</p>
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Opening (2 minutes)

1. **Say:** Today we are going to revise adding two-digit numbers using the number line. This will help us as we prepare to add 2- and 3-digit numbers up to 1,000.

Introduction to New Material (8 minutes)

1. Write the number 45 on the board. Show the pupils the marker and stick it on the number line at 45. Continue the equation by writing $+ 36 =$. It should now read $45 + 36 =$.
2. **Say:** I will add the new number in 2 parts.
3. Underline the 4 (in the number 45) and underline the 3 (in the 36).
4. **Say:** Remember, these spaces are called the ‘tens place’. These are multiples of 10, like we learned in our 10’s lesson.
5. Tell the pupils that you will first start with the tens place.
6. **Say:** The number we are adding to 45 has a 3 in the tens place, so we will move the marker 3 sets of 10 to the right, because we are adding.
7. Jump the marker from 45 to 55.
8. **Say:** I added one set of 10.
9. Jump the marker from 55 to 65.
10. **Say:** I added another set of 10.
11. Jump the marker from 65 to 75.
12. **Say:** I added a third set of ten. My marker is now on 75. I added all the tens I need to.
13. Next, underline the 6 in the number 36.
14. **Say:** This spot in the number is called the ‘ones place’. It is a multiple of 1, like we learned in our first lessons.
15. **Say:** I now need to move the marker 6 spots to the right because I am adding.
16. Move the marker 6 spaces and count as you go along. 75...76...77...78...79...80...81.
17. Place the marker on 81.
18. **Say:** I have added 45 and 36 using the number line. The answer is 81.

Guided Practice (8 minutes)

1. Write the number 23 on the board. Ask a volunteer to place the marker on the number 23.

2. Write + 44 on the board.
3. **Ask:** What is the first step? (Answer: Add the number in the tens place of the 44.)
4. **Say:** The 4 in the tens place is the same thing as 4 sets of 10.
5. Ask a volunteer to come to the board.
6. **Say:** Move the marker 4 sets of ten to the right, because you are adding 4 sets of 10, which is 40.
7. It should land on the 63.
8. **Ask:** What is the next step? (Answer: Add the number in the ones place, which is 4.)
9. Ask a volunteer to come to the board.
10. **Say:** Move the marker 4 spots to the right because you are adding.
11. **Ask:** What number is the marker on now? (Answer: 67.)

Independent Practice (15 minutes)

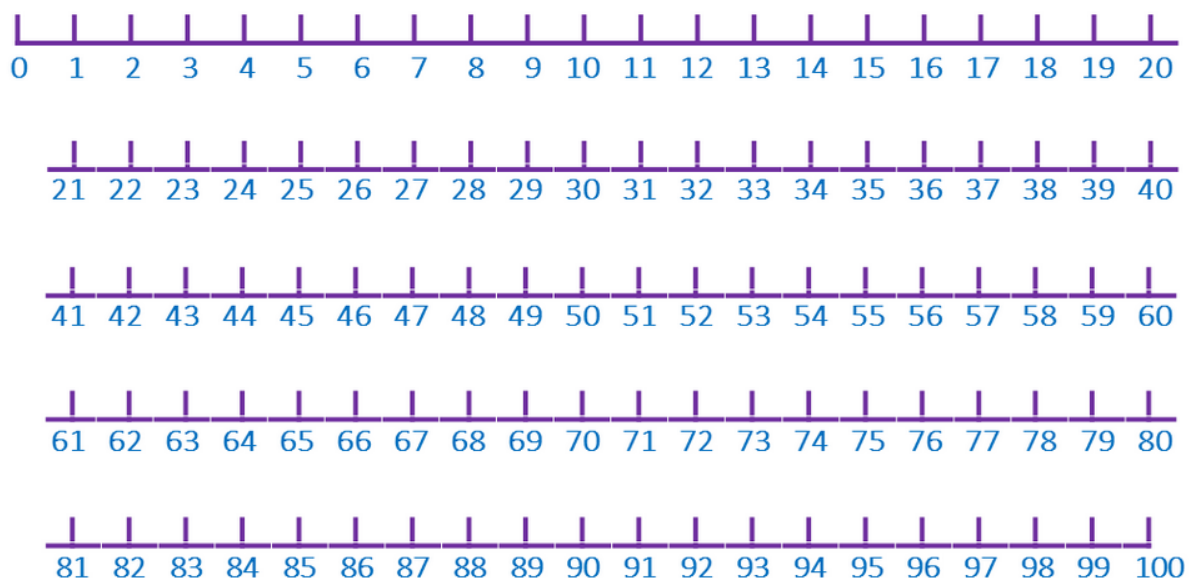
1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following equations on the board for the pupils.
 $30 + 63 =$ (Answer: 93) $28 + 48 =$ (Answer: 56) $56 + 19 =$ (Answer: 75)
3. **Say:** Work alone. Use the Number Line on the board to solve the equations.
4. Some pupils may need to approach the board to use the number line. That is okay. They will just need to take turns.
5. **Say:** Find the answer to all 3 equations. Then, compare answers with a fellow pupil. If your numbers do not match, you both need to solve the problem again until your numbers match.
6. Walk around the class. Ask pupils to explain how they are solving the problems.

Closing (2 minutes)




1. **Say:** Today we revised adding 2-digit numbers using the Number Line. In the next lesson, we will revise subtracting 2-digit numbers using the number line.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

[0-100 NUMBER LINE]

Note: Draw in one continuous line across the board.



Lesson Title: Revising subtraction of numbers from 0 - 100 using a number line	Theme: Addition and Subtraction up to 1,000	
Lesson Number: M-02-087	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson, pupils will be able to subtract two digit number to 100 using the number line.	 Teaching Aids 1. Number line from 0 – 100 (at the end of the lesson). 2. Small marker with tape on the back.	 Preparation 1. Draw a number line on the board. 2. Make sure the marker will stick to the number line.
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Opening (2 minutes)

1. **Say:** Today we will revise subtracting 2-digit numbers using the number line. This will help us as we prepare to subtract 2- and 3-digit numbers up to 1,000.

Introduction to New Material (8 minutes)

1. Write the number 45 on the board.
2. Show the pupils the marker. Stick it on the number line at 45.
3. Continue the equation by writing $- 36 =$. It should now read $45 - 36 =$.
4. **Say:** I will subtract the new number in 2 parts.
5. Underline the 4 in the number 45. Underline the 3 in the 36.
6. **Say:** Remember these spaces are called the 'tens place'. These are multiples of 10, like we learned in our 10s lesson.
7. Tell the pupils that you will first start with the tens place.
8. **Say:** The number we are subtracting from 45 has a 3 in the tens place, so we will move the marker three sets of 10 to the left because we are subtracting.
9. Jump the marker from 45 to 35.
10. **Say:** I subtracted one set of 10.
11. Jump the marker from 35 to 25.
12. **Say:** I subtracted another set of 10.
13. Jump the marker from 25 to 15.
14. **Say:** I subtracted a third set of ten. My marker is now on 15. I subtracted all the tens I need to.
15. Next underline the 6 in the number 36.
16. **Say:** This spot in the number is called the 'ones place'. It is a multiple of 1, like we learned in our first lessons.
17. **Say:** I now need to move the marker 6 spots to the left, because I am subtracting.
18. Move the marker 6 spaces. Count as you go along. 15...14...13...12...11...10...9.
19. Place the marker on 9.
20. **Say:** I subtracted 36 from 45 using the number line. The answer is 9.

Guided Practice (8 minutes)

1. Write the number 83 on the board.
2. Ask a volunteer to place the marker on the number 83.

3. Write - 44 on the board.
4. **Ask:** What is the first step? (Answer: Subtract the number in the tens place of the 44.)
5. **Say:** The 4 is the same thing as 4 sets of 10.
6. Ask a volunteer to come to the board.
7. **Say:** Move the marker 4 sets of ten to the left, because you are subtracting 4 sets of 10, which is 40.
8. The marker should land on the 43.
9. **Ask:** What is the next step? (Answer: Subtract the number in the ones place, which is 4.)
10. Ask a volunteer to come to the board.
11. **Say:** Move the marker 4 spots to the left because you are subtracting.
12. **Ask:** What number is the marker on now? (Answer: 39)

Independent Practice (15 minutes)

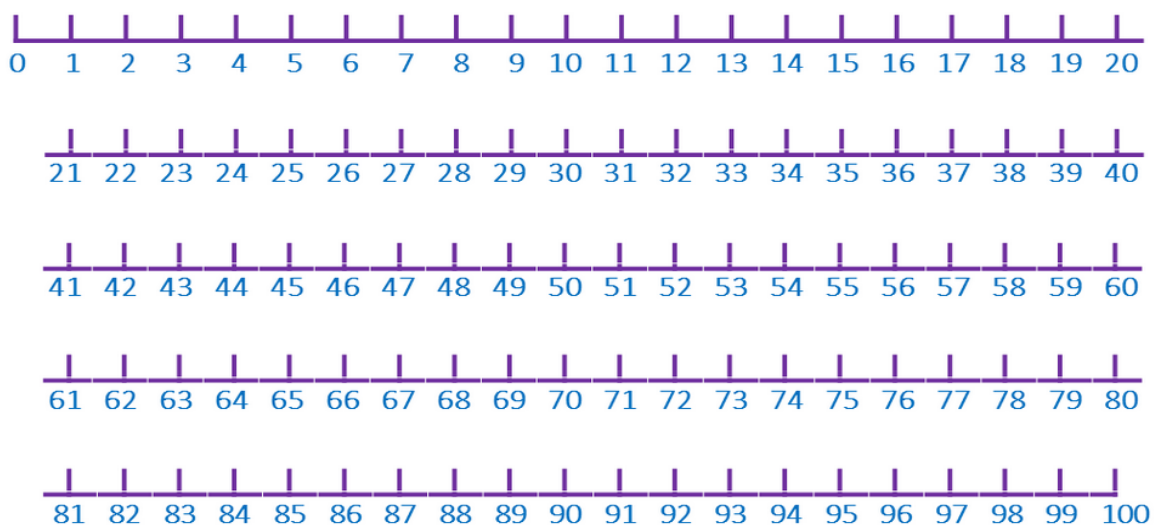
1. Write down the following equations on the board for the pupils.
 $80 - 63 =$ (Answer: 17) $78 - 42 =$ (Answer: 36) $56 - 19 =$ (Answer: 37)
2. **Say:** Work alone. Use the number line on the board to solve the equations.
3. Some pupils may need to approach the board to use the number line. That is okay. They will just need to take turns.
4. **Say:** Once you have found the answer to all 3 equations, compare answers with a fellow pupil. If your numbers are not the same, you both need to solve the problem again until your numbers are the same.
5. Walk around the class. Ask pupils to explain how they are solving the problems.

Closing (2 minutes)




1. **Say:** Today we revised subtracting 2-digit numbers using the number line.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

[0-100 NUMBER LINE]

Note: Draw in one continuous line across the board.



Lesson Title: Commutative Law in Addition	Theme: Addition and Subtraction up to 1,000	
Lesson Number: M-02-088	Class/Level: Class 2	Time: 35 minutes

 <p>Learning Outcomes By the end of the lesson, pupils will be able to reverse the order of addition to get the same answer.</p>	 <p>Teaching Aids 1. Number line from 0 – 100 (at the end of the lesson). 2. Small marker with tape on the back.</p>	 <p>Preparation 1. Draw a number line on the board. 2. Make sure the marker will stick to the number line.</p>
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Opening (2 minutes)

1. **Say:** As you may remember, the commutative law of addition says that it doesn't matter what order the numbers come in for an addition equation. The answer will be the same. Today we will use the number line to revise the commutative law of addition.

Introduction to New Material (8 minutes)

1. Write the number 20 on the board. Show the pupils the marker and stick it on the number line at 20.
2. Continue the equation by writing $+ 52 =$. It should now read $20 + 52 =$.
3. **Say:** I will be adding the new number in 2 parts. First, we will start on 20. Then I know I need to add 50, or 5 sets of 10.
4. **Say:** I will add 10 at a time. So I will jump the marker from 20 to 30. 30 to 40. 40 to 50. 50 to 60, and 60 to 70.
5. **Say:** Now I need to add the ones. There are 2 of them. So I will jump the marker from 70 to 71 and 71 to 72.
6. Finish writing the equation: $20 + 52 = 72$.
7. **Say:** $20 + 52 = 72$.

Guided Practice (6 minutes)

1. **Say:** Now we will reverse the order of the equation and solve it together.
2. Write on the board $52 + 20 =$
3. **Say:** We will be adding the new number in 2 parts.
4. **Ask:** Who would like to place the marker on 50?
5. **Say:** First we start at 50.
6. **Ask:** What comes next? (Answer: add 20)
7. Jump the marker from 52 to 62.
8. **Say:** 10.
9. Jump the marker from 62 to 72.
10. **Say:** 20.
11. Finish writing the equation: $52 + 20 = 72$
12. **Say:** $52 + 20 = 72$
13. **Say:** The answer is the same. $52 + 20 = 72$ and $20 + 52 = 72$

Independent Practice (17 minutes)

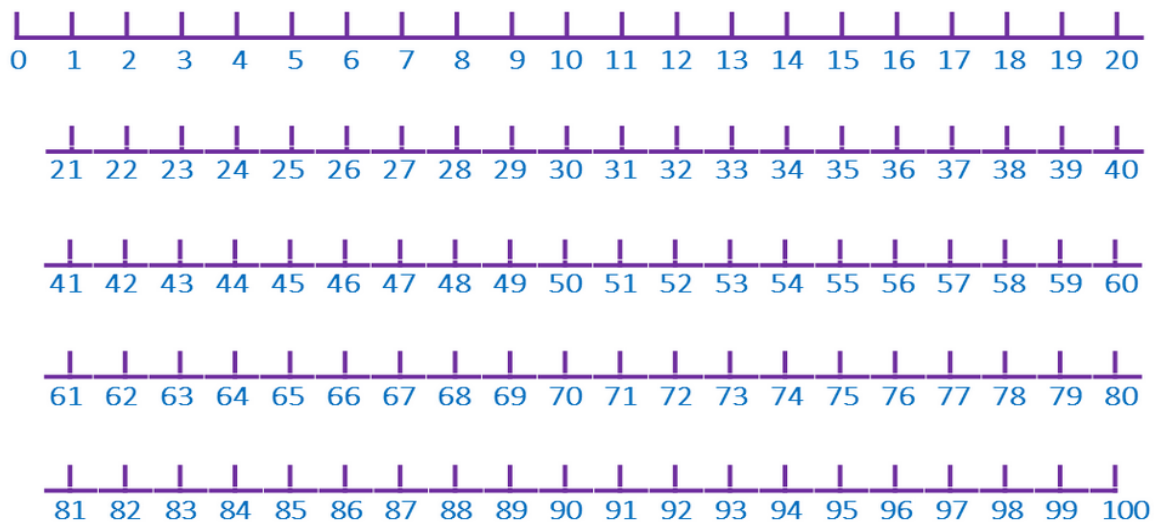
1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following equations on the board for the pupils.
 $40 + 16 =$ (Answer: 56) $16 + 40 =$ (Answer: 56)
 $52 + 22 =$ (Answer: 74) $22 + 52 =$ (Answer: 74)
 $14 + 55 =$ (Answer: 69) $55 + 14 =$ (Answer: 69)
 $34 + 21 =$ (Answer: 55) $21 + 34 =$ (Answer: 55)
3. **Say:** Work alone. Use the number line to solve the equations.
4. **Say:** When you have solved all the equations, compare answers with a friend. If your numbers are not the same, for any of the problems, solve the problems together. See if you can both get the correct answer.
5. Some pupils may need to approach the board to use the number line. That is okay. They will just need to take turns.
6. Walk around the class. Ask pupils to explain how they are solving the problems.

Closing (2 minutes)




1. **Say:** Today we revised the commutative law of addition. In the next lesson, we will learn how to solve simple addition problems up to 1,000.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

[0-100 NUMBER LINE]

Note: Draw in one continuous line across the board.



Lesson Title: Addition up to 1,000	Theme: Addition and Subtraction up to 1,000	
Lesson Number: M-02-089	Class/Level: Class 2	Time: 35 minutes

 <p>Learning Outcomes By the end of the lesson, pupils will be able to solve simple addition problems up to 1,000.</p>	 <p>Teaching Aids 1. Number Line from 0—1,000 (at the end of the lesson). 2. Small marker with tape on the back.</p>	 <p>Preparation 1. Draw a number line on the board. 2. Make sure the marker will stick to the number line.</p>
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Opening (2 minutes)

1. **Say:** The number line can be very helpful when adding large numbers up to 1,000. Today, we will use the number line to solve addition problems up to 1,000

Introduction to New Material (8 minutes)

1. Write the number 200 on the board. Show the pupils the marker and stick it on the Number Line at 200.



2. Continue the equation by writing $+ 350 =$. It should now read $200 + 350 =$.
3. **Say:** I will be adding the new number in 2 parts. First, we will start at 200. We know that by looking at the number 350, we will need to add 300 first.
4. Jump the marker from 200 to 300.
5. **Say:** 100.
6. Jump the marker from 300 to 400.
7. **Say:** 200.
8. Jump the marker from 400 to 500.
9. **Say:** 300. Now we have added all the hundreds.
10. **Say:** Now we need to add 50. I will add 10 at a time. So I will jump the marker from 500 up 510, that is 10. 510 to 520, that is 20. 520 to 530, that is 30. 530 to 540, that is 40. Finally 540 to 550, that is 50.
11. Finish writing the equation: $200 + 350 = 550$.
12. **Say:** $200 + 350 = 550$.

Guided Practice (8 minutes)

1. **Say:** Now we will practise together.
2. On the board write $420 + 320 =$
3. **Ask:** Who would like to place the marker on the first number?
4. Call a volunteer to come to the board. Guide the pupil to place the marker on 420.
5. **Say:** We are adding 320 to 420.

6. **Ask:** What step comes next? (Answer: add 300)
7. **Ask:** Who would like to come to the board and add 300?
8. **Say:** First we will move from 420 to 520, that is 100. Then we will move from 520 to 620, that is 200. Then we will move from 620 to 720, that is 300.
9. Guide the pupil to move the marker.
10. **Say:** We are at 720.
11. **Ask:** What comes next? (Answer: add 20)
12. **Ask:** Who would like to come to the board and add 20?
13. **Say:** We will move the marker by tens. First we will move from 720 to 730. That is 10. Now we will move from 730 to 740. That is 20. We have landed on 740.
14. Finish the equation on the board: $420 + 320 = 740$
15. **Say:** $420 + 320 = 740$

Independent Practice (15 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write down the following equations on the board for the pupils.
 $400 + 160 =$ (Answer: 560) $240 + 340 =$ (Answer: 580)
 $520 + 250 =$ (Answer: 770) $720 + 30 =$ (Answer: 750)
3. **Say:** Work alone. Use the number line to solve the equations.
4. **Say:** When you have solved all the equations, compare your answers with a friend. If your numbers are not the same, for any of the problems, solve the problems together. See if you can get the correct answers.
5. Some pupils may need to approach the board to use the number line. That is okay. They will just need to take turns.
6. Walk around the class. Ask pupils to explain how they are solving the problems.




Closing (2 minutes)

1. **Say:** Today you learned how to use the number line to add numbers up to 1,000. In the next lesson, we will learn how to solve more complex addition problems.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

[0-1,000 NUMBER LINE]



Lesson Title: Addition up to 1,000	Theme: Addition and Subtraction up to 1,000	
Lesson Number: M-020-90	Class/Level: Class 2	Time: 35 minutes

 <p>Learning Outcomes By the end of the lesson, pupils will be able to solve more complex addition problems up to 1,000.</p>	 <p>Teaching Aids 1. Number Line from 0—1,000 (at the end of the lesson). 2. Small marker with tape on the back.</p>	 <p>Preparation 1. Draw a number line on the board. 2. Make sure the marker will stick to the number line.</p>
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Opening (2 minutes)

- Say:** The number line can be very helpful when adding large numbers up to 1,000. Today, we will use the number line to solve more complex addition problems up to 1,000.

Introduction to New Material (8 minutes)

- Write the number 222 on the board. Show the pupils the marker. Stick the marker on the number line at 222.



- Continue the equation by writing $+ 329 =$. It should now read $222 + 329 =$.
- Say:** I will be adding the new number in 3 parts.
- Say:** First we will start at 222. We know that by looking at the number 329, we will need to add 300 first.
- Jump the marker from 222 to 322.
- Say:** 100. Jump the marker from 322 to 422.
- Say:** 200. Jump the marker from 422 to 522.
- Say:** 300. Now we have added all the hundreds. Now we need to add the tens place. The number 20 is in the tens place, so we need to add 2 sets of 10. I will add 10 at a time.
- Say:** I will jump the marker from 522 to 532, that is 10. 532 to 542, that is 20.
- Say:** Now I need to add the ones place. There are 9 ones in the ones place.
- Jump the marker and count as you go along. Jump from 542 to 543. 543 to 544. 544 to 545. 545 to 546. 546 to 547. 547 to 548. 548 to 549. 549 to 550. 550 to 551.
- Finish writing the equation: $222 + 329 = 551$.
- Say:** $222 + 329 = 551$.

Guided Practice (8 minutes)

- Say:** Now we will practise together.
- On the board, write $427 + 324 =$
- Ask:** Who would like to place the marker on the first number?

4. Guide the pupil to place the marker on 427.
5. **Say:** We are adding 324 to 427.
6. **Ask:** What step comes next? (Answer: add 300)
7. **Ask:** Who would like to come to the board and add 300?
8. **Say:** First we will move from 427 to 527, that is 100. Then we will move from 527 to 627, that is 200. Then we will move from 627 to 727, that is 300.
9. Guide the pupil as they move the marker.
10. **Say:** We are at 727.
11. **Ask:** What comes next? (Answer: add 20)
12. **Ask:** Who would like to come to the board and add 20?
13. **Say:** We will move the marker by tens. First we will move from 727 to 737. That is 10. Now we will move from 737 to 747. That is 20.
14. **Say:** We have landed on 747.
15. **Ask:** What comes next? (Answer: add 4)
16. **Ask:** Who would like to come to the board and add 4?
17. **Say:** We will move the marker by ones. First we will move from 747 to 748. That is 1. Now we will move from 748 to 749. That is 2. 749 to 750, that is 3. Lastly 750 to 751, that is 4.
18. Finish the equation on the board: $427 + 324 = 751$.
19. **Say:** $427 + 324 = 751$

Independent Practice (15 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following equations on the board for the pupils.
 $407 + 164 =$ (Answer: 571) $243 + 348 =$ (Answer: 591)
 $522 + 259 =$ (Answer: 781) $725 + 35 =$ (Answer: 760)
3. **Say:** Work alone. Use the number line to solve the equations.
4. **Say:** When you have solved all the equations, compare answers with a friend. If your numbers are not the same, for any of the problems, solve them together to see if you can get the correct answers.
5. Some pupils may need to approach the board to use the number line. That is okay. They will just need to take turns. Walk around the class. Ask pupils to explain how they are solving the problems.




Closing (2 minutes)

1. **Say:** Today, you learned how to use the number line to solve more complex addition problems. In the next lesson, we will learn how to solve addition problems mentally. Thank you class.
Pupils say: Thank you.

[0-1,000 NUMBER LINE]



Lesson Title: Using mental strategies for addition up to 1,000	Theme: Addition and Subtraction up to 1,000	
Lesson Number: M-02-091	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson, pupils will be able to solve simple addition problems up to 1,000 mentally.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

1. **Say:** When we don't have tools to use to solve simple addition problems, we must depend on our brain to do the work for us. This is called 'mental math'.

Introduction to New Material (8 minutes)

1. On the board, write $400 + 350 =$
2. **Say:** I will be adding the new number in 2 parts. First, we will start at 400. I know that by looking at the number 350, I will need to add 300 first. So I will count up by hundreds.
3. **Say:** 400 to 500 is 100.
4. **Say:** 500 to 600 is 200.
5. **Say:** 600 to 700 is 300.
6. **Say:** We added all the hundreds. Now we need to add 50. 700 plus 50 equals 750.
7. Finish writing the equation: $400 + 350 = 750$.
8. **Say:** $400 + 350 = 750$.

Guided Practice (6 minutes)

1. **Say:** Now, we will practise together.
2. On the board, write $420 + 320 =$
3. **Ask:** What step comes first? (Answer: add 300)
4. **Ask:** Who would like to add 300 aloud? (Answer: 420 to 520, 520 to 620, 620 to 720)
5. **Say:** We are at 720.
6. **Ask:** What comes next? (Answer: add 20)
7. **Ask:** Who would like to add 20 aloud for me? (Answer: 720 to 730. 730 to 740)
8. **Say:** We are at 740.
9. Finish the equation on the board: $420 + 320 = 740$
10. **Say:** $420 + 320 = 740$

Independent Practice (17 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write down the following equations on the board for the pupils.

$440 + 160 =$ (Answer: 600)

$220 + 340 =$ (Answer: 560)

$520 + 260 =$ (Answer: 780)

$720 + 130 =$ (Answer: 850)

$200 + 300 =$ (Answer: 500)

$310 + 600 =$ (Answer: 910)

$700 + 200 =$ (Answer: 900)




$120 + 140 =$ (Answer: 260)

3. **Say:** Work alone. Use mental math to solve the problems.
4. **Say:** When you have solved all the equations, compare answers with a friend. If your numbers are not the same, for any of the problems, solve them together. See if you can get the correct answers.
5. Walk around the class. Ask pupils to assist other pupils as needed.

Closing (2 minutes)

1. **Say:** Today you learned how to use mental math to solve simple addition problems. In the next lesson, we will learn how to solve simple subtraction problems using the number line.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Subtraction up to 1,000	Theme: Everyday Arithmetic — Addition and Subtraction up to 1,000	
Lesson Number: M-02-092	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson, pupils will be able to solve simple subtraction problems up to 1,000.</p>		<p>Teaching Aids 1. Number Line from 0 — 1,000 (at the end of the lesson). 2. Small marker with tape on the back.</p>		<p>Preparation 1. Draw a number line on the board. 2. Make sure the marker will stick to the number line.</p>
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Opening (2 minutes)

- Say:** The number line can be very helpful when subtracting large numbers up to 1,000. Today, we will use the number line to solve subtraction problems up to 1,000.

Introduction to New Material (8 minutes)

- Write the number 880 on the board. Show the pupils the marker. Stick it on the number line at 880.



- Continue the equation by writing $- 320 =$. It should now read $880 - 320 =$.
- Say:** I will be subtracting the new number in 2 parts.
- Say:** First we will start at 880.
- Say:** We know that by looking at the number 320, we will need to subtract 300 first.
- Jump the marker from 880 to 780.
- Say:** 100.
- Jump the marker from 780 to 680.
- Say:** 200.
- Jump the marker from 680 to 580.
- Say:** 300.
- Say:** Now I have to subtract 20. That is 2 tens.
- Jump the marker from 580 to 570.
- Say:** 10.
- Jump the marker from 570 to 560.
- Say:** 20.
- Finish writing the equation, $880 - 320 = 560$.
- Say:** $880 - 320 = 560$.

Guided Practice (8 minutes)

1. **Say:** Now we will practise together.
2. On the board, write $820 - 310 =$
3. **Ask:** Who would like to place the marker on the first number?
4. Guide the pupil to place the marker on 820.
5. **Say:** We are subtracting 310 from 820.
6. **Ask:** What step comes next? (Answer: subtract 300)
7. **Ask:** Who would like to come to the board and subtract 300?
8. **Say:** First we will move from 820 to 720, that is 100. Then we will move from 720 to 620, that is 200. Then we will move from 620 to 520, that is 300.
9. Guide the pupil as they move the marker.
10. **Say:** We are at 520.
11. **Ask:** What comes next? (Answer: subtract 10)
12. **Ask:** Who would like to come to the board and subtract 10?
13. **Say:** We will move the marker from 520 to 510.
14. Finish the equation on the board: $820 - 310 = 510$
15. **Say:** $820 - 310 = 510$

Independent Practice (15 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following equations on the board for the pupils.
 $480 - 160 =$ (Answer: 320) $340 - 220 =$ (Answer: 120)
 $560 - 250 =$ (Answer: 310) $760 - 430 =$ (Answer: 330)
3. **Say:** Work alone. Use the number line to solve the equations.
4. **Say:** When you have solved all the equations, compare answers with a friend. If your numbers are not the same for any of the problems, solve them together. See if you can get the correct answer.
5. Some pupils may need to approach the board to use the number line. That is okay. They will just need to take turns.
6. Walk around the class. Ask pupils to explain how they are solving the problems.




Closing (2 minutes)

1. **Say:** Today you learned how to use the number line to subtract numbers up to 1,000. In the next lesson, we will learn how to solve more complex subtraction problems.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

[0-1,000 NUMBER LINE]



Lesson Title: Subtraction up to 1,000	Theme: Addition and Subtraction up to 1,000	
Lesson Number: M-02-093	Class/Level: Class 2	Time: 35 minutes

 <p>Learning Outcomes By the end of the lesson, pupils will be able to solve more complex subtraction problems up to 1,000.</p>	 <p>Teaching Aids 1. Number line from 0—1,000 (at the end of the lesson). 2. Small marker with tape on the back.</p>	 <p>Preparation 1. Draw a number line on the board. 2. Make sure the marker will stick to the number line.</p>
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Opening (2 minutes)

- Say:** The number line can be very helpful when solving more complex subtraction problems. Today, we will use the number line to solve more complex subtraction problems up to 1,000.

Introduction to New Material (8 minutes)

- Write the number 322 on the board. Show the pupils the marker. Stick it on the number line at 322.



- Continue the equation by writing $322 - 229 =$. It should now read $322 - 229 =$.
- Say:** I will be subtracting the new number in 3 parts.
- Say:** First we will start at 322.
- Say:** We know that by looking at the number 229, we will need to subtract 200 first.
- Jump the marker from 322 to 222.
- Say:** 100.
- Jump the marker from 222 to 122.
- Say:** 200. Now we have subtracted all the hundreds.
- Say:** Now we need to subtract the tens place. The number 2 is in the tens place, so we need to subtract 2 sets of 10. I will subtract 10 at a time.
- Say:** So I will jump the marker from 122 down to 112. That is 10. 112 to 102, that is 20.
- Say:** Now I need to subtract the ones place. There are 9 ones in the ones place.
- Jump the marker and count as you go along. Jump from 102 to 101. 101 to 100. 100 to 99. 99 to 98. 98 to 97. 97 to 96. 96 to 95. 95 to 94. 94 to 93.
- Finish writing the equation: $322 - 229 = 93$.
- Say:** $322 - 229 = 93$.

Guided Practice (8 minutes)

- Say:** Now we will practise together.
- On the board, write: $424 - 327 =$

3. **Ask:** Who would like to place the marker on the first number?
4. Guide the pupil to place the marker on 424.
5. **Say:** We are subtracting 327 from 424.
6. **Ask:** What step comes next? (Answer: subtract 300)
7. **Ask:** Who would like to come to the board and subtract 300?
8. **Say:** First we will move from 424 to 324, that is 100. Then we will move from 324 to 224, that is 200. Then we will move from 224 to 124, that is 300.
9. Guide the pupil as they move the marker. **Say:** We are at 124.
10. **Ask:** What comes next? (answer: subtract 20)
11. **Ask:** Who would like to come to the board and subtract 20?
12. **Say:** We will move the marker by tens. First we will move from 124 to 114. That is 10. Now we will move from 114 to 104. That is 20.
13. **Say:** We have landed on 104.
14. **Ask:** What comes next? (Answer: subtract 7)
15. **Ask:** Who would like to come to the board and subtract 7?
16. **Say:** We will move the marker by ones. First we will move from 104 to 103. 103 to 102. 102 to 101. 101 to 100. 100 to 99. 99 to 98. Lastly 98 to 97.
17. Finish the equation on the board: $424 - 327 = 97$
18. **Say:** $424 - 327 = 97$

Independent Practice (15 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write down the following equations on the board for the pupils.

$407 - 168 =$	(Answer: 239)	$543 - 348 =$	(Answer: 195)
$522 - 259 =$	(Answer: 263)	$725 - 35 =$	(Answer: 690)
3. **Say:** Work alone. Use the number line to solve the equations.
4. **Say:** When you have solved all the equations, compare answers with a friend. If your numbers are not the same, for any of the problems, solve it together. See if you can get the correct answer.
5. Some pupils may need to approach the board to use the number line. That is okay. They will just need to take turns.
6. Walk around the class. Ask pupils to explain how they are solving the problems.




Closing (2 minutes)

1. **Say:** Today, you learned how to use the number line to solve more complex subtraction problems. In the next lesson, we will learn how to solve subtraction problems mentally.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

[0-1,000 NUMBER LINE]



Lesson Title: Using mental strategies for subtraction up to 1,000	Theme: Addition and Subtraction up to 1,000	
Lesson Number: M-02-094	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson, pupils will be able to solve simple subtraction problems up to 1,000 mentally.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

1. **Say:** When we don't have tools to use to solve simple subtraction problems, we must depend on our brain to do the work for us. This is called 'mental math'.

Introduction to New Material (8 minutes)

1. Write: $400 - 350 =$
2. **Say:** I will be subtracting the new number in 2 parts. First, we will start at 400.
3. **Say:** I know that by looking at the number 350, I will need to subtract 300 first. So I will count down by hundreds.
4. **Say:** 400 to 300 is 100.
5. **Say:** 300 to 200 is 200.
6. **Say:** 200 to 100 is 300.
7. **Say:** Now we have subtracted all the hundreds. Now, we need to subtract 50. I will do it in sets of 10.
8. **Say:** 100 - 10 is 90. 90 - 10 is 80. 80 - 10 is 70. 70 - 10 is 60. 60 - 10 is 50.
9. Finish writing the equation, $400 - 350 = 50$.
10. **Say:** $400 - 350 = 50$.

Guided Practice (6 minutes)

1. **Say:** Now we will practise together.
2. On the board write: $400 - 320 =$
3. **Ask:** What step comes first? (Answer: subtract 300)
4. **Ask:** Who would like to subtract 300 aloud for me? (Answer: 400 to 300, 300 to 200, 200 to 100)
5. **Say:** We are at 100.
6. **Ask:** What comes next? (Answer: subtract 20)
7. **Ask:** Who would like to subtract 20 aloud for me? (Answer: 100 to 90. 90 to 80)
8. **Say:** We are at 80.
9. Finish the equation on the board: $400 - 320 = 80$.
10. **Say:** $400 - 320 = 80$.

Independent Practice (17 minutes)

1. Write down the following equations on the board for the pupils.

$440 - 160 =$ (Answer: 280)

$340 - 220 =$ (Answer: 120)

$520 - 260 =$ (Answer: 260)

$720 - 130 =$ (Answer: 590)

$300 - 20 =$ (Answer: 280)

$610 - 300 =$ (Answer: 310)

$700 - 200 =$ (Answer: 500)




$140 - 120 =$ (Answer: 20)

2. **Say:** Work alone. Use mental math to solve the problems.
3. **Say:** When you have solved all the equations, compare answers with a friend. If your numbers are not the same, for any of the problems, solve them together. See if you can get the correct answer.
4. Walk around the class. Ask pupils to help other pupils as needed.

Closing (2 minutes)

1. **Say:** Today, you learned how to use the mental math to solve simple subtraction problems. In the next lesson, we will learn how to solve one-step word problems involving addition and subtraction up to 1,000.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Word problems involving addition and subtraction up to 1,000	Theme: Everyday Arithmetic – Addition: Word problems up to 1,000	
Lesson Number: M-02-095	Class/Level: Class 2	Time: 35 minutes

	Learning Outcomes By the end of the lesson, pupils will be able to solve one step word problems involving addition and subtraction up to 1,000.		Teaching Aids None		Preparation None
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Opening (1 minute)

- Ask:** What have we been working on during math?
- Write the answers on the board.
- Say:** Today we will solve simple word problems using addition up to 1,000.

Introduction to New Material (8 minutes)

- Say:** Mohamed was walking to school early in the morning. On his way to school he saw 100 boys and 100 girls. How many pupils did he see in all?
- Write the equation:

$$\begin{array}{r} 100 \\ +100 \\ \hline 200 \end{array}$$

- Say:** I used stacking addition to add the numbers. $0+0 = 0$. $0+0 = 0$. $1+1 = 2$.
- Say:** $100 + 100 = 200$.
- Say:** On Mohamed's way home from school, he went by his uncle's house. His uncle had 500 goats, but 40 were missing. How many did he see?
- Write:

$$\begin{array}{r} 500 \\ - 40 \\ \hline 460 \end{array}$$

- Say:** Starting on the right, 0 minus $0 = 0$. Then going to the left. We can't take 4 away from 0 so we must borrow. We change the 5 to a 4 and make the 0 in the middle 10 .
- Say:** $10 - 4 = 6$.
- Say:** Now we can go all the way to the left. 4 minus $0 = 4$.
- Say:** $500 - 40 = 460$.

Guided Practice (10 minutes)

- Say:** I will read the story. Write down the numbers you hear.

2. **Say:** Sahr went to his neighbours shop to buy 150 mangos and 120 bananas. He then went to another neighbour's shop to buy 120 limes and 40 grapefruit. How many pieces of fruit did he buy?
3. On the board, write: 150 120 120 40
4. **Say:** Now we will make it an equation.
5. **Write:**

$$\begin{array}{r}
 150 \\
 120 \\
 120 \\
 \underline{+40}
 \end{array}$$

6. **Say:** We will use stacking addition to solve the problem. Adding down the right column, we end up with 0.
7. **Say:** Adding the middle column, we end up with 13. Since we can't write 13 at the bottom, we write the 3 and carry the 1 to the last column. $1 + 1 + 1 + 1 = 4$
8. **Say:** Our answer is 430.




Independent Practice (15 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. **Say:** Now it is your turn to solve the next word problem. I will read the word problem. Write down the numbers you hear. Then create an equation and solve the problem.
3. **Say:** Aminata went on a walk today. First, she saw 50 hippos on the way to her friend's home. Then, she saw 80 antelope on her way to school. Then, she saw 40 birds on her way home. How many animals did she see in all? (Answer: 170 animals)
4. **Say:** Now it is your turn to create an equation and solve it.

Closing (1 minute)

1. **Say:** Tell me a word problem. I will write the equation.
2. Call on a volunteer to share a problem. Write the equation on the board.
3. Ask the pupils to solve the word problem.
4. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Spheres and their properties	Theme: Geometry – 3D Shapes	
Lesson Number: M-02-096	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson, pupils will be able to identify and draw spheres.</p>		<p>Teaching Aids 1. Sphere-shaped objects. 2. Non-sphere-shaped objects.</p>		<p>Preparation 1. Gather items that are in the shape of spheres. 2. Gather items that are not in the shape of spheres.</p>
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Opening (2 minutes)

1. **Say:** In a previous lesson, we learned about circles. Circles are two-dimensional objects. This means they are flat.
2. **Say:** Today, we are going to learn about spheres. Spheres are three-dimensional objects. As you will see, spheres are not flat.

Introduction to New Material (8 minutes)

1. Draw a circle on the board.
2. **Ask:** Do you know what this is called? (Answer: circle)
3. **Say:** A circle is a shape. We can find circles all around us.
4. **Ask:** Can you tell me where you have seen a circle before?
5. Write the pupils' answers on the board.
6. Hold up a sphere.
7. **Say:** This is a sphere. It is a three-dimensional object. When it is two-dimensional, we call it a circle.
8. **Ask:** What other spheres have you seen?
9. Write pupils' answers on the board.

Guided Practice (8 minutes)

1. Hold up an item that is not a sphere.
2. **Ask:** Is this a sphere? (Answer: no)
3. **Ask:** Why not? (Answer: a sphere is curved; it is perfectly round; it has no edges and no points)
4. Hold up an item that is a sphere.
5. **Ask:** Is this a sphere? (Answer: yes)
6. **Ask:** Why is it a sphere? (Answer: it is curved; it is perfectly round; it has no edges and no points)
7. Hold up various objects. Ask pupils to identify if they are or are not spheres.
8. Remind pupils that spheres are like balls. They are perfectly round and curved, with no edges and no points.

Independent Practice (11 minutes)




1. **Say:** Find a partner. Sit together somewhere in the room. On a piece of paper, write the characteristics of a sphere. (Answer: it is round; it is curved; it has no edges or points)

2. **Say:** Think of all the spheres you have seen. Write all the spheres you can think of on your piece of paper.

Closing (6 minutes)

1. **Ask:** Can you name the spheres you and your partner came up with?
2. Write the answers on the board.
3. **Say:** Today we learned about spheres and how to identify them. In the next lesson, we will learn about cubes.
4. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Cubes and their properties	Theme: Geometry – 3D Shapes	
Lesson Number: M-02-097	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson, pupils will be able to identify and draw cubes.</p>		<p>Teaching Aids 1. Cube-shaped items. 2. Non-cube-shaped items.</p>		<p>Preparation 1. Gather items that are in the shape of cubes. 2. Gather items that are not in the shape of cubes.</p>
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Opening (2 minutes)

1. **Say:** In a previous lesson, we learned about spheres. Spheres are three-dimensional objects that are circles when they are flat.
2. **Say:** Today, we are going to learn about cubes. They are three-dimensional objects. When cubes are flat, they are squares.

Introduction to New Material (8 minutes)

1. Draw a square on the board.
2. **Ask:** Do you know what this shape is called? (Answer: square)
3. **Say:** A square is a shape. We can find squares all around us.
4. **Ask:** Can you tell me where you have seen a square before?
5. Write the pupils' answers on the board.
6. Hold up a cube.
7. **Say:** This is a cube. It is a three-dimensional object. When it is two-dimensional, we call it a square.
8. **Say:** A cube has 6 sides. Each side has a square on it. A cube also has 8 points. They are called vertices. The vertices are where 3 sides meet.
9. **Ask:** What other cubes have you seen?
10. Write pupils' answers on the board.

Guided Practice (8 minutes)

1. Hold up an item that is not a cube.
2. **Ask:** Is this a cube? (Answer: no)
3. **Ask:** Why not? (Answer: a cube has 6 sides; each side has a square on it; a cube has 8 points)
4. Hold up an item that is a cube.
5. **Ask:** Is this a cube? (Answer: yes)
6. **Ask:** Why is it a cube? (Answer: a cube has 6 sides; each side has a square on it; a cube has 8 points)
7. Hold up various objects. Ask pupils to identify if they are or are not cubes.
8. Remind pupils that cubes have 6 sides. Each side has a square on it. A cube also has 8 points.

Independent Practice (11 minutes)




1. **Say:** Find a partner. Sit together somewhere in the room.

2. **Say:** On a piece of paper, write the characteristics of a cube. (Answer: a cube has 6 sides; each side has a square on it; a cube has 8 points)
3. **Say:** Think of all the cubes you have seen. Write all the cubes you can think of on your piece of paper.

Closing (6 minutes)

1. **Ask:** Can you name the cubes you and your partner came up with?
2. Write the answers on the board.
3. **Say:** Today, we learned about cubes and how to identify them. In the next lesson, we will learn about cuboids.
4. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Cuboids and their properties	Theme: Geometry – 3D Shapes	
Lesson Number: M-02-098	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson, pupils will be able to identify and draw cuboids.</p>		<p>Teaching Aids 1. Cuboid-shaped items. 2. Non-cuboid-shaped items.</p>		<p>Preparation 1. Gather items that are in the shape of cuboids. 2. Gather items that are not in the shape of cuboids.</p>
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Opening (2 minutes)

1. **Say:** In a previous lesson, we learned about cubes. Cubes are three-dimensional objects that are squares when they are flat.
2. **Say:** Today we are going to learn about cuboids. Cuboids are three-dimensional objects. When cuboids are flat, they are rectangles.

Introduction to New Material (8 minutes)

1. Draw a rectangle on the board.
2. **Ask:** Do you know what this is called? (Answer: rectangle)
3. **Say:** A rectangle is a shape. We can find rectangles all around us.
4. **Ask:** Can you tell me where you have seen a rectangle before?
5. Write the pupils' answers on the board.
6. Hold up a cuboid.
7. **Say:** This is a cuboid. It is a three-dimensional object. When it is two-dimensional, we call it a rectangle.
8. **Say:** A cuboid has 6 sides. 4 sides are equal rectangles and the 2 ends are squares. A cuboid also has 8 points. They are called vertices. The vertices are where 3 sides meet.
9. **Ask:** What other cuboids have you seen?
10. Write pupils' answers on the board.

Guided Practice (8 minutes)

1. Hold up an item that is not a cuboid.
2. **Ask:** Is this a cuboid? (Answer: no)
3. **Ask:** Why not? (Answer: a cuboid has 6 sides; 4 sides are equal rectangles and the 2 ends are squares; a cuboid also has 8 points)
4. Hold up an item that is a cube.
5. **Ask:** Is this a cube? (Answer: yes)
6. **Ask:** Why is it a cube? (Answer: a cuboid has 6 sides; 4 sides are equal rectangles and the 2 ends are squares; a cuboid also has 8 points)
7. Hold up various objects. Ask pupils to identify if they are or are not cuboids.
8. Remind pupils that cuboids have 6 sides. 4 sides are equal rectangles and the 2 ends are squares. A cuboid also has 8 points.




Independent Practice (11 minutes)

1. **Say:** Find a partner. Sit together somewhere in the room. On a piece of paper, write the characteristics of a cuboid. (Answer: a cuboid has 6 sides; 4 sides are equal rectangles and the 2 ends are squares; a cuboid also has 8 points)
2. **Say:** Think of all the cuboids you have seen. Write all the cuboids you can think of on your piece of paper.

Closing (6 minutes)

1. **Ask:** Can you name the cuboids you and your partner came up with?
2. Write the answers on the board.
3. **Say:** Today we learned about cuboids and how to identify them. In the next lesson, we will learn about cylinders.
4. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Cylinders and their properties	Theme: Geometry – 3D Shapes	
Lesson Number: M-02-099	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson, pupils will be able to identify and draw cylinders.</p>		<p>Teaching Aids 1. Cylinder-shaped items. 2. Non-cylinder-shaped items.</p>		<p>Preparation 1. Gather items that are in the shape of cylinders. 2. Gather items that are not in the shape of cylinders.</p>
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Opening (2 minutes)

1. **Say:** In a previous lesson we learned about cuboids. A cuboid has 6 sides. 4 sides are equal rectangles and the 2 ends are squares. A cuboid also has 8 points.
2. **Say:** Today we are going to learn about cylinders. Cylinders are three-dimensional objects.

Introduction to New Material (8 minutes)

1. Draw a rectangle on the board.
2. **Ask:** Do you know what this is called? (Answer: rectangle)
3. Draw a circle on the board.
4. **Ask:** Do you know what this is called? (Answer: circle)
5. **Say:** Rectangles and circles together make a new shape.
6. Hold up a cylinder.
7. **Say:** This is a cylinder. It is a three-dimensional object. When it is two-dimensional, it is made up of 1 rectangle and 2 circles.
8. **Say:** A cylinder has 2 sides. There is 1 circle on the top and 1 circle on the bottom. When a rectangle is wrapped around and connected end-to-end, circles are added to the top and bottom to make a cylinder.
9. **Ask:** What other cylinders have you seen?
10. Write pupils' answers on the board.

Guided Practice (8 minutes)

1. Hold up an item that is not a cylinder.
2. **Ask:** Is this a cylinder? (Answer: no)
3. **Ask:** Why not? (Answer: A cylinder is made up of a rectangle and 2 circles.)
4. Hold up an item that is a cylinder.
5. **Ask:** Is this a cylinder? (Answer: yes)
6. **Ask:** Why is it a cylinder? (Answer: A cylinder is made up of a rectangle and 2 circles.)
7. Hold up various objects. Ask pupils to identify if they are or are not cylinders. Tell pupils again that cylinders are made up of 1 rectangle and 2 circles.




Independent Practice (11 minutes)

1. **Say:** Find a partner. Sit together somewhere in the room. On a piece of paper, write the characteristics of a cylinder. (Answer: A cylinder is made up of a rectangle and 2 circles.)
2. **Say:** Think of all the cylinders you have seen. Write all the cylinders you can think of on your piece of paper.

Closing (6 minutes)

1. **Ask:** Can you name the cylinders you and your partner came up with?
2. Write the answers on the board.
3. **Say:** Today we learned about cylinders and how to identify them. In the next lesson, we will revise all the shapes we have learned and their characteristics.
4. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Identifying and sorting of solid Shapes	Theme: Geometry – 3D Shapes	
Lesson Number: M-02-100	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson, pupils will be able to identify and sort solid shapes.</p>		<p>Teaching Aids 1. Sphere-shaped items. 2. Cube-shaped items. 3. Cuboid-shaped items. 4. Cylinder-shaped items.</p>		<p>Preparation Gather items of different sizes in the shapes of spheres, cubes, cuboids and cylinders.</p>
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Opening (2 minutes)

- Say:** In the previous lessons, we learned about the characteristics of spheres, cubes, cuboids and cylinders.
- Say:** Today, we will learn how to identify which shape is which. Then, we will be able to sort the shapes.

Introduction to New Material (10 minutes)

- Draw a rectangle on the board.
- Ask:** Do you know what this is called? (Answer: rectangle)
- Draw a circle on the board.
- Ask:** Do you know what this is called? (Answer: circle)
- Draw a square on the board.
- Ask:** Do you know what this is called? (Answer: square)
- Say:** These are all two-dimensional shapes that can be made into new shapes when they are three-dimensional.
- Hold up a sphere.
- Ask:** What is this called? (Answer: sphere)
- Ask:** What makes it a sphere? (Answer: a sphere is curved; it is perfectly round; it has no edges and no points)
- Hold up a cube.
- Ask:** What is this called? (Answer: cube)
- Ask:** What makes it a cube? (Answer: a cube has 6 sides; each side has a square on it; a cube has 8 points)
- Hold up a cuboid.
- Ask:** What is this called? (Answer: cuboid)
- Ask:** What makes it a cuboid? (Answer: a cuboid has 6 sides; 4 sides are equal rectangles and the 2 ends are squares; a cuboid has 8 points)
- Hold up a cylinder.
- Ask:** What is this called? (Answer: cylinder)
- Ask:** What makes it a cylinder? (Answer: A cylinder is made up of a rectangle and 2 circles.)

Guided Practice (6 minutes)

1. Hold up an item.
2. **Ask:** What shape is this object? What makes it a _____?
3. Hold up a different shaped item.
4. **Ask:** What shape is this object? What makes it a _____?
5. Hold up an item.
6. **Ask:** What shape is this object? What makes it a _____?
7. Hold up a different shaped item.
8. **Ask:** What shape is this object? What makes it a _____?
9. Hold up an item.
10. **Ask:** What shape is this object? What makes it a _____?
11. Hold up a different shaped item.
12. **Ask:** What shape is this object? What makes it a _____?




Independent Practice (15 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. **Say:** Create a picture using two-dimensional and three-dimensional shapes. Make sure to label the shapes you have drawn.
3. While the pupils are drawing, write the following words on the board: circle, square, rectangle, sphere, cube, cuboid.
4. Give pupils 14 minutes to draw and label their drawing, then ask them to hold up their work for you to see.

Closing (2 minutes)

1. **Say:** Today we revised three-dimensional shapes and how to identify them. In the next lessons, we will be working on multiplication by 2's.
2. **Say:** Well done. Thank you class, you drew wonderful shape pictures today. Pupils say: Thank you.

Lesson Title: Doubling to multiply by 2 using counters (repeated addition)	Theme: Everyday Arithmetic – Multiplication by 2	
Lesson Number: M-02-101	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson, pupils will be able to use doubling to multiply by 2 using counters.	 Teaching Aids 1. 100 chart (at the end of the lesson). 2. Small stones/beads/counters.	 Preparation 1. Create a 100 chart on the board. 2. Gather enough counters for each pupil to have a small handful.
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Opening (2 minutes)

1. **Say:** In earlier lessons we have learned how to count by 2s. Today, we are going to practise using counters to multiply by 2.

Introduction to New Material (8 minutes)

1. **Say:** We will start by using the 100-chart to help us learn how to double by 2.
2. **Say:** We start on 2. We add 2 to 2 and we get 4.
3. **Say:** We are on 4. When we double 4, we add 4 more. 5, 6, 7, 8.
4. **Say:** This brings us to 8.
5. **Say:** We are on 8. Now we add 8. 9, 10, 11, 12, 13, 14, 15, 16.
6. **Say:** This brings us to 16.
7. **Say:** The 100 chart is not the only tool we can use to multiply by 2. We can also use counters.

Guided Practice (10 minutes)

1. Give each pupil a handful of counters.
2. **Say:** We will multiply together using the counters I gave you.
3. **Say:** Begin by separating 2 counters from the rest. This is a group of 2. Now we will make 2 groups of 2.
4. **Say:** Separate another group of 2 counters.
5. **Ask:** How many counters do you have now? (Answer: 4)
6. On the board, write $2 \times 2 = 4$
7. **Say:** 2 groups of 2 = 4
8. **Say:** Now create 3 groups of 2.
9. **Ask:** How many counters do you have now? (Answer: 6)
10. On the board, write $2 \times 3 = 6$
11. **Say:** 3 groups of 2 = 6.
12. **Say:** Now create 5 groups of 2.
13. **Ask:** How many counters do you have now? (Answer: 10)
14. On the board, write $2 \times 5 = 10$
15. **Say:** 5 groups of 2 = 10
16. **Say:** Now create 8 groups of 2.
17. **Ask:** How many counters do you have now? (Answer: 16)
18. On the board, write $2 \times 8 = 16$
19. **Say:** 8 groups of 2 = 16

Independent Practice (14 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following equations on the board:
 $2 \times 9 =$ (Answer: 18) $2 \times 4 =$ (Answer: 8) $2 \times 5 =$ (Answer: 10)
 $2 \times 6 =$ (Answer: 12) $2 \times 7 =$ (Answer: 14)
3. **Say:** Write the equations on your paper. Use your counters to solve the equations. Write the answer to each problem.
4. Give pupils 10 minutes to solve the equations, then ask 5 volunteers (a combination of boys and girls) to write their answers on the board.
5. **Say:** Give yourself a clap for each problem you solved correctly.




Closing (1 minute)

1. **Say:** Today we practised using counters to multiply by 2s. In the next lesson, we will learn to multiply by 2s using mental math.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

[100 CHART]

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Lesson Title: Doubling to multiply by 2 using a number line	Theme: Everyday Arithmetic – Multiplication by 2	
Lesson Number: M-02-102	Class/Level: Class 2	Time: 35 minutes

	Learning Outcomes By the end of the lesson, pupils will be able to use doubling to multiply by 2 using a number line.		Teaching Aids 1. Number line from 1–100 (at the end of the lesson). 2. Place marker for number line.		Preparation Draw a number line on the board.
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Opening (2 minutes)

1. **Say:** In the previous lesson, we used counters to multiply by 2. Today, we will be using the 0 – 100 number line to multiply by 2.

Introduction to New Material (8 minutes)

1. Point to the 0 – 100 number line.
2. **Say:** This number line starts at 0 and ends at 100. Each mark represents 1.
3. On the board, write $2 \times 2 =$
4. **Say:** This is asking me to find the answer when 2 is multiplied 2 times.
5. Jump the marker from 0 to 2, and then 2 to 4. Complete the equation.
6. **Say:** $2 \times 2 = 4$
7. On the board, write $2 \times 10 =$
8. **Say:** This is asking me to find the answer when 2 is multiplied 10 times.
9. Jump the marker from 0 to 20 counting as you go. 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. Complete the equation.
10. **Say:** $2 \times 10 = 20$
11. On the board, write $2 \times 6 =$
12. **Say:** This is asking me to find the answer when 2 is multiplied 6 times.
13. Jump the marker from 0 to 12 counting as you go. 2, 4, 6, 8, 10, 12. Complete the equation.
14. **Say:** $2 \times 6 = 12$

Guided Practice (8 minutes)

1. On the board, write $2 \times 3 =$
2. **Ask:** What is this asking me to find? (Answer: The answer when 2 is multiplied 3 times.)
3. Jump the marker from 0 to 6 counting as you go. 2, 4, 6. Complete the equation.
4. **Say:** $2 \times 3 = 6$
5. On the board, write $2 \times 8 =$
6. **Ask:** What is this asking me to find? (Answer: The answer when 2 is multiplied 8 times.)
7. **Say:** What is the answer? (Answer: 16)
8. Jump the marker from 0 to 16 counting as you go. 2, 4, 6, 8, 10, 12, 14, 16. Complete the equation.
9. **Say:** $2 \times 8 = 16$

10. On the board, write $2 \times 11 =$
11. **Ask:** What is this asking me to find? (Answer: The answer when 2 is multiplied 11 times.)
12. **Say:** What is the answer? (Answer: 22)
13. Jump the marker from 0 to 22 counting as you go. 2, 4, 6, 8, 10, 12, 14, 16, 18, 22. Complete the equation.
14. **Say:** $2 \times 11 = 22$

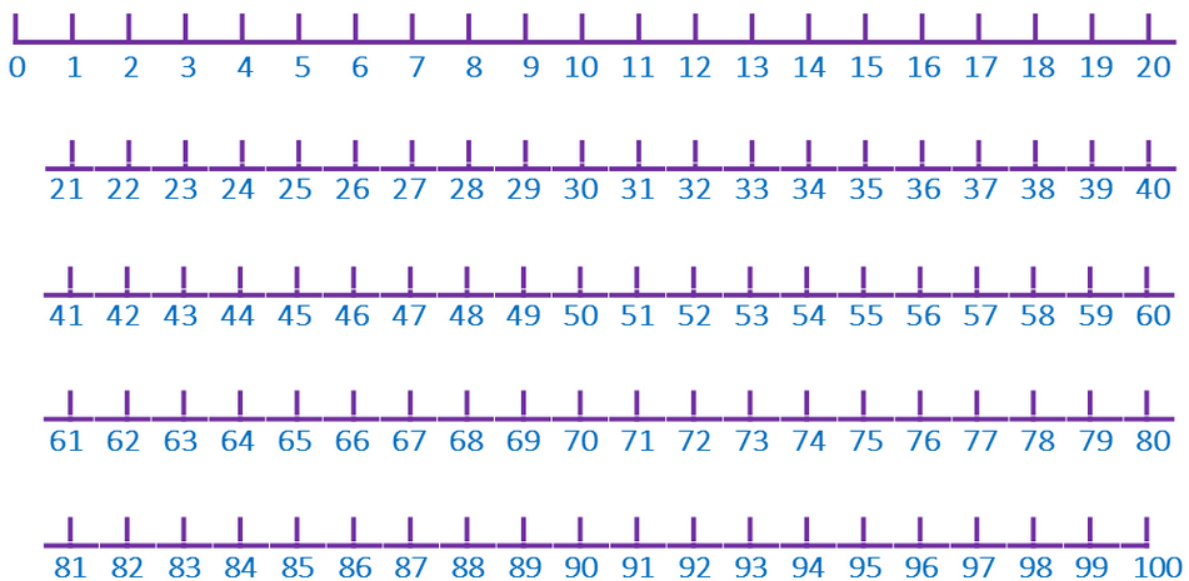
Independent Practice (15 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. On the board, write the following equations:
 $2 \times 9 =$ (Answer: 18) $2 \times 15 =$ (Answer: 30) $2 \times 5 =$ (Answer: 10)
 $2 \times 10 =$ (Answer: 20) $2 \times 7 =$ (Answer: 14) $2 \times 16 =$ (Answer: 32) $2 \times 1 =$ (Answer: 2)
3. **Say:** Write the following equations on your paper. Use the number line on the board to solve the equations. Write the answer to each problem.
4. Give the pupils 13 minutes to solve the problems, then ask 7 volunteers (a combination of boys and girls) to write the answers on the board.
5. **Say:** Give yourself a clap for each problem you solved correctly.




Closing (2 minutes)

1. **Say:** Today, you learned how to use the number line to multiply by 2s. In the next lesson, you will learn how to use the multiplication chart to multiply by 2.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

[0-100 NUMBER LINE]



Lesson Title: Multiplication table of 2	Theme: Everyday Arithmetic – Multiplication by 2	
Lesson Number: M-02-103	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson, pupils will be able to read and write the multiplication table of 2.</p>		<p>Teaching Aids 1. Multiplication table (at the end of the lesson). 2. 8 sticks.</p>		<p>Preparation 1. Create multiplication table on the board. 2. Gather sticks.</p>
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Opening (2 minutes)

1. Hold up 2 sticks. **Say:** Here are 2 sticks.
2. Hold up 2 more sticks. **Say:** Now there are 4 sticks.
3. Hold up 2 more sticks. **Say:** Now there are 6 sticks.
4. Hold up 2 more sticks. **Say:** Now there are 8 sticks.
5. **Say:** Today we will be learning how to read and write the multiplication table for 2s.

Introduction to New Material (8 minutes)

1. Point to the multiplication table.
2. **Say:** This is a multiplication table. This tool will help us learn our multiples.
3. Point to the 2 on the left side of the chart. Run your finger along the 2 line until you reach 24.
4. **Say:** These are the multiples of 2.
5. Point to the 2 on the left and the 1 at the top. **Say:** When I multiply the numbers 2 and 1...
6. Slide your fingers together until they meet at the 2. **Say:** ...the answer is 2.
7. Point to the 2 on the left and the 4 at the top. **Say:** When I multiply the numbers 2 and 4...
8. Slide your fingers together until they meet at the 8. **Say:** ...the answer is 8.
9. **Say:** The multiplication table works 2 ways. I can change the position of my hands and use it that way.
10. Point to the 2 on the top and the 4 on the left. **Say:** When I multiply the numbers 2 and 4...
11. Slide your fingers together until they meet at the 8. **Say:** ...the answer is still 8.

Guided Practice (12 minutes)

1. **Say:** Now we will read the multiples of 2 together, going across. Please say the numbers with me. 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24.
2. **Say:** Now we will use the table to multiply aloud. Repeat after me.
3. Point to the 2 on the left side and keep it there. Move your finger at the top as you recite the facts.
4. **Say:** 2 times 1 equals 2.
5. **Say:** 2 times 2 equals 4.
6. **Say:** 2 times 3 equals 6.
7. **Say:** 2 times 4 equals 8.
8. **Say:** 2 times 5 equals 10.

9. **Say:** 2 times 6 equals 12.
10. **Say:** 2 times 7 equals 14.
11. **Say:** 2 times 8 equals 16.
12. **Say:** 2 times 9 equals 18.
13. **Say:** 2 times 10 equals 20.
14. **Say:** 2 times 11 equals 22.
15. **Say:** 2 times 12 equals 24.
16. On the board, write $2 \times 8 = 16$ **Say:** Multiplication problems are written like this. The x in the middle is read as 'times'. The equal side is read as 'equals'.
17. **Say:** This problem is read 'two times eight equals sixteen'.
18. On the board, write $2 \times 5 =$ **Ask:** Who can tell me what this says? (Answer: two times five equals)
19. **Say:** Look at the multiplication table. Find 2 on the left and 5 on the top.
20. **Ask:** Where do they meet on the table? (Answer: 10) **Say:** Two times five equals ten.
21. **Ask:** What is 2×4 ? (Answer: 8)
22. **Ask:** What is 2×9 ? (Answer: 18)
23. **Ask:** What is 2×12 ? (Answer: 24)

Independent Practice (12 minutes)

1. **Say:** Now it is time to work on your own. Copy down the following problems. Then, use the multiplication table to solve them.

$2 \times 1 =$ (Answer: 2)	$2 \times 2 =$ (Answer: 4)	$2 \times 3 =$ (Answer: 6)	$2 \times 4 =$ (Answer: 8)
$2 \times 5 =$ (Answer: 10)	$2 \times 6 =$ (Answer: 12)	$2 \times 7 =$ (Answer: 14)	$2 \times 8 =$ (Answer: 16)
$2 \times 9 =$ (Answer: 18)	$2 \times 10 =$ (Answer: 20)	$2 \times 11 =$ (Answer: 22)	$2 \times 12 =$ (Answer: 24)
2. Walk around the room. Assist pupils.




Closing (1 minute)

1. **Say:** Today we have learned how to read and write the multiplication chart. In the next lesson, we will work on using mental math to multiply by 2s. Thank you class. Pupils say: Thank you.

[MULTIPLICATION TABLE]

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Lesson Title: Mental strategies for multiplication by 2	Theme: Everyday Arithmetic – Multiplication by 2	
Lesson Number: M-02-104	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson, pupils will be able to solve problems involving multiplication by 2 mentally.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

1. **Say:** In the previous lessons, we have learned to multiply by 2 using counters and the multiplication table.
2. **Ask:** What can we do if we don't have counters or our chart? (Answer: Use mental maths.)
3. **Say:** That's right. We can use mental maths.
4. **Say:** Mental maths is when you use your brain to solve math problems without the help of other tools.

Introduction to New Material (8 minutes)

1. **Say:** We will start using mental math with our 2s.
2. **Say:** We practised multiplying 2 by various numbers in our past few lessons, so we are familiar with the answer to certain equations.
3. **Say:** For example, we know that 2 times 2 equals 4. This equation is the easiest multiple of 2. We can memorise it.
4. **Ask:** But what if we have not memorised the answer to the equations? How can we solve the problems?
5. **Say:** We can count by 2's in our head.
6. **Say:** For example, if we have the equation 2×4 , we can count in our heads 2, 4, 6, 8. Then we have the answer, 8.
7. **Say:** Let's say the equation is 2×8 . We can count up in our heads. 2, 4, 6, 8, 10, 12, 14, 16. The answer is 16.

Guided Practice (8 minutes)

1. **Say:** Let's apply mental maths to our 2s together.
2. **Say:** If I have the equation 2×3 , I know that I need to add the number 2, 3 times.
3. **Say:** 2, 4, 6.
4. **Ask:** What if my equation is 2×6 ? How can I solve it? (Answer: count up by 2s; 2, 4, 6, 8, 10, 12)
5. **Say:** I can count up by 2, 6 times. 2, 4, 6, 8, 10, 12.
6. **Say:** My answer is 12.
7. **Ask:** My equation is now 2×9 . What is the solution? (Answer: 18)
8. **Ask:** How did you solve the equation?
9. Choose one volunteer to explain how she solved the equation.

10. **Say:** When using mental maths, it is important to keep track of how many times you have added a number.
11. **Say:** Another way to use mental maths is to memorise the multiplication chart and practise the maths facts.
12. **Say:** Repeat after me: 2 times 1 equals 2.
13. **Say:** 2 times 2 equals 4.
14. **Say:** 2 times 3 equals 6.
15. **Say:** 2 times 4 equals 8.
16. **Say:** 2 times 5 equals 10.
17. **Say:** 2 times 6 equals 12.
18. **Say:** 2 times 7 equals 14.
19. **Say:** 2 times 8 equals 16.
20. **Say:** 2 times 9 equals 18.
21. **Say:** 2 times 10 equals 20.
22. **Say:** 2 times 11 equals 22.
23. **Say:** 2 times 12 equals 24.




Independent Practice (14 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following equations on the board:
 $2 \times 11 =$ (Answer: 22) $2 \times 9 =$ (Answer: 18) $2 \times 5 =$ (Answer: 10)
 $2 \times 10 =$ (Answer: 20) $2 \times 7 =$ (Answer: 14)
3. **Say:** Now it is time to work on your own. Copy down the problems. Use mental maths to solve them. Write the answer to each problem.
4. Give pupils 12 minutes to solve the problems then ask 5 volunteers (a combination of boys and girls) to write the answers on the board.
5. **Say:** Give yourself a clap for each equation you answered correctly.

Closing (1 minute)

1. **Say:** Today, we used mental math to solve multiplication equations for 2s. In the next lesson, we will solve word problems using pictures for 2s.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Word problems involving times 2 using pictures	Theme: Everyday Arithmetic – Multiplication by 2	
Lesson Number: M-02-105	Class/Level: Class 2	Time: 35 minutes

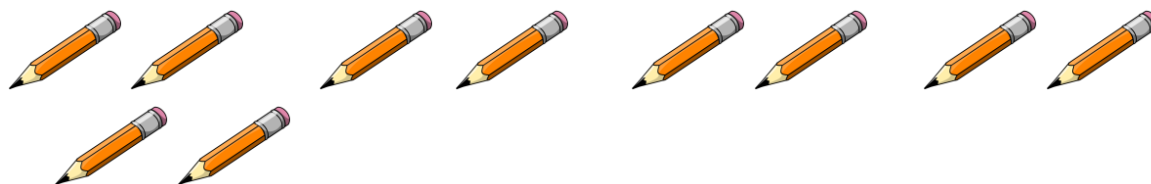
 Learning Outcomes By the end of the lesson, pupils will be able to solve one-step word problems involving times 2 using pictures.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

- Say:** In the previous lessons, we learned to multiply by 2 using counters, the multiplication table and mental maths.
- Say:** Today, we will learn to solve word problems involving multiplication by 2 using pictures.

Introduction to New Material (6 minutes)

- Say:** I will first show you how to solve word problems involving times two. Then we will work on them together.
- Say:** 5 students in a class each have 2 pencils. How many pencils do they have in all?
- Say:** I will start by drawing 5 sets of pencils, 2 pencils for each child.



- Say:** Now I can count how many pencils I have in all. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
- On the board, write $5 \times 2 = 10$.
- Say:** My equation is $5 \times 2 = 10$.

Guided Practice (6 minutes)

- Say:** Let's do the next problem together.
- Say:** 4 children each have 2 bananas. How many bananas do they have in all?
- Ask:** What is the first step? (Answer: Draw 4 sets of bananas with 2 bananas in each set.)
- On the board, draw:



- Ask:** What is the next step? (Answer: Count the bananas.)
- Ask:** How many bananas do I have in total? (Answer: 8)

7. **Ask:** What is the equation? (Answer: $4 \times 2 = 8$)
8. On the board, write: $4 \times 2 = 8$.




Independent Practice (20 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following problems on the board and read them aloud to the pupils:
 - 7 children each have 2 shoes. How many shoes do they have in all? (Answer: $7 \times 2 = 14$)
 - 6 hippos each have 2 eyes. How many eyes do they have in all? (Answer: $6 \times 2 = 12$)
 - 5 monkeys each have 2 ears. How many ears do they have in all? (Answer: $5 \times 2 = 10$)
 - 9 butterflies each have 2 wings. How many wings do they have in all? (Answer: $9 \times 2 = 18$)
3. **Say:** Solve the word problems above multiplication by 2s using pictures. Make sure to write and solve the equation that goes along with the word problems.
4. Give the pupils 15 minutes to draw their pictures and write the equations.
5. **Ask** 4 volunteers to write the equations on the board.
6. **Say:** Put your hands on your head if you got the same answer.

Closing (1 minute)

1. **Say:** Today we used pictures to solve word problems involving multiplication by 2. In the next lesson, we will move on to multiplication by 4.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Multiplication by 4 using counters (repeated addition)	Theme: Everyday Arithmetic – Multiplication by 4	
Lesson Number: M-02-106	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson, pupils will be able to multiply by 4 using counters.</p>		<p>Teaching Aids 1. 100 chart (at the end of the lesson). 2. Small stones/beads/counters.</p>		<p>Preparation 1. Create a 100-chart on the board. 2. Gather enough counters for each pupil to have a small handful.</p>
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Opening (2 minutes)

1. **Say:** We learned in an earlier lesson how to use counters to multiply by 2. Today, we are going to practise using counters to multiply by 4.

Introduction to New Material (6 minutes)

1. **Say:** We will start by using the 100 chart to help us learn how to multiply by 4.
2. **Say:** We start on 4. We add 4 more to 4.
3. Point to the 100 chart.
4. **Say:** 5, 6, 7, 8, we end up on 8.
5. **Say:** We are on 8. When we add 4 more, 9, 10, 11, 12 we end up on 12.
6. **Say:** Now we add 4 more. 13, 14, 15, 16. We end up on 16.
7. **Say:** The 100 chart is not the only tool we can use to multiply by 4. We can also use our counters.

Guided Practice (10 minutes)

1. Give each pupil a handful of counters.
2. **Say:** We will multiply together using the counters I have given you.
3. **Say:** Begin by separating 4 counters from the rest. This is a group of 4. Now we will make 2 groups of 4.
4. **Say:** Separate another group of 4 counters.
5. **Ask:** How many counters do you have now? (Answer: 8)
6. On the board, write $4 \times 2 = 8$.
7. **Say:** 2 groups of 4 equals 8.
8. **Say:** Now create 3 groups of 4.
9. **Ask:** How many counters do you have now? (Answer: 12)
10. On the board, write $4 \times 3 = 12$.
11. **Say:** 3 groups of 4 equals 12.
12. **Say:** Now create 5 groups of 4.
13. **Ask:** How many counters do you have now? (Answer: 20)
14. Write $4 \times 5 = 20$.
15. **Say:** 5 groups of 4 equals 20.
16. **Say:** Now create 8 groups of 4.

17. **Ask:** How many counters do you have now? (Answer: 32)
18. On board, write $4 \times 8 = 32$.
19. **Say:** 8 groups of 4 = 32.

Independent Practice (14 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following equations on the board.
 $4 \times 9 =$ (Answer: 36) $4 \times 4 =$ (Answer: 16) $4 \times 7 =$ (Answer: 28)
 $4 \times 6 =$ (Answer: 24) $4 \times 2 =$ (Answer: 8)
3. **Say:** Write the following equations on your paper. Use your counters to solve the equations. Write the answer to each problem.
4. Give pupils 12 minutes to use their counters and solve the equations, then ask 5 volunteers (a combination of boys and girls) to write the equations on the board.
5. **Say:** Give yourself a clap for each equation you solved correctly.




Closing (1 minute)

1. **Say:** Today we practised using counters to multiply by 4s. In the next lesson, we will learn to multiply by 4s using mental math.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

[100 CHART]

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Lesson Title: Multiplication by 4 using a number line	Theme: Everyday Arithmetic – Multiplication by 4	
Lesson Number: M-02-107	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson, pupils will be able to multiply by 4 using a number line.	 Teaching Aids 1. 0-100 number line (at the end of the lesson). 2. Place marker for number line.	 Preparation Draw a 0-100 number line on the board.
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Opening (2 minutes)

1. **Say:** In the previous lesson, we used counters to multiply by 4.
2. **Say:** Today we will be using the 0 – 100 number line to multiply by 4.

Introduction to New Material (8 minutes)

1. Point to the 0 – 100 number line (at the end of the lesson).
2. **Say:** This number line starts at 0 and ends at 100. Each mark represents 1.
3. Write: $4 \times 2 =$
4. **Say:** This is asking me to find the answer when 4 is multiplied 2 times.
5. Jump the marker from 0 to 4, and then 4 to 8.
6. Complete the equation. **Say:** $4 \times 2 = 8$
7. Write: $4 \times 10 =$
8. **Say:** This is asking me to find the answer when 4 is multiplied 10 times.
9. Jump the marker from 0 to 40 by 4s counting as you go... 4, 8, 12, 16, 20, 24, 28, 32, 36, 40
10. Complete the equation. **Say:** $4 \times 10 = 40$
11. Write: $4 \times 6 =$
12. **Say:** This is asking me to find the answer when 4 is multiplied 6 times.
13. Jump the marker from 0 to 24 by 4s counting as you go... 4, 8, 12, 16, 20, 24
14. Complete the equation. **Say:** $4 \times 6 = 24$

Guided Practice (8 minutes)

1. Write: $4 \times 3 =$
2. **Ask:** What is this asking me to find? (Answer: The answer when 4 is multiplied 3 times.)
3. Jump the marker from 0 to 12 by 3s counting as you go... 4, 8, 12
4. Complete the equation. **Say:** $4 \times 3 = 12$
5. Write: $4 \times 8 =$
6. **Ask:** What is this asking me to find? (Answer: The answer when 4 is multiplied 8 times.)
7. **Say:** What is the answer? (Answer: 32)
8. Jump the marker from 0 to 32 by 4s counting as you go... 4, 8, 12, 16, 20, 24, 28, 32
9. Complete the equation. **Say:** $4 \times 8 = 32$
10. Write: $4 \times 11 =$
11. **Ask:** What is this asking me to find? (Answer: The answer when 4 is multiplied 11 times.)

12. **Say:** What is the answer? (Answer: 44)
13. Jump the marker from 0 to 44 counting as you go... 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44
14. Complete the equation. **Say:** $4 \times 11 = 44$

Independent Practice (15 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. **Say:** Write the following equations on your paper:

$4 \times 9 =$ (Answer: 36)	$4 \times 15 =$ (Answer: 60)	$4 \times 5 =$ (Answer: 20)
$4 \times 10 =$ (Answer: 40)	$4 \times 7 =$ (Answer: 28)	$4 \times 6 =$ (Answer: 24)
$4 \times 1 =$ (Answer: 4)		

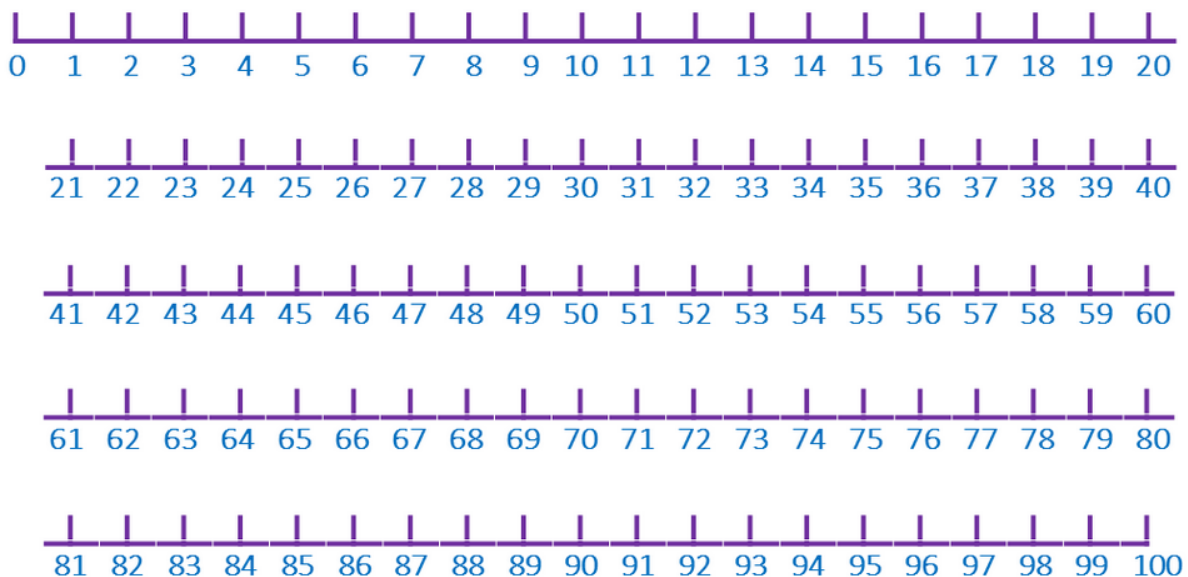
3. **Say:** Use the number line to solve the equations and write the answer to each problem. Give pupils 10 minutes to solve the problems.
4. **Ask** 7 volunteers (a combination of boys and girls) to tell the class the answer to one question each.
5. **Say:** Put your hands on your head if you got the same answer.

Closing (2 minutes)




1. **Say:** Today you learned how to use the number line to multiply by 4s.
2. **Say:** In the next lesson, you will learn how to use the multiplication chart to multiply by 4.
3. **Say:** Well done. Thank you class. Pupils say: Thank you.

[NUMBER LINE 0-100]

Note: Draw in one continuous line across the board



Lesson Title: Multiplication table of 4	Theme: Everyday Arithmetic – Multiplication by 4	
Lesson Number: M-02-108	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes</p> <p>By the end of the lesson, pupils will be able to read and write the multiplication table of 4.</p>		<p>Teaching Aids</p> <ol style="list-style-type: none"> Multiplication table (at the end of the lesson). 12 sticks. 		<p>Preparation</p> <ol style="list-style-type: none"> Draw a multiplication table on the board. Gather 12 sticks.
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Opening (2 minutes)

- Hold up 4 sticks. **Say:** Here are 4 sticks.
- Hold up 4 more sticks. **Say:** Now there are 8 sticks.
- Hold up 4 more sticks. **Say:** Now there are 12 sticks.
- Say:** Today we will be learning how to read and write the multiplication table of 4.

Introduction to New Material (8 minutes)

- Point to the multiplication table. **Say:** As you know, this is a multiplication table. It helps us learn our multiples.
- Point to the 4 on the left side of the table. Run your finger along the 4 line until you reach 48.
- Say:** These are the multiples of 4.
- Point to the 4 on the left and the 1 at the top. **Say:** When I multiply the numbers 4 and 1...
- Slide your fingers together until they meet at the 4. **Say:** The answer is 4.
- Point to the 4 on the left and the 6 at the top. **Say:** When I multiply the numbers 4 and 6...
- Slide your fingers together until they meet at the 24. **Say:** The answer is 24.
- Say:** The multiplication table works in two ways. I can change the position of my hands and use it that way.
- Point to the 4 on the top and the 6 on the left. **Say:** When I multiply the numbers 4 and 6...
- Slide your fingers together until they meet at the 24. **Say:** The answer is still 24.

Guided Practice (12 minutes)

- Say:** Now we will read the multiples of 4 together going across.
- Say:** Please say the numbers with me: 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48
- Say:** Now we will use the table to multiply aloud. **Say:** Please repeat after me.
- Point to the 4 on the left side and keep it there, and move your finger at the top as you recite the multiples.
- Say:** 4 times 1 equals 4.
- Say:** 4 times 2 equals 8.
- Say:** 4 times 3 equals 12.
- Say:** 4 times 4 equals 16.

9. **Say:** 4 times 5 equals 20.
10. **Say:** 4 times 6 equals 24.
11. **Say:** 4 times 7 equals 28.
12. **Say:** 4 times 8 equals 32.
13. **Say:** 4 times 9 equals 36.
14. **Say:** 4 times 10 equals 40.
15. **Say:** 4 times 11 equals 44.
16. **Say:** 4 times 12 equals 48.
17. Write: $4 \times 8 = 32$ **Say:** Multiplication problems are written like this. The 'x' in the middle is read as 'times'. The equal side is read as 'equals'.
18. **Say:** This problem is read as four times eight equals thirty-two.
19. Write: $4 \times 5 =$ **Ask:** Who can tell me what this says? (Answer: Four times five)
20. **Say:** Look at the multiplication table and find 4 on the left and 5 on the top.
21. **Ask:** Where do they meet on the table? (Answer: 20)
22. **Say:** Four times five equals twenty.
23. **Ask:** What is 4×4 ? (Answer: 16)
24. **Ask:** What is 4×9 ? (Answer: 36)
25. **Ask:** What is 4×12 ? (Answer: 48)

Independent Practice (12 minutes)

1. **Say:** Now it is time to work on your own. Please copy down the following problems. Once you have copied them, use the multiplication table to solve them.
 $4 \times 1 =$ (Answer: 4) $4 \times 2 =$ (Answer: 8) $4 \times 3 =$ (Answer: 12) $4 \times 4 =$ (Answer: 16)
 $4 \times 5 =$ (Answer: 20) $4 \times 6 =$ (Answer: 24) $4 \times 7 =$ (Answer: 28) $4 \times 8 =$ (Answer: 32)
 $4 \times 9 =$ (Answer: 36) $4 \times 10 =$ (Answer: 40) $4 \times 11 =$ (Answer: 44) $4 \times 12 =$ (Answer: 48)
2. Walk around the room to assist the pupils. Give the pupils 10 minutes to solve the problems.
3. **Ask** volunteers (a combination of boys and girls) to answer each question. **Say:** If you have the same answer put your hands on your head.




Closing (1 minute)

1. **Say:** Today we have learned how to read and write the multiplication table for 4s.
2. **Say:** In the next lesson, we will work on using mental math to multiply by 4s.

[MULTIPLICATION TABLE]

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Lesson Title: Mental strategies for multiplication by 4	Theme: Everyday Arithmetic – Multiplication by 4	
Lesson Number: M-02-109	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson, pupils will be able to solve problems involving multiplication by 4 mentally.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

1. **Say:** In previous lessons, we learned to multiply by 4 using counters and the multiplication chart.
2. **Ask:** What can we do if we don't have counters or our chart? (Answer: Use mental math.)
3. **Say:** We can use mental math.
4. **Say:** Mental math is when you use your brain to solve math problems without the help of other tools.

Introduction to New Material (8 minutes)

1. **Say:** We will start by using mental math with our 4s.
2. **Say:** We have practised multiplying by 4 with various numbers in our past few lessons, so we are familiar with the answer to certain equations.
3. **Say:** For example, we know that $4 \times 2 = 8$. To solve this equation, we just need to add $4 + 4$ or we can memorise the answer.
4. **Say:** But what if we have not memorised the answer to the equations? How can we solve the problems?
5. **Say:** We can count by 4s in our head.
6. **Say:** For example, if we have the equation 4×4 , we can count in our heads, 4, 8, 12, 16. Then we have the answer 16.
7. **Say:** Let's say the equation is 4×8 . We can count in our heads, 4, 8, 12, 16, 20, 24, 28, 32.

Guided Practice (8 minutes)

1. **Say:** Now let's apply mental math to our 4s together.
2. **Say:** If I have the equation 4×3 , I know that I need to add the number 4, 3 times.
3. **Say:** 4, 8, 12. I started at 4, then counted up 4 more to 8, then counted up 4 more to 12.
4. **Ask:** What if my equation is 4×6 ? How can I solve it? (Answer: count up 4, 8, 12, 16, 20, 24)
5. **Say:** I can count up by 4, 6 times. 4, 8, 12, 16, 20, 24.
6. **Say:** My answer is 24.
7. **Ask:** My equation is now 4×9 . What is the solution? (Answer: 36)
8. **Say:** Explain how you solved the equation. Ask 2 volunteers (1 boy and 1 girl) to explain how they counted up by 4s.
9. **Say:** When using mental math, it is important to keep track of how many times you have added a number.

10. **Say:** Another way to use mental math is to memorise the multiplication chart and practise the math facts.
11. **Say:** Please repeat after me: 4 times 1 equals 4.
12. **Say:** 4 times 2 equals 8.
13. **Say:** 4 times 3 equals 12.
14. **Say:** 4 times 4 equals 16
15. **Say:** 4 times 5 equals 20
16. **Say:** 4 times 6 equals 24
17. **Say:** 4 times 7 equals 28
18. **Say:** 4 times 8 equals 32
19. **Say:** 4 times 9 equals 36
20. **Say:** 4 times 10 equals 40
21. **Say:** 4 times 11 equals 44
22. **Say:** 4 times 12 equals 48




Independent Practice (14 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. **Say:** Write the following equations on your paper:
 $4 \times 11 =$ (Answer: 44) $4 \times 9 =$ (Answer: 36) $4 \times 5 =$ (Answer: 20)
 $4 \times 10 =$ (Answer: 40) $4 \times 7 =$ (Answer: 28) $4 \times 4 =$ (Answer: 16)
 $4 \times 12 =$ (Answer: 48)
3. **Say:** Please use mental math and write the answer to each problem.
4. Ask volunteers to give the answer to each question (alternate between boys and girls).
5. **Say:** Raise your hand if you have the same answers.

Closing (1 minute)

1. **Say:** Today we used mental math to solve multiplication equations for 4s.
2. **Say:** In the next lesson, we will solve word problems using pictures for 4s.
3. **Say:** Well done, you are getting very good at the multiplication table of 4s. Thank you class.
Pupils say: Thank you.

Lesson Title: Word problems involving times four using pictures	Theme: Everyday Arithmetic – Multiplication by 4	
Lesson Number: M-02-110	Class/Level: Class 2	Time: 35 minutes

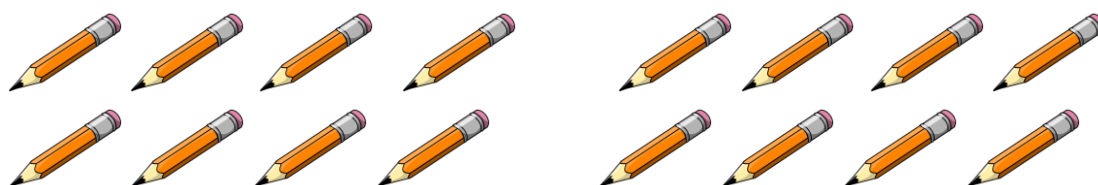
 Learning Outcomes By the end of the lesson, pupils will be able to solve one step word problems involving times four using pictures.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

- Say:** In previous lessons, we have learned to multiply by 4 using counters, the multiplication chart, and mental math.
- Say:** Today we will learn to solve word problems involving ‘times four’ using pictures.

Introduction to New Material (6 minutes)

- Say:** I will first show you how to solve word problems involving times four, then we will work on some problems together.
- Say:** 4 pupils in the class each have 4 pencils. How many pencils do they have in all?
- Say:** I will start by drawing 4 sets of pencils. 4 pencils for each pupil.



- Say:** Now I can count how many pencils I have in all by 4s. 4, 8, 12, 16
- Write: $4 \times 4 = 16$
- Say:** My equation is $4 \times 4 = 16$

Guided Practice (6 minutes)

- Say:** Let’s do the next problem together.
- Say:** 4 children each have 3 bananas. How many bananas do they have in all?
- Ask:** What is the first step? (Draw 4 sets of bananas with 3 bananas in each set).

4. Draw:



5. **Ask:** What is the next step? (Answer: Count the bananas.)
6. **Ask:** How many bananas do I have in total? (Answer: 12)
7. **Ask:** What is the equation? (Answer: $4 \times 3 = 12$)
8. Write: $4 \times 3 = 12$

Independent Practice (20 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following problems on the board and read them aloud to the pupils:




7 children each have 4 pencils. How many pencils do they have in all? (Answer: 28)
6 hippos each have 4 legs. How many legs do they have in all? (Answer: 24)
5 antelopes each have 4 legs. How many legs do they have in all? (Answer: 20)
9 butterflies each have 4 wings. How many wings do they have in all? (Answer: 36)

3. **Say:** Please solve the word problems above using pictures. Make sure to write and solve the equation that goes along with the word problems.
4. Give pupils 15 minutes to write and draw their answers. Provide support to pupils by reading the problems aloud if they are unable to read independently.
5. **Say:** Let's check our answers. **Ask:** Who can tell us the answer to the first problem?
6. Choose a volunteer to explain how they got their answer. **Say:** Clap for yourself if you got the correct answer.
7. Continue asking for volunteers to share how they got their answer, alternating between boys and girls.

Closing (1 minute)

1. **Say:** Today we used pictures to solve word problems involving times four. In the next lesson, we will be moving on to multiplication by 10.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Multiplication by 10 using counters (repeated addition)	Theme: Everyday Arithmetic – Multiplication by 10	
Lesson Number: M-02-111	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson, pupils will be able to multiply by 10 using counters.</p>		<p>Teaching Aids 1. 100 chart (at the end of the lesson). 2. Small stones/beads/counters.</p>		<p>Preparation Gather enough small stones for each pupil to make groups of 10.</p>
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Opening (2 minutes)

1. **Say:** We have learned in earlier lessons how to use counters to multiply by 2 and 4.
2. **Say:** Today we are going to practise using counters to multiply by 10.

Introduction to New Material (6 minutes)

1. **Say:** We will start by using the 100 chart to help us learn how to multiply by 10.
2. **Say:** We start on 10. We add 10 more to 10.
3. Point to the 100-chart and **Say:** 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
4. **Say:** We are on 20. When we add 10 more, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30
5. **Say:** We end up on 30.
6. **Say:** We are on 30. When we add 10 more, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40.
7. **Say:** We end up on 40.

Guided Practice (10 minutes)

1. Give each pupil a handful of counters.
2. **Say:** We will multiply together using the counters I have given you.
3. **Say:** Begin by separating 10 counters from the rest. This is a group of 10. Now we will make 2 groups of 10.
4. **Say:** Separate another group of 10 counters.
5. **Ask:** How many counters do you have now? (Answer: 20)
6. Write: $10 \times 2 = 20$
7. **Say:** 2 groups of 10 = 20
8. **Say:** Now create 3 groups of 10.
9. **Ask:** How many counters do you have now? (Answer: 30)
10. Write: $10 \times 3 = 30$
11. **Say:** 3 groups of 10 = 30
12. **Say:** Now create 6 groups of 10.
13. **Ask:** How many counters do you have now? (Answer: 60)
14. Write: $10 \times 6 = 60$

Independent Practice (16 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. **Say:** Please write the following equations on your paper:

$$10 \times 3 = (\text{Answer: } 30) \quad 10 \times 5 = (\text{Answer: } 50) \quad 10 \times 7 = (\text{Answer: } 70)$$
$$10 \times 6 = (\text{Answer: } 60) \quad 10 \times 8 = (\text{Answer: } 80)$$

3. **Say:** Work with a partner and use your counters to solve the equations and write the answer to each problem.
4. Give pupils 10 minutes to complete the equations.
5. Ask 5 volunteers (a combination of boys and girls) to tell the class their answers. **Say:** If you agree, put your hands on your head.
(Answers: $10 \times 3 = 30$, $10 \times 5 = 50$, $10 \times 7 = 70$, $10 \times 6 = 60$, $10 \times 8 = 80$)




Closing (1 minute)

1. **Say:** Today we practised using counters to multiply by 10s.
2. **Say:** In the next lesson, we will learn to multiply by 10s using mental math.
3. **Say:** Well done. Thank you class. Pupils say: Thank you.

[100 CHART]

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Lesson Title: Multiply by 10 using a number line	Theme: Everyday Arithmetic – Multiplication by 10	
Lesson Number: M-02-112	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson, pupils will be able to multiply by 10 using a number line.	 Teaching Aids 1. 0-100 number line (at the end of the lesson). 2. Place a marker for the number line.	 Preparation Draw or place the 0-100 number line on the board.
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Opening (2 minutes)

1. **Say:** In the previous lesson, we used counters to multiply by 10.
2. **Say:** Today we will be using the 0 – 100 number line to multiply by 10.

Introduction to New Material (8 minutes)

1. Point to the 0 – 100 number line (at the end of the lesson)
2. **Say:** This number line starts at 0 and ends at 100. Each mark represents 1.
3. Write: $10 \times 2 =$
4. **Say:** This is asking me to find the answer when 10 is multiplied 2 times.
5. Jump the marker from 0 to 10, and then 10 to 20.
6. Complete the equation.
7. **Say:** $10 \times 2 = 20$
8. Write: $10 \times 10 =$
9. **Say:** This is asking me to find the answer when 10 is multiplied 10 times.
10. Jump the marker from 0 to 100 counting as you go... 10, 20, 30, 40, 50, 60, 70, 80, 90, 100
11. Complete the equation.
12. **Say:** $10 \times 10 = 100$
13. Write: $10 \times 6 =$
14. **Say:** This is asking me to find the answer when 10 is multiplied 6 times.
15. Jump the marker from 0 to 60 counting as you go... 10, 20, 30, 40, 50, 60
16. Complete the equation.
17. **Say:** $10 \times 6 = 60$

Guided Practice (8 minutes)

1. **Say:** Please write $10 \times 3 =$
2. **Ask:** What is this asking me to find? (Answer: The answer when 10 is multiplied 3 times.)
3. Jump the marker from 0 to 30 counting as you go... 10, 20, 30
4. Complete the equation.
5. **Say:** $10 \times 3 = 30$
6. Write: $10 \times 8 =$
7. **Ask:** What is this asking me to find? (Answer: The answer when 10 is multiplied 8 times.)
8. **Say:** What is the answer? (Answer: 80)

9. Jump the marker from 0 to 80 counting as you go... 10, 20, 30, 40, 50, 60, 70, 80
10. Complete the equation.
11. **Say:** $10 \times 8 = 80$

Independent Practice (15 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. **Say:** Please write the following equations on your paper:

$10 \times 9 =$ (Answer: 90) $10 \times 5 =$ (Answer: 50) $10 \times 4 =$ (Answer: 40)
 $10 \times 2 =$ (Answer: 20) $10 \times 7 =$ (Answer: 70) $10 \times 6 =$ (Answer: 60) $10 \times 1 =$ (Answer: 10)

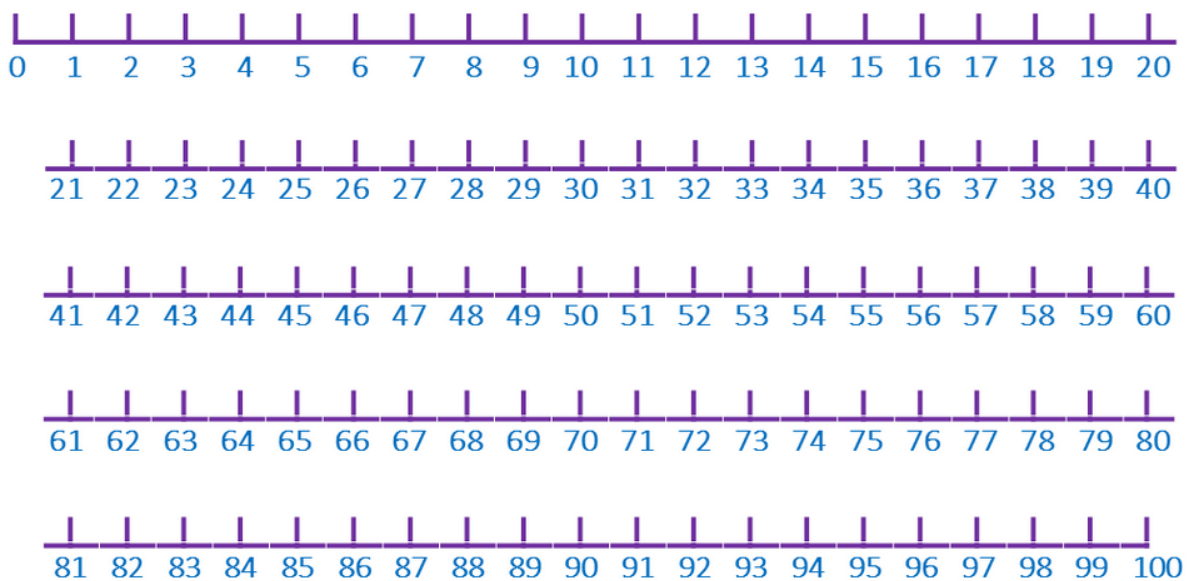
3. **Say:** Now use the number line to solve the equations and write the answer to each problem.
4. Give pupils 10 minutes to complete the equations.
5. **Ask** 7 volunteers (a combination of boys and girls) to say their answer and explain how they got it.
6. **Say:** Raise your hand if you got the same answer.

Closing (2 minutes)




1. **Say:** Today you learned how to use the number line to multiply by 10s.
2. **Say:** In the next lesson, you will learn how to use the multiplication chart to multiply by 10.
3. **Say:** Well done. Thank you class. Pupils say: Thank you.

[0-100 NUMBER LINE]

Note: Draw in one continuous line across the board



Lesson Title: Multiplication table of 10	Theme: Everyday Arithmetic – Multiplication by 10	
Lesson Number: M-02-113	Class/Level: Class 2	Time: 35 minutes

	<p>Learning Outcomes By the end of the lesson, pupils will be able to read and write the multiplication table of 10.</p>		<p>Teaching Aids Multiplication table (at the end of the lesson).</p>		<p>Preparation Create a multiplication table on the board.</p>
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Opening (2 minutes)

1. Hold up 10 fingers. **Say:** Here are 10 fingers.
2. Point to a pupil and **Say:** _____ has ten fingers as well. **Say:** Together, we have 20 fingers.
3. Point to another pupil **Say:** _____ also has ten fingers. **Say:** Together, we have 30 fingers.
4. **Say:** Today we will be learning how to read and write the multiple table for 10s.

Introduction to New Material (8 minutes)

1. Point to the multiplication table. **Say:** As you know, this is a multiplication table. It helps us learn our multiples.
2. Point to the 10 on the left side of the table. Run your finger along the 10 line until you reach 120.
3. **Say:** These are the multiples of 10.
4. Point to the 10 on the left and the 1 at the top. **Say:** When I multiply the numbers 10 and 1...
5. Slide your fingers together until they meet at the 10. **Say:** The answer is 10.
6. Point to the 10 on the left and the 4 at the top. **Say:** When I multiply the numbers 10 and 4...
7. Slide your fingers together until they meet at the 40. **Say:** The answer is 40.
8. **Say:** The multiplication table works two ways. I can change the position of my hands and use it that way.
9. Point to the 10 on the top and the 4 on the left. **Say:** When I multiply the numbers 4 and 10...
10. Slide your fingers together until they meet at the 40. **Say:** The answer is still 40.

Guided Practice (12 minutes)

1. **Say:** Now we will read the multiples of 10 together going across.
2. **Say:** Please say the numbers with me: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120
3. **Say:** Now we will use the table to multiply aloud. Repeat after me.
4. Point to the 10 on the left side and keep it there, and move your finger at the top as you recite the multiples.
5. **Say:** 10 times 1 equals 10
6. **Say:** 10 times 2 equals 20
7. **Say:** 10 times 3 equals 30
8. **Say:** 10 times 4 equals 40
9. **Say:** 10 times 5 equals 50

10. **Say:** 10 times 6 equals 60
11. **Say:** 10 times 7 equals 70
12. **Say:** 10 times 8 equals 80
13. **Say:** 10 times 9 equals 90
14. **Say:** 10 times 10 equals 100
15. **Say:** 10 times 11 equals 110
16. **Say:** 10 times 12 equals 120
17. Write: $10 \times 8 = 80$ **Say:** Multiplication problems are written like this. The 'x' in the middle is read as 'times'. The equal side is read as 'equals.'
18. **Say:** This problem is read as ten times eight equals eighty.
19. Write: $10 \times 5 =$ **Ask:** Who can tell me what this says? (Answer: ten times five equals)
20. **Say:** Look at the multiplication table and find 10 on the left and 5 on the top.
21. **Ask:** Where do they meet on the table? (Answer: 50) **Say:** Ten times five equals fifty.
22. **Ask:** What is 10×11 ? (Answer: 110)
23. **Ask:** What is 10×10 ? (Answer: 100)
24. **Ask:** What is 10×7 ? (Answer: 70)

Independent Practice (12 minutes)

1. **Say:** Now it is time to work on your own. Please write down the following problems. Once you have written them down, use the multiplication table to solve them.
 $10 \times 1 =$ (Answer: 10) $10 \times 2 =$ (Answer: 20) $10 \times 3 =$ (Answer: 30) $10 \times 4 =$ (Answer: 40)
 $10 \times 5 =$ (Answer: 50) $10 \times 6 =$ (Answer: 60) $10 \times 7 =$ (Answer: 70) $10 \times 8 =$ (Answer: 80)
 $10 \times 9 =$ (Answer: 90) $10 \times 10 =$ (Answer: 100) $10 \times 11 =$ (Answer: 110) $10 \times 12 =$ (Answer: 120)
2. Walk around the room to assist the pupils.
3. Give pupils 10 minutes to solve the problems, then ask for volunteers to write the solutions on the board.
4. **Say:** Raise your hand if you solved all of the problems correctly.




Closing (1 minute)

1. **Say:** Today we have learned how to read and write the multiplication table for 10s. In the next lesson, we will work on using mental math to multiply by 10s. **Say:** Well done. Thank you class.

[MULTIPLICATION TABLE]

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Lesson Title: Mental strategies for multiplication by 10	Theme: Everyday Arithmetic – Multiplication by 10	
Lesson Number: M-02-114	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson, pupils will be able to solve problems involving multiplication by 10 mentally.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

- Say:** In previous lessons, we have learned to multiply by 10 using counters and the multiplication chart.
- Ask:** What can we do if we don't have counters or our chart? (Answer: Use mental math.)
- Say:** We can use mental math.
- Say:** Mental math is when you use your brain to solve math problems without the help of other tools.

Introduction to New Material (8 minutes)

- Say:** We will start using mental math with our 10s.
- Say:** We have practised multiplying 10 by various numbers in our past few lessons, so we are familiar with the answer to certain equations.
- Say:** For example, we know that $10 \times 2 = 20$. To solve this equation, we just need to add $10 + 10$ or we can memorise the answer.
- Say:** But what if we have not memorised the answer to the equations? How can we solve the problems?
- Say:** We can count by 10s in our head.
- Say:** For example, if we have the equation 10×4 , we can count in our heads 10, 20, 30, 40. Then we have the answer 40.
- Say:** Let's say the equation is 10×8 . We can count up in our heads, 10, 20, 30, 40, 50, 60, 70, 80.

Guided Practice (8 minutes)

- Say:** Let's apply mental math to our 10s together.
- Say:** If I have the equation 10×3 , I know that I need to add the number 10, 3 times.
- Say:** 10, 20, 30 I started at 10, then counted up 10 more to 20, then counted up 10 more to 30.
- Ask:** What if my equation is 10×6 ? How can I solve it? (Answer: count up 10, 20, 30, 40, 50, 60)
- Say:** I can count up by 10, 6 times. 10, 20, 30, 40, 50, 60.
- Say:** My answer is 60.
- Ask:** My equation is now 10×9 . What is the solution? (Answer: 90)
- Say:** Explain how you solved the equation.
- Say:** When using mental math, it is important to keep track of how many times you have added a number.

10. **Say:** Another way to use mental math is to memorise the multiplication chart and practise the math equations.
11. **Say:** Please repeat after me: 10 times 1 equals 10.
12. **Say:** 10 times 2 equals 20.
13. **Say:** 10 times 3 equals 30.
14. **Say:** 10 times 4 equals 40
15. **Say:** 10 times 5 equals 50
16. **Say:** 10 times 6 equals 60
17. **Say:** 10 times 7 equals 70
18. **Say:** 10 times 8 equals 80
19. **Say:** 10 times 9 equals 90
20. **Say:** 10 times 10 equals 100
21. **Say:** 10 times 11 equals 110
22. **Say:** 10 times 12 equals 120

Independent Practice (15 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. **Say:** Please write the following equations on your paper:




$$\begin{array}{llll} 10 \times 11 = (\text{Answer: } 110) & 10 \times 9 = (\text{Answer: } 90) & 10 \times 5 = (\text{Answer: } 50) & 10 \times 10 = (\text{Answer: } 100) \\ 10 \times 7 = (\text{Answer: } 70) & 10 \times 4 = (\text{Answer: } 40) & 10 \times 2 = (\text{Answer: } 20) & 10 \times 8 = (\text{Answer: } 80) \\ 10 \times 1 = (\text{Answer: } 10) & 10 \times 3 = (\text{Answer: } 30) & & \end{array}$$

3. **Say:** Now use mental math and write the answer to each problem.
4. Give pupils 12 minutes to answer the problems, then ask for volunteers to write an answer on the board.
5. **Say:** Clap for yourself if you solved the problems correctly.

Closing (2 minutes)

1. **Say:** Today we used mental math to solve multiplication equations for 10s.
2. **Say:** In the next lesson, we will solve word problems using pictures for 10s.
3. **Say:** Well done, you are very good at multiplying by 10. Thank you class. Pupils say: Thank you.

Lesson Title: Word problems involving times ten using pictures	Theme: Everyday Arithmetic – Multiplication by 10	
Lesson Number: M-02-115	Class/Level: Class 2	Time: 35 minutes

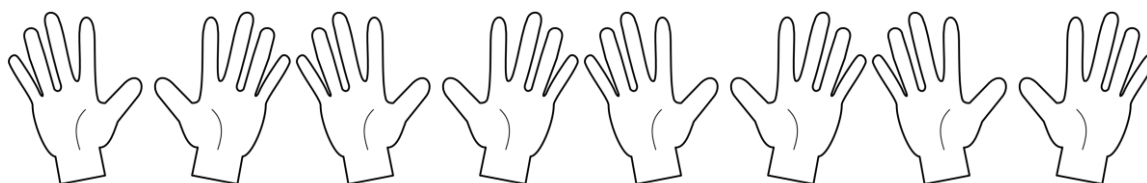
 Learning Outcomes By the end of the lesson, pupils will be able to solve one step word problems involving times ten using pictures.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

1. **Say:** In previous lessons, we have learned to multiply by 10 using counters, the multiplication chart, and mental maths.
2. **Say:** Today we will learn to solve word problems involving ‘times ten’ using pictures.

Introduction to New Material (6 minutes)

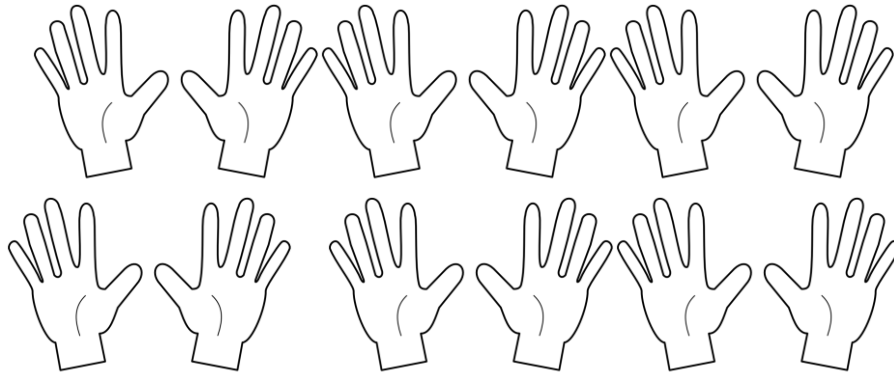
1. **Say:** I will first show you how to solve word problems involving times ten, then we will work on some problems together.
2. **Say:** 4 pupils in the class each have 10 fingers. How many fingers do they have in all?
3. **Say:** I will start by drawing 4 sets of pupils hands. 10 fingers for each pupil.



4. **Say:** Now I can count by 10s, how many fingers do I have in all? 10, 20, 30, 40.
5. Write: $10 \times 4 = 40$
6. **Say:** My equation is $10 \times 4 = 40$

Guided Practice (6 minutes)

1. **Say:** Let’s do the next problem together.
2. **Say:** 6 children each have 10 fingers. How many fingers do they have in all?
3. **Ask:** What is the first step? (Answer: Draw 6 sets of fingers with 10 fingers in each set.)
4. Draw:



5. **Ask:** What is the next step? (Answer: Count the fingers in sets of 10.)
6. **Ask:** How many fingers do I have in total? (Answer: 60)
7. **Ask:** What is the equation? (Answer: $10 \times 6 = 60$)
8. Write: $10 \times 6 = 60$

Independent Practice (20 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following problems on the board and read them aloud to the pupils:

7 children each have 10 pencils. How many pencils do they have in all? (Answer: $10 \times 7 = 70$)

5 children each have 10 toes. How many toes do they have in all? (Answer: $10 \times 5 = 50$)

8 boys each have 10 mangos. How many mangos do they have in all? (Answer: $10 \times 8 = 80$)




5 girls each have 10 limes. How many limes do they have in all? (Answer: $10 \times 5 = 50$)

3. **Say:** Solve the word problems above using pictures. Please make sure to write and solve the equation that goes along with the word problems.
4. Provide support by reading the problems aloud for pupils if they are not able to read independently.
5. **Ask** 4 volunteers (2 boys and 2 girls) to write the equation and answer for one problem each.
6. **Say:** Raise your hand if you got the same answers!
7. Have pupils hold up their pictures for you to see.

Closing (1 minute)

1. **Say:** Today we used pictures to solve word problems involving times four. In the next lesson, we will be learning about odd and even numbers.
2. **Say:** Well done, you are very good at solving multiplication word problems. Thank you class.
Pupils say: Thank you.

Lesson Title: Identifying odd numbers using patterns	Theme: Numbers and Numeration – Odd and Even Numbers	
Lesson Number: M-02-116	Class/Level: Class 2	Time: 35 minutes

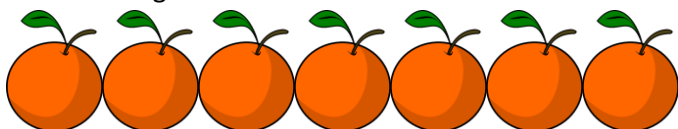
 Learning Outcomes By the end of the lesson, pupils will be able to identify odd numbers using patterns.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

- Say:** We are now moving on to learning about odd and even numbers. We will first begin by exploring odd numbers. Then in the next lesson, we will learn about even numbers.

Introduction to New Material (8 minutes)

- Say:** We will first learn to identify odd numbers using pictures.
- Draw 7 oranges.



- Say:** Here are 7 oranges.
- Say:** In order to determine if there is an odd number or even number of oranges, I will put them in pairs.



- Say:** There is one orange by itself. It is not in a pair. This means that the number 7 is an odd number.
- Say:** Now I will show you how to identify odd numbers in a set of numbers.
- Write the numbers 1 to 10 on the board.
- Say:** Odd numbers are every other number in a set of consecutive numbers. 'Consecutive' means they are one after the other when counting.
- Say:** I know that odd numbers do not have a partner, so I know that 1 is an odd number.
- Say:** Since odd numbers are every other number in a set of consecutive numbers, I know that the odd numbers in this set are: 1, 3, 5, 7, and 9.

Guided Practice (8 minutes)

- Say:** Let's work together on the next problem.
- Draw 6 bananas.



3. **Say:** Here are 6 bananas.

4. Put them in pairs.



5. **Ask:** Are there any bananas left over? (Answer: no)

6. **Ask:** Is 6 an even or odd number? (Answer: even)

7. **Say:** Let's try one more.

8. Draw 5 pencils.



9. **Ask:** What is the first step? (Answer: Put the pencils in pairs.)



10. **Ask:** Are there any pencils left over? (Answer: yes)

11. **Ask:** Is 5 an even or odd number? (Answer: odd)

Independent Practice (16 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following on the board.

3 mangos (Answer: odd)

5 children (Answer: odd)

6 flowers (Answer: even)

2 eyes (Answer: even)

7 monkeys (Answer: odd)




9 oranges (Answer: odd)

3. **Say:** Please draw the following items and write if the groups of items are even or odd.
4. **Say:** When you are finished, write the numbers in order from 0 to 50. Please circle all the odd numbers.
5. **Ask** the pupils to hold up their work for you to see.

Closing (1 minute)

1. **Say:** Today we learned how to identify odd numbers. In the next lesson, we will learn how to identify even numbers.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Identifying even numbers using Patterns	Theme: Numbers and Numeration – Odd and Even Numbers	
Lesson Number: M-01-117	Class/Level: Class 2	Time: 35 minutes

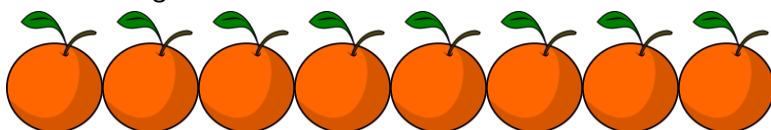
 Learning Outcomes By the end of the lesson, pupils will be able to identify even numbers using patterns.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

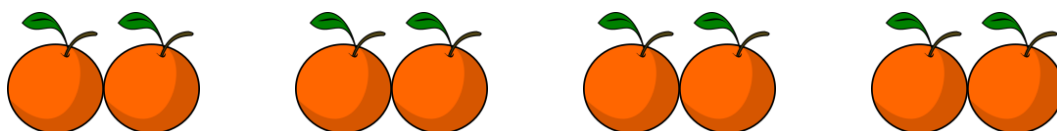
- Say:** In the previous lesson, we learned how to identify odd numbers. **Ask** How can you use pictures to know if a number is odd? (Answer: When you draw the number of objects in pairs, there is one left over.)
- Say:** We will now explore even numbers. Then in the next lesson, we will move on to addition with odd and even numbers.

Introduction to New Material (8 minutes)

- Say:** We will first learn to identify even numbers using pictures.
- Draw 8 oranges.



- Say:** Here are 8 oranges.
- Say:** In order to determine if there is an odd number or even number of oranges, I will put them in pairs.



- Say:** Each orange has a partner. This means that the number 8 is an even number.
- Say:** Now I will show you how to identify even numbers in a set of numbers.
- Write the numbers 1 to 10 on the board.
- Say:** Even numbers are every other number in a set of consecutive numbers. ‘Consecutive’ means they are one after the other when counting.
- Say:** I know that even numbers have a partner, and I know that 1 does not have a partner making it odd.
- Say:** Since even numbers are every other number in a set of consecutive numbers, I know that the even numbers in this set are: 2, 4, 6, 8, and 10.

Guided Practice (8 minutes)

- Say:** Let’s work together on the next problem.

2. Draw 7 bananas.



3. **Say:** Here are 7 bananas. Let's put them in pairs.



4. **Ask:** Are there any bananas left over? (Answer: yes)
5. **Ask:** Is 7 an even or odd number? (Answer: odd)
6. **Say:** Let's try one more.
7. Draw 6 pencils.



8. **Ask:** What is the first step? (Answer: Put the pencils in pairs.)



9. **Ask:** Are there any bananas left over? (Answer: no)
10. **Ask:** Is 6 an even or odd number? (Answer: even)

Independent Practice (16 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following on the board:




4 mangos	(Answer: even)	6 children	(Answer: even)	5 flowers	(Answer: odd)
2 eyes	(Answer: even)	7 monkeys	(Answer: odd)	8 oranges	(Answer: even)

3. **Say:** Please draw the following items and write if the groups of items are even or odd.
4. **Say:** When you are finished, write the numbers in order from 0 to 50. Please circle all the even numbers.
5. **Ask** the pupils to hold up their work for you to see.

Closing (1 minute)

1. **Say:** Today we learned how to identify even numbers. In the next lesson, we will move on to addition with even and odd numbers.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Odd + odd = even	Theme: Numbers and Numeration – Odd and Even Numbers	
Lesson Number: M-02-118	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson, pupils will be able to use the fact that odd + odd equals even to solve problems.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

1. **Say:** In the previous lesson, we learned how to identify odd and even numbers. Now we will learn what happens when we add odd and odd numbers together.

Introduction to New Material (7 minutes)

1. Write: $5 + 7 =$
2. **Say:** I have written an equation with two odd numbers, 5 and 7.
3. **Say:** I will use pictures to see what happens when I add 5 and 7 together.
4. Draw groups of 5 bananas and 7 bananas exactly as below (one over the other).



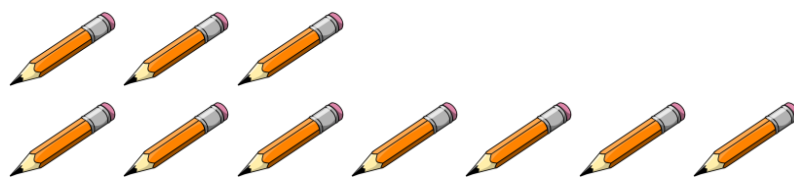
5. **Say:** I have drawn 5 bananas and 7 bananas.
6. **Say:** Together they equal 12 bananas.
7. Write: $5 + 7 = 12$
8. **Say:** Let's see if 12 is an even or odd number by putting the bananas in pairs.



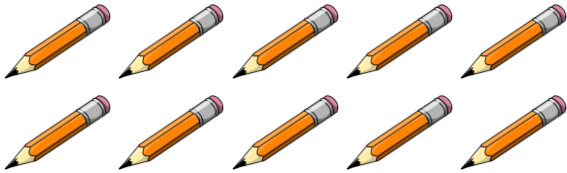
9. **Say:** Every banana has a partner, so 12 is an even number.

Guided Practice (9 minutes)

1. **Say:** Let's try again with 2 new odd numbers. 3 and 7.
2. Write: $3 + 7 =$
3. Draw:



4. **Say:** Please draw the pencils like this on your paper.
5. **Say:** We have drawn 3 pencils and 7 pencils.
6. **Ask:** How many pencils do we have in total? (Answer: 10)
7. Write: $3 + 7 = 10$
8. **Ask:** What is the next step? (Answer: Put the pencils in pairs.)
9. Draw:



10. **Ask:** Does every pencil have a partner? (Answer: yes)
11. **Ask:** Is 10 an odd or even number? (Answer: even)
12. **Say:** In both the problem I showed you and the problem we did together, our solution was an even number. Therefore, odd plus odd numbers equal even numbers.

Independent Practice (16 minutes)

1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following on the board:




3 mangoes + 5 mangoes (Answer: 8, even) 9 oranges + 1 orange (Answer: 10, even)
 5 flowers + 1 flower (Answer: 6, even) 9 monkeys + 3 monkeys (Answer: 12, even)

3. **Say:** Please draw the following items and write the equation for each.
4. **Say:** Now solve the equations and write if the answers are even or odd.
5. Give pupils 14 minutes to complete their pictures and equations.
6. Have 4 volunteers (2 girls and 2 boys) come to the board and write the equations and solutions.
7. **Say:** Put your hands on your head if you solved all the problems correctly.
8. **Ask:** Are the answers odd or even? (Answer: All are even)

Closing (1 minute)

1. **Say:** Today we learned that odd plus odd numbers equal even numbers. In the next lesson, we will see what happens when we add even and even numbers.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Even + even = even	Theme: Numbers and Numeration – Odd and Even Numbers	
Lesson Number: M-02-119	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson, pupils will be able to use the fact that even + even equals even to solve problems.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

1. **Say:** In the previous lesson, we learned that odd plus odd numbers equal even numbers. Now we will learn what happens when we add even and even numbers together.

Introduction to New Material (7 minutes)

1. Write: $2 + 6 =$
2. **Say:** I have written an equation with two even numbers, 2 and 6.
3. **Say:** I will use pictures to see what happens when I add 2 and 6 together.
4. Draw groups of 2 bananas and 6 bananas exactly as below (one over the other).



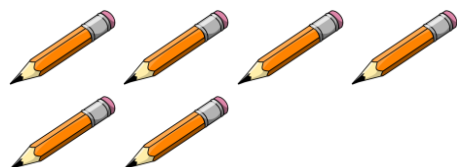
5. **Say:** I have drawn 2 bananas and 6 bananas. Together they equal 8 bananas.
6. Write: $2 + 6 = 8$
7. **Say:** Let's see if 8 is an even or odd number by putting the bananas in pairs.



8. **Say:** Every banana has a partner, so 8 is an even number.

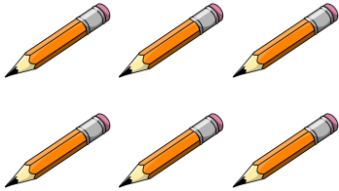
Guided Practice (9 minutes)

1. **Say:** Let's try again with 2 new even numbers. 4 and 2.
2. Write: $4 + 2 =$
3. Draw:



4. **Say:** Please draw the pencils like this on your paper.

5. **Say:** We have drawn 4 pencils and 2 pencils.
6. **Ask:** How many pencils do we have in total? (Answer: 6)
7. Write: $4 + 2 = 6$
8. **Ask:** What is the next step? (Answer: Put the pencils in pairs.)
9. Draw:



10. **Ask:** Does every pencil have a partner? (Answer: yes)
11. **Ask:** Is 6 an odd or even number? (Answer: even)
12. **Say:** In both the problem I showed you and the problem we did together, our solution was an even number. Therefore, even plus even numbers equal even numbers.

Independent Practice (16 minutes)




1. Check pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or a slate.
2. Write the following on the board:

2 mangos + 4 mangos (Answer: 6, even)	10 oranges + 2 oranges (Answer: 12, even)
6 flowers + 2 flowers (Answer: 8, even)	4 monkeys + 6 monkeys (Answer: 10, even)
3. **Say:** Please draw the following items and write the equations for each.
4. **Say:** Now solve the equations and write if the answers are even or odd.
5. Have 4 volunteers (2 boys and 2 girls) write the equations and solutions on the board.
6. **Say:** Clap for yourself if you solved all the problems correctly.
7. Have pupils hold up their work for you to see.

Closing (1 minute)

1. **Say:** Today we learned that even plus even numbers equal even numbers. In the next lesson, we will see what happens when we add even and odd numbers together.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

Lesson Title: Odd + even = odd	Theme: Numbers and Numeration – Odd and Even Numbers	
Lesson Number: M-02-120	Class/Level: Class 2	Time: 35 minutes

 Learning Outcomes By the end of the lesson, pupils will be able to use the fact that odd + even equals odd to solve problems.	 Teaching Aids None	 Preparation None
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Opening (2 minutes)

- Say:** In the previous lesson, we learned that odd plus odd numbers equal even numbers and even plus even numbers equal even numbers. Now we will learn what happens when we add odd and even numbers together.

Introduction to New Material (7 minutes)

- Write: $3 + 6 =$
- Say:** I have written an equation with one odd number 3, and one even number 6.
- Say:** I will use pictures to see what happens when I add 3 and 6 together.
- Draw groups of 3 bananas and 6 bananas exactly as below (one over the other).



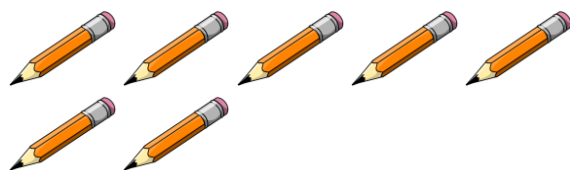
- Say:** I have drawn 3 bananas and 6 bananas. Together they equal 9 bananas.
- Write: $3 + 6 = 9$
- Say:** Let's see if 9 is an even or odd number by putting the bananas in pairs.



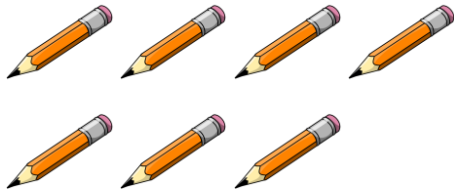
- Say:** There is one banana on its own. $3 + 6 = 9$. 9 is an odd number.

Guided Practice (9 minutes)

- Say:** Let's try again with 2 new numbers, one odd and one even. 5 and 2.
- Write: $5 + 2 =$
- Draw:



4. **Say:** Please draw the pencils like this on your paper.
5. **Say:** We have drawn 5 pencils and 2 pencils.
6. **Ask:** How many pencils do we have in total? (Answer: 7)
7. Write: $5 + 2 = 7$
8. **Ask:** What is the next step? (Answer: Put the pencils in pairs.)
9. Draw:



10. **Ask:** Does every pencil have a partner? (Answer: no)
11. **Ask:** Is 7 an odd or even number? (Answer: odd).
12. **Say:** In both the problem I showed you and the problem we did together, our solution was an odd number. Therefore, odd plus even numbers equal odd numbers.

Independent Practice (16 minutes)

1. Check that pupils have an exercise book and a pencil. If they don't, tell pupils to work together with somebody who has. Or give a piece of chalk to some pupils and they can work at the board or on a slate.
2. Write the following on the board:

2 mangoes + 5 mangoes (Answer: 7, odd) 11 oranges + 2 oranges (Answer: 13, odd)
 7 flowers + 2 flowers (Answer: 9, odd) 4 monkeys + 5 monkeys (Answer: 9, odd)

3. **Say:** Please draw the following items and write the equations for each.
4. **Say:** Now solve the equations and write if the answers are even or odd.
5. Have 4 volunteers (2 boys and 2 girls) write the equation and solution on the board.
6. **Say:** Are these numbers odd or even? (Answer: all are odd)

Closing (1 minute)

1. **Say:** Today we learned that odd plus even numbers equal odd numbers. In the next lesson, we will move on to learning about fractions.
2. **Say:** Well done. Thank you class. Pupils say: Thank you.

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