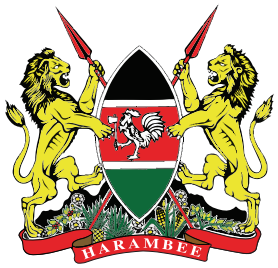
MATHEMATICS

PUPIL'S BOOK 3

Approved by Kenya Institute of Curriculum Development



MATHEMATICS PUPIL'S

BOOK 3

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Foreword

The focus of education in any country is the provision of quality inclusive education and training to all its citizens. The Government of Kenya is committed towards this goal as one of the Sustainable Development Goals (SDGs), according to the Constitution of Kenya. Quality education is paramount to any country in development and the building of a just and cohesive society that enjoys inclusive and equitable social development. In an effort to realise national aspirations of education as envisioned in all policy documents, the Government has provided a policy framework to offer direction in modernising and re-branding the country's education and training system. These documents include *Vision 2030*, *the National Education Sector Strategic Plan 2018 – 2022 (NESSP)* and *Sessional Paper No. 1 of 2019*.

It is the focus of Government to ensure maintenance and improvement of quality of education to avoid persistent regional disparities in learning outcomes as well as access to education based on gender, diverse needs, location and region. The basis of the ongoing education reform is to make education in Kenya competitive internationally and socio-economically viable. The Government is ensuring that education strives to stimulate innovation and enhance the acquisition of 21st Century skills.

The Ministry of Education, in partnership with Global Partnership for Education (GPE) and other development partners, has invested heavily in the provision of educational materials, infrastructure, and human resources. This supports the initiatives aimed at enhancing provision of quality and inclusive education. Evidence-based interventions and global best practices have been adopted in teaching numeracy in early grades.

This mathematics pupil's book is based on Competency Based Curriculum and is approved by the Kenya Institute of Curriculum Development for use in schools. It will no doubt inform and guide the teaching and learning of mathematics in early grades. The design of the book ensures that all Kenyan children can perform arithmetic operations accurately and efficiently.

Prof. George A. O. Magoha, Egh,
Cabinet Secretary,
Ministry of Education

Preface

The goal of the Ministry of Education is to provide quality inclusive education to all learners irrespective of their socio-economic and physical status. Over time, reforms have been undertaken to improve the education sector with a view to making it globally competitive. The Competency Based Curriculum that has been rolled out emphasises nurturing every learner's potential to ensure they are engaged, empowered and ethical. Its focus is on the provision of quality and relevant education.

Research initiatives such as National Assessment Monitoring Learning Achievement (NASMLA) and Southern and Eastern Africa Consortium for Monitoring Education Quality (SACMEQ) indicate the need for improved achievement in literacy and numeracy competencies. Recent developments in the education reform process emphasise the role of literacy and numeracy competencies in supporting learning, especially in the foundational early grades. The increasing focus on the quality of education has resulted in interventions that have shown a positive impact on literacy and numeracy outcomes.

The Ministry of Education has had an increasing focus on the quality of education in lower primary, particularly in the areas of literacy and numeracy. The Early Grade Mathematics component of the Kenya GPE's Primary Education Development (PRIE-DE) Project is a scale-up of the Primary Mathematics and Reading (PRIMR), which was supported by USAID and DFID.

The overarching goal of Early Grade Mathematics is to improve early grade mathematics competency among learners. The programme aims at improving teacher capacity for effective delivery of classroom instruction, improving access to appropriate mathematics textbooks, teachers' guides, and enhancing instructional support and supervision of teachers by Curriculum Support Officers and head teachers.

This pupil's textbook is based on the Competency Based Curriculum and is approved by Kenya Institute of Curriculum for use in the teaching of mathematics in early grades. The book aims at helping pupils to learn a variety of mathematical skills and concepts.

Dr Belio R. Kipsang, CBS
Principal Secretary,
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Acknowledgements

This pupil's book has been developed as a result of the generous financial support from the Global Partners in Education (GPE). The book was initially developed based on the 8-4-4 curriculum after a successful USAID/Kenya and DFID/Kenya funded pilot programme, the Primary Math and Reading Program (PRIMR). It was reviewed in alignment with the Competency Based Curriculum and is approved by the Kenya Institute of Curriculum Development.

The Principal Secretary, State Department of Early Learning and Basic Education, Ministry of Education, Dr Belio Kipsang and Dr Julius Jwan, were instrumental in tirelessly directing the technical efforts of the relevant directorates at MoE, the Kenya National Examinations Council (KNEC), Kenya Education Management Institute (KEMI), Kenya Institute of Special Education (KISE) and the Teacher's Service Commission (TSC).

In a special way, we thank the Global Partnerships for Education (GPE) for funding the implementation of the PRIEDE Project, and World Bank for effective supervision. We also express our deepest appreciation to Ruth Charo, the Task Team Leader (World Bank), who provided invaluable guidance and support in the development process of this book.

Special recognition to MoE Director General Elyas Abdi, PRIEDE Project National Coordinator Martha Ekirapa, and KICD Senior Deputy Director Jacqueline Onyango for their outstanding support to the team during the process of the adaptation of this book. Further, we acknowledge the role of the PRIEDE Project Component 1 Lead, Hellen Boruett, PRIEDE staff Juma Munyiri and Mr Joshua Kilundo for effective coordination of the whole process, and the crucial role of the relevant MoE Directorates: the Directorate of Quality Assurance and Standards, the Directorate of Primary Education, the Directorate of Special Needs Education, the Directorate of Field and other Services, CEMASTEA, KNEC, and KICD, and the TSC for providing all the required technical support

More fundamentally, we wish to also recognise members of the multi-sectoral members of KICD Mathematics Panel and Early Grade Mathematics Technical Team for their invaluable commitment, support, immense individual contribution and sacrifice towards the completion of the development of the content of this book.

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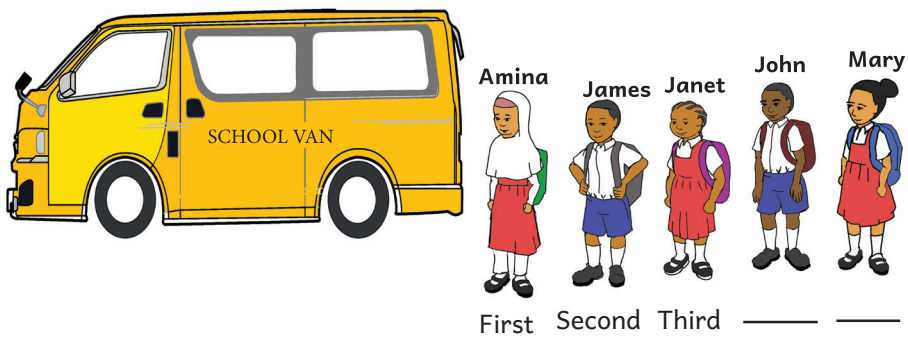
TERM I

Activity 1

Identify John's position



John is in the fourth position.

Amina is in the **first** position.

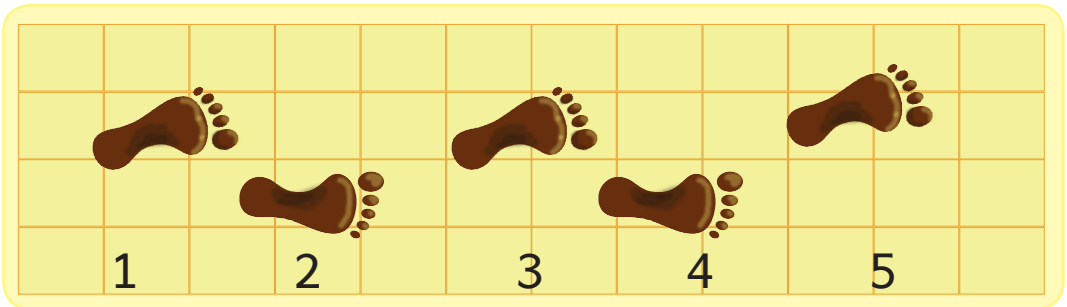
James is in the **second** position.

Janet is in the _____ position.

Mary is in the _____ position.

Activity 2

Name the position of the footprints from 1 to 5



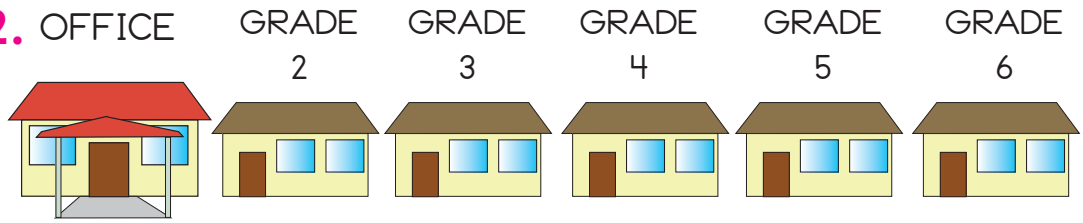
First _____ _____ _____ _____

Work to do

1. Match

School days	Position
Tuesday	First
Friday	Second
Monday	Third
Wednesday	Fourth
Thursday	Fifth

2.



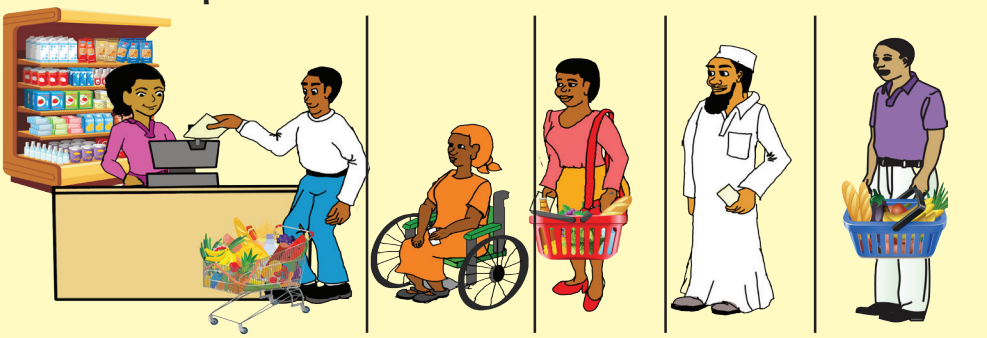
What is the position of the classrooms from the office?

Grade	Position
2	First
3	_____
4	_____
5	Fourth
6	_____

Position

Activity

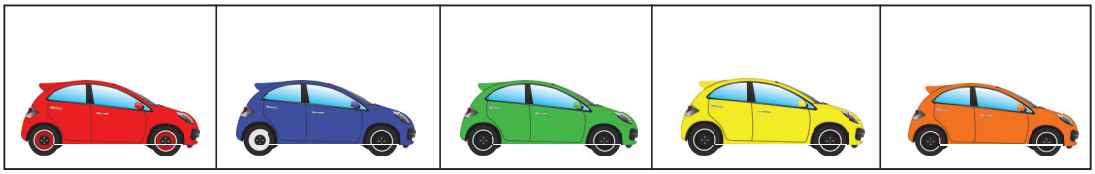
Write the position



_____ _____ 3rd _____ _____

Work to do

1. Match the rally cars colours to position



Colour	Position
Red	3rd
Blue	4th
Green	2nd
Yellow	5th
Orange	1st

2. Match months of the year

April	1st
May	2nd
January	3rd
March	4th
February	5th

Position

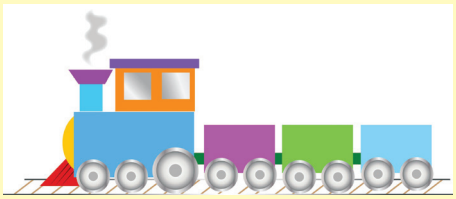
Activity

Use the picture to fill in the position

First

Second

Third



Fourth

Fifth

Sixth

Seventh

Eighth

Ninth

Tenth

Vehicle	Position
Bus	Sixth
Lorry	_____
Tractor	_____
Car	_____
Van	_____

Work to do

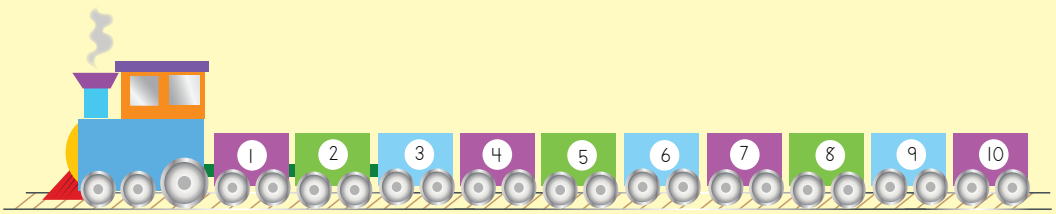
Match

	Position
January	tenth
February	first
March	sixth
April	fourth
May	second
June	ninth
July	seventh
August	fifth
September	third
October	eighth
November →	eleventh
December →	twelfth

Positions

Activity 1

Name the positions of the wagons



Wagon	Position
1	_____
2	_____
3	_____
4	_____
5	5th
6	_____
7	_____
8	_____
9	_____
10	10th

Activity 2

Fill in the position

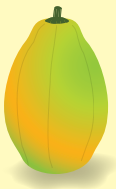
Pineapple
1st

Banana
_____

Orange
_____

Mango
4th

Lemon
_____

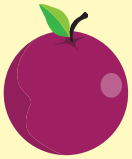


Pawpaw
_____

Apple
_____

Tomato
_____

Onion
_____



Passion
10th

Work to do

Fill in the position

January is the _____ month of the year

February is the 2nd month of the year

March is the _____ month of the year

April is the _____ month of the year

May is the _____ month of the year

June is the _____ month of the year

July is the _____ month of the year

August is the _____ month of the year

September is the _____ month of the year

October is the 10th month of the year

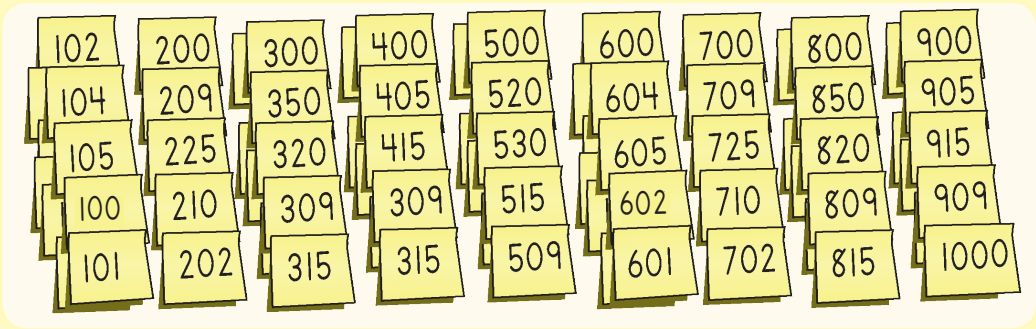
November is the 11th month of the year

December is the 12th month of the year

Counting in ones

Activity

Arrange the number cards in order



Fill in the missing numbers

1. 105, 106, 107, _____, _____, 110, 111
2. 312, 313, 314, _____, 316, _____, 318
3. 600, 599, 598, _____, _____, 595, 594
4. 825, 824, 823, _____, _____, 820
5. 900, 901, 902, _____, ____, 905, 906
6. 1000, 999, 998, _____, _____, 995

Work to do

Fill in the missing numbers

1. 100, 99, 98, ____, ____, ____, ____
2. 270, 269, 268, ____, ____, ___, ____
3. 720, 721, 722, ____, ____, ____, ____
4. 515, 514, 513, ____, ___, ____, ____
5. 431, 430, 429, ____, ____, ____, ____

Counting in twos

Example 1

Counting forward

302, 304, 306, 308, 310, 312

601, 603, 605, 607, 609, 611

914, 916, 918, 920, 922, 924

Example 2

Counting backwards

730, 728, 726, 724, 722, 720

565, 563, 561, 559, 557, 555

480, 478, 476, 474, 472, 470

Work to do

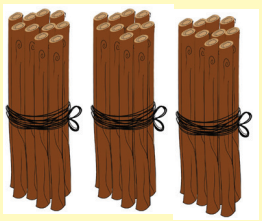
Write the next two numbers

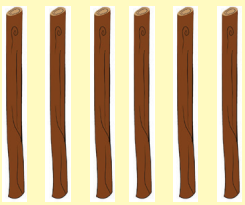
1. 511, 513, 515, _____, _____
2. 610, 612, 614, _____, _____
3. 325, 323, 321, _____, _____
4. 755, 753, 751, _____, _____
5. 998, 996, 994, _____, _____
6. 100, 102, 104, _____, _____
7. 81, 77, 75, _____, _____
8. 30, 32, 34, _____, _____

Place value

Example 1

36 can be shown using bundles of sticks as shown

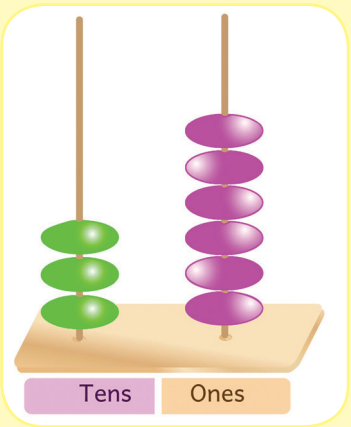




3 **tens and** 6 **ones**

Example 2

The number 36 can also be shown on an abacus as 3 **tens and** 6 **ones**



Example 3

Tens	Ones
4	5

Using a place value chart 45 is shown as 4 **tens and** 5 **ones**

Work to do

How Many **Ones** and **Tens ?**

1. 29 = 2 tens and 9 ones
2. 36 = 3 tens and 6 ones
3. 97 =_____ tens and _____ ones
4. 4 =_____ tens and _____ ones
5. 84 = _____ tens and _____ ones
6. 49 =_____ tens and _____ ones
7. 75 = _____ tens and _____ ones

Numbers in symbols

Activity 1

Let us read

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

Activity 2

Read

28, 60, 17, 99, 100, 82,

45, 64, 33, 47, 55, 70,

69, 20, 13, 8, 3, 27,

32, 91

Numbers in words

Activity : Reading numbers one to fifty in words

Number	Words
8	eight
17	seventeen
25	twenty five
38	thirty eight
42	forty two
50	fifty

Work to do

I. Write the number

two _____
nine _____
eighteen _____
twenty seven _____
thirty two _____
forty four _____
fifty _____

2. Match

Number	Words
18	five
48	fourteen
14	twenty three
5	eighteen
23	forty eight

Numbers in words

Activity

Reading numbers one to fifty in words

Number	Words
13	thirteen
21	twenty one
37	thirty seven
45	forty five
49	forty nine
50	fifty

Work to do

1. Write the number name

Number	Words
33	_____
29	_____
50	_____
44	_____
14	_____
26	_____
12	_____

2. Match

Number	Words
29	thirty two
9	seventeen
32	forty
17	twenty nine
40	nine

Number patterns

Example 1

What is the missing number?

1, 2, 3, 4, ___, 6, 7

By counting on, the missing number is **5**

Example 2

10, 9, 8, 7, 6, _____, _____

By counting backwards, the next two numbers are **5, 4**

Work to do

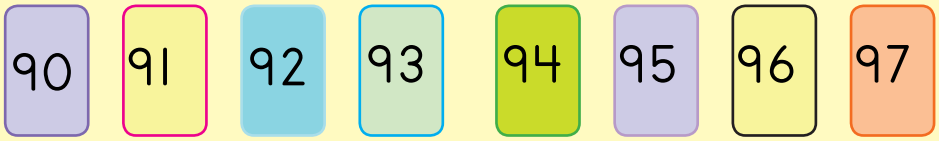
What is the next number?

1. 1, 3, 5, 7, ____
2. 2, 4, 6, 8, ____
3. 10, 8, 6, 4, ____
4. 9, 7, 5, 3, ____
5. 4, 5, 6, 7, ____
6. 8, 7, 6, 5, ____
7. 6, 7, 8, 9, ____

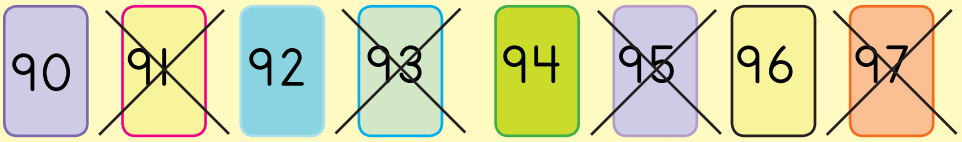
Number patterns

Activity I

Arrange the cards with numbers 90 to 100 in order



Remove the cards with numbers 91, 93, 95 and 97

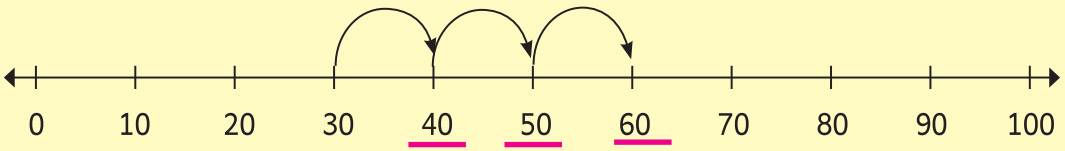


We have formed the pattern 90, 92, 94, 96
To get the next number, we count in twos.

Activity 2

Fill in the missing numbers

To get the next number, skip once on the number line from 30. This gets you to 40. Following the same steps, we can get the missing numbers as 50 and 60



Work to do

Fill in the missing numbers

1. 91, 93, 95, _____, _____

2. 81, 82, 83, _____, _____

3. 61, 64, 67, ____, _____, _____

4. 41, 46, 51, 56, _____, _____

5. 30, 32, 34, 36, _____, _____

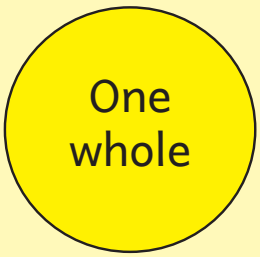
6. 17, 15, 13,_____, _____, _____

Half as part of a whole

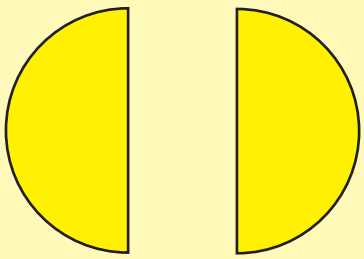
A fraction tells us how many parts of a whole we have.

Activity I

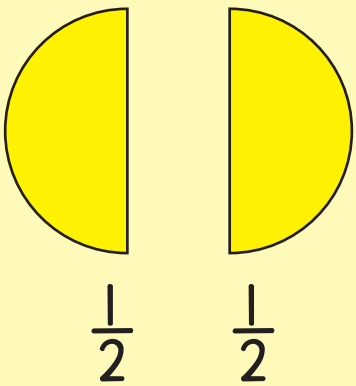
In groups cut circular cut-outs from manilla paper.



Fold the circular cut-out into two equal parts and cut.

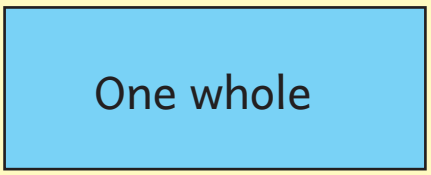


One part is called a half written as $\frac{1}{2}$.

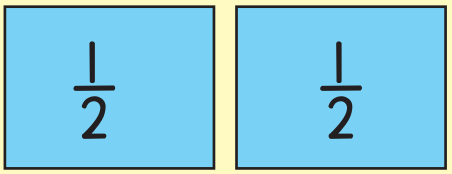


Activity 2

In groups cut a rectangular cut-out from manilla paper.



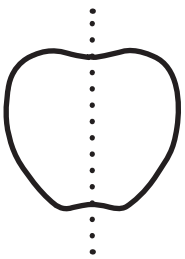
Fold the rectangular cut-out into two equal parts and cut. Each part is a **half**.

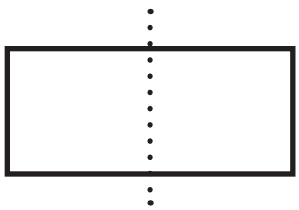


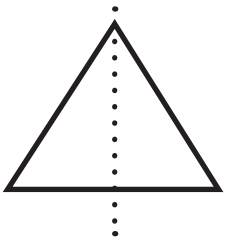
When an object is cut into 2 equal parts each part is called ***a* half**. $\frac{1}{2}$ is a **fraction**.

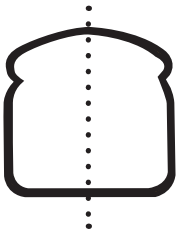
Work to do

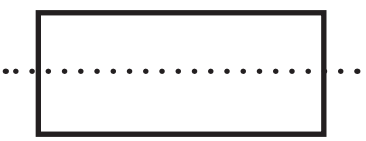
Draw and shade half

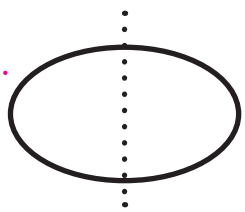
1. 

2. 

3. 

4. 

5. 

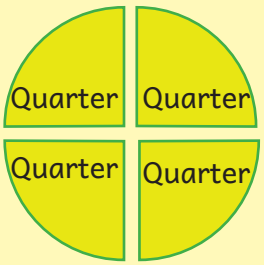
6. 

Quarter as part of a whole

Activity 1

In groups cut circular cut-outs from manilla paper.

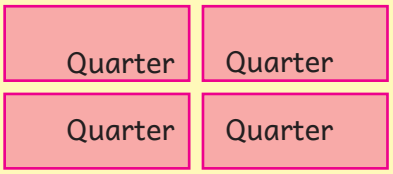
Fold the cut-out and cut into 4 equal parts. One part is called a **quarter**, written as $\frac{1}{4}$.



Activity 2

In groups cut rectangular cut - outs from manilla paper.

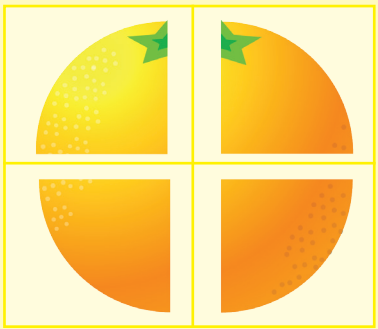
Fold the cut-out and cut into 4 equal parts. One part is called a **quarter**, written as $\frac{1}{4}$



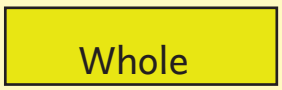
When an object is cut into four equal parts each part is called a $\frac{1}{4}$. A quarter is a **fraction**.

Example

Whole



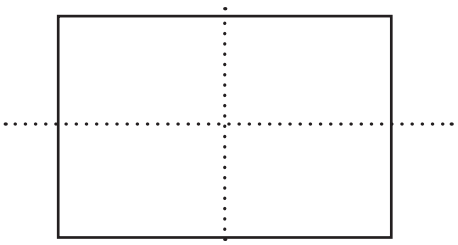
Quarter or $\frac{1}{4}$



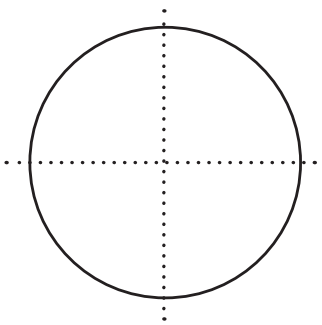
Work to do

Draw the following and shade a quarter

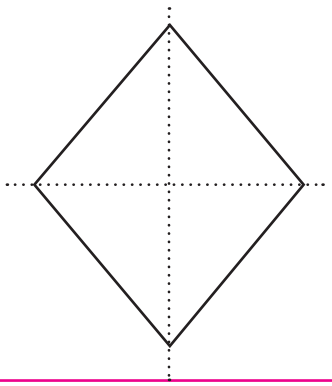
1.



2.



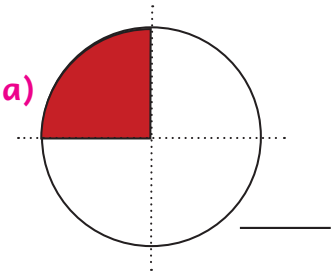
3.

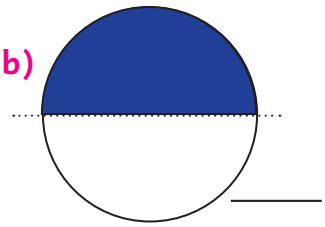


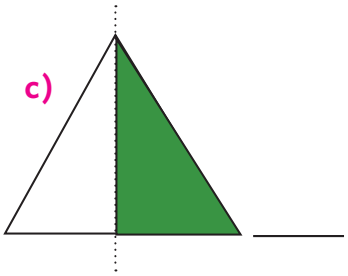
Comparing $\frac{1}{2}$ and $\frac{1}{4}$

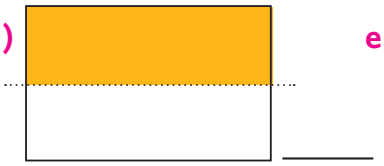
Activity

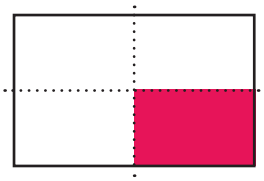
Write $\frac{1}{4}$ or $\frac{1}{2}$

a) 

b) 

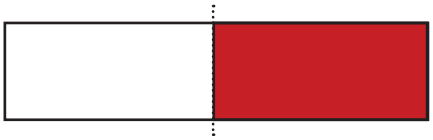
c) 

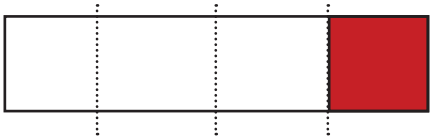
d) 

e) 

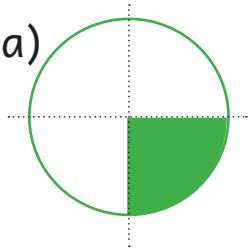
Work to do

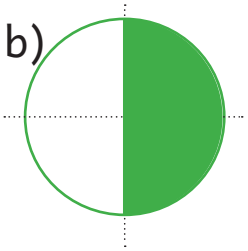
Which shaded part is bigger ?

1. a) 

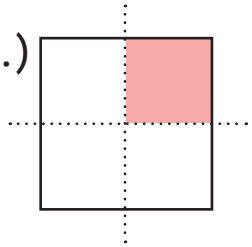
b) 

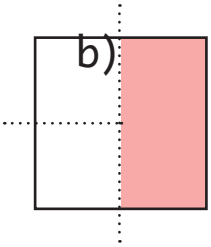
a or b _____

2. a) 

b) 

a or b _____

3. a.) 

b) 

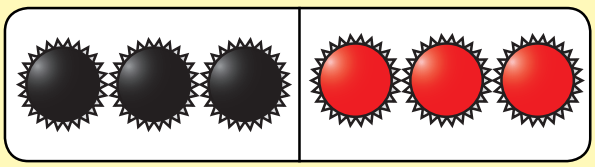
a or b _____

Fraction as part of a group

We have learnt that a fraction is a part of a whole. A fraction can also be a part of a group.

Activity 1

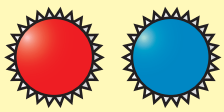
Form a group of 6 bottle tops with three black and three red.
We have two small groups. Out of the two, one group is shaded red.



The fraction shaded red is $\frac{1}{2}$.

The fraction shaded black is $\frac{1}{2}$.

Activity 2

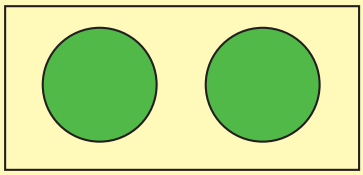


What part of the group is red? _____

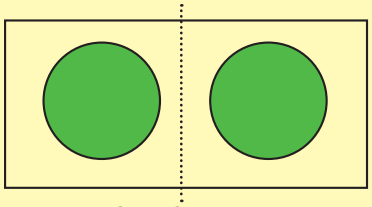
What part of the group is girls? _____

What part of the group is boys? _____

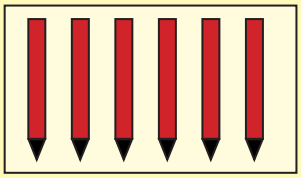
Activity 3



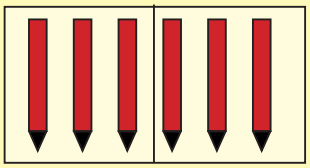
Whole group



half of 2 is 1

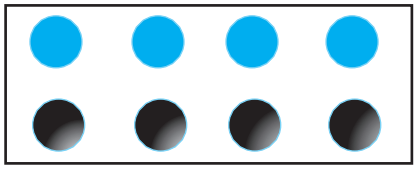


Whole group

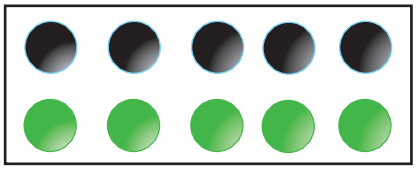


half of 6 is 3

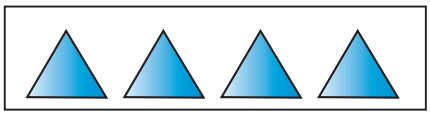
Work to do

1. 

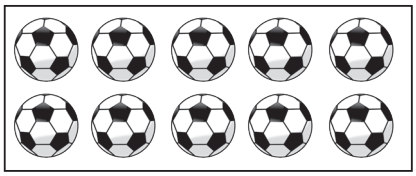
What fraction is shaded blue? _____

2. 

What fraction is shaded green? _____

3. 

Half of 4 = _____

4.  Half of 10 = _____

5. Half of 8 = _____

6. Half of 12 = _____

7. Half of 6 = _____

8. Half of 10 = _____

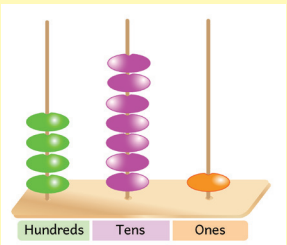
9. Half of 20 = _____

Adding a 3 - digit number to a 1 - digit number

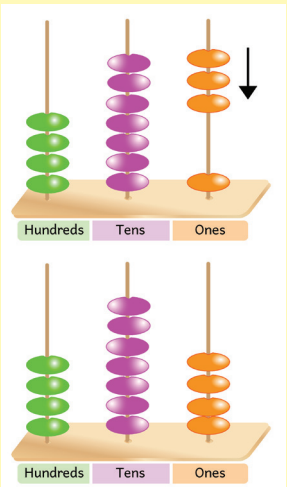
Activity

Using an Abacus

$$\begin{array}{r} 471 \\ +\ \ 3 \\ \hline \\ \hline \end{array}$$



i) Represent 471 as 1 ring in the ones spike, 7 rings in the tens spike and 4 rings in the hundreds spike.



ii) Add 3 rings in the ones spike to get 4 rings.

iii) The results is 4 rings in the ones spike, 7 rings in the tens spike and 4 rings in the hundreds spike.

$$\begin{array}{r} 471 \\ +\ \ 3 \\ \hline 474 \end{array}$$

Example 1

324 + 5 = ☐

Arrange as:

$$\begin{array}{r} 324 \\ +\ \ 5 \\ \hline 329 \end{array}$$

Steps

1. Add 4 ones to 5 ones to get 9 ones.
2. Record 9 in the ones column.
3. Bring down 2 in the tens column.
4. Bring down 3 in the hundreds column.

Example 2

$$\begin{array}{r} 892 \\ +\ \ 5 \\ \hline 897 \end{array}$$

Steps

1. Add 2 ones to 5 ones to get 7 ones.
2. Bring 9 ones down and 8 hundreds down to get the answer.

Example 3

456 + 3 = ☐

Count 3 steps from 456, 457, 458, 459

456 + 3 = 459

Work to do

Add

1. 990 + 7 = ____

2. 287 + 2 = ____

3. 672 + 5 = ____

4. 441 + 6 = ____

5. 791 + 7 = ____

6. 904 + 3 = ____

7. 344 + 3 = ☐

8. 950 + 5 = ☐

9. 342 + 3 = ☐

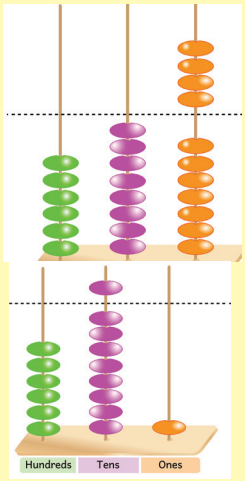
10. 510 + 8 = ☐

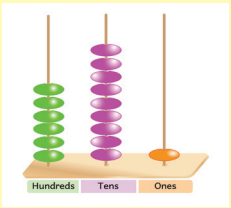
Adding a 3 - digit number to a 1 - digit number

Activity

Using an abacus

$$\begin{array}{r} 687 \\ +\ \ 4 \\ \hline \\ \hline \end{array}$$





Steps

1. Represent 687 as 7 rings in ones spike, 8 rings in the tens spike and 6 rings in the hundreds spike.
2. Add 4 rings in the ones spike to get 11 rings.
3. Remove 10 rings from the ones spike and replace them with 1 ring in the tens spike, to get 9 rings in the tens spike.
4. You have 6 rings in the hundreds spike 9 rings in the tens spike and 1 ring in the ones spike (**691**)

$$\begin{array}{r} 687 \\ +\ \ 4 \\ \hline 691 \\ \hline \end{array}$$

Example

$$\begin{array}{r} {\scriptstyle 1} \\ 687 \\ +\ \ 8 \\ \hline 695 \end{array}$$

Steps

1. Add Ones 7 + 8 = 15
2. Regroup 15 as 1 tens and 5 ones.
3. Write 5 and take 1 to Tens
4. Add tens 1 + 8 = 9.
5. Write 9 inTens place.
6. Bring down 6 hundreds.

Work to do

Add

1. $\begin{array}{r} 784 \\ +\ \ 7 \\ \hline \\ \hline \end{array}$

2. $\begin{array}{r} 188 \\ +\ \ 4 \\ \hline \\ \hline \end{array}$

3. $\begin{array}{r} 543 \\ +\ \ 9 \\ \hline \\ \hline \end{array}$

4. $\begin{array}{r} 342 \\ +\ \ 9 \\ \hline \\ \hline \end{array}$

5. $\begin{array}{r} 615 \\ +\ \ 8 \\ \hline \\ \hline \end{array}$

6. $\begin{array}{r} 813 \\ +\ \ 7 \\ \hline \\ \hline \end{array}$

7. $223 + 8 = \square$

8. $138 + 4 = \square$

9. $876 + 6 = \square$

10. $309 + 3 = \square$

Adding a 3 - digit number to a 2 - digit number

Activity 1

$$\begin{array}{r} 423 \\ +\ 14 \\ \hline \\ \hline \end{array}$$

Arrange in the place value chart as :

Hundreds	Tens	Ones
4	2	3
+	1	4
4	3	7

Steps

1. Add 3 ones to 4 ones to get 7 ones.
2. Record 7 in the ones column.
3. Add 2 tens to 1 ten to get 3 tens. record 3 in the tens column.
4. Bring down 4 in the hundreds column.

Activity 2

852 + 34 = ☐

Arrange in the place value chart as :

Hundreds	Tens	Ones
8	5	2
+	3	4
8	8	6

Steps

1. Add 2 Ones to 4 ones to get 6 ones. Record 6 in the ones column
2. Add 5 tens to 3 tens to get 8 tens. Record 8 in the tens column.
3. Bring down 8 in the hundreds column

Work to do

1. Add

1. 324 + 15 = ☐

2. 416 + 22 = ☐

3. 934 + 24 = ☐

4. 102 + 71 = ☐

5. 823 + 45 = ☐

6. 801 + 84 = ☐

7. 920 + 43 = ☐

8. 744 + 25 = ☐

9. 123 + 52 = ☐

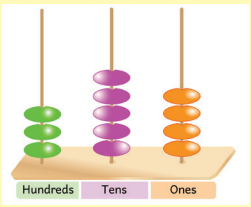
10 432 + 63 = ☐

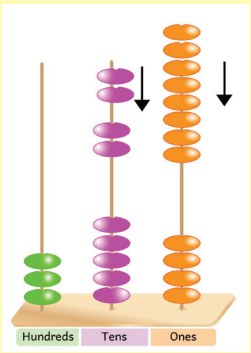
Adding a 3 - digit number to a 2 - digit number

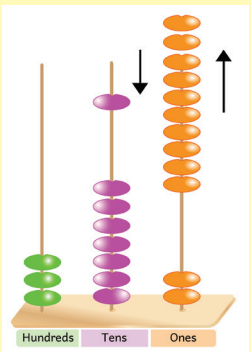
Activity 1

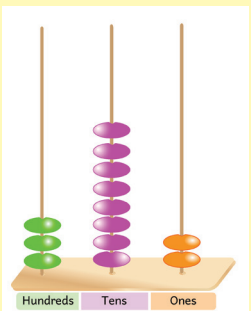
Using an abacus

354 + 28 = ☐









1. Represent 354 as 4 rings in the ones spike, 5 rings in the tens spike and 3 rings in the hundreds spike.
2. Represent 28 as 8 rings on the ones spike 2 rings in the tens spike
3. Add 4 rings to 8 rings in the ones spike to get 12 rings in the ones spike.
4. Regroup 12 rings as 1 ten and 2 ones. Remove 10 rings from the ones spike and add one ring in the tens spike to get 8. 2 rings remain in the ones spike.
5. The result is 2 rings in the ones spike, 8 rings in the tens spike and 3 rings in the hundreds spike.

354 + 28 = 382

Example 1

246 + 37 = ☐

Hundreds	Tens	Ones
2	4 (1)	6
+	3	7
2	8	3

Steps

1. Add Ones 6 + 7 = 13.
2. Regroup 13 as 1 tens and 3 ones.
3. Take 1 ten to the tens column.
4. Write 3 in ones column add 1 to 4 in the tens column.
5. Add tens 1 + 4 + 3 = 8 . Write 8.
6. Bring down 2 hundreds.

Example 2

472 + 54 = ☐

Hundreds	Tens	Ones
4 (1)	7	2
+	5	4
5	2	6

Steps

1. Add ones 2 + 4 = 6.
2. Add tens 7 + 5 = 12
3. Regroup 12 tens as 1 hundreds and 2 tens. Take 1 hundred to the hundreds column
4. Write 2 and carry 1 hundreds.
5. Add hundreds 1 + 4 = 5

Work to do

Add

1. 342 + 49 = _____

2. 467 + 25 = _____

3. 275 + 16 = _____

4. 862 + 29 = _____

5. 657 + 52 = _____

6. 758 + 81 = _____

7. 263 + 35 = _____

8. 496 + 72 = _____

9. 827 + 91 = _____

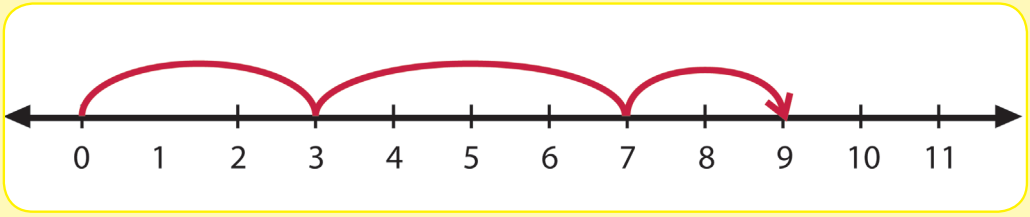
10. 196 + 32 = _____

Adding 3-single digit numbers

Activity 1

$3 + 4 + 2 = \square$

This can be done using the number line



Steps

1. Start at 0 and skip 3 steps forward.
2. Skip another 4 steps forward.
3. Skip another 2 steps forward.
4. The final point is 9.

$3 + 4 + 2 = 9$

Example

$3 + 4 + 2 = \square$

$3 + 4 = 7$

$7 + 2 = 9$

$3 + 4 + 2 = 9$

Work to do

Add

1. $3 + 3 + 4 = \square$

2. $2 + 1 + 5 = \square$

3. $2 + 3 + 4 = \square$

4. $3 + 3 + 3 = \square$

5. $3 + 1 + 2 = \square$

6.
$$\begin{array}{r} 2 \\ +\ 4 \\ \hline 4 \\ \hline \\ \hline \end{array}$$

7.
$$\begin{array}{r} 4 \\ +\ 3 \\ \hline 2 \\ \hline \\ \hline \end{array}$$

8.
$$\begin{array}{r} 5 \\ +\ 2 \\ \hline 2 \\ \hline \\ \hline \end{array}$$

9.
$$\begin{array}{r} 4 \\ +\ 1 \\ \hline 3 \\ \hline \\ \hline \end{array}$$

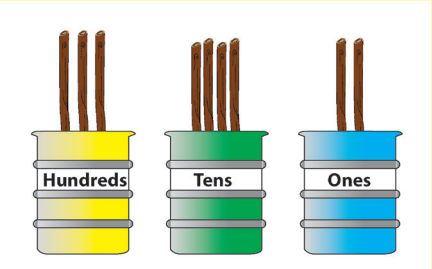
10.
$$\begin{array}{r} 6 \\ +\ 1 \\ \hline 3 \\ \hline \\ \hline \end{array}$$

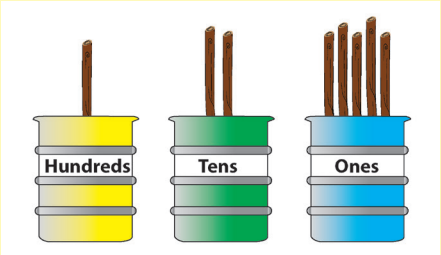
Adding two 3 - digit numbers

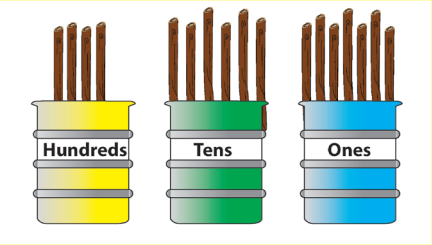
Activity

Using place value tins

$$\begin{array}{r} 342 \\ +\ 125 \\ \hline \\ \hline \end{array}$$







Steps

1. Represent 342 as 2 sticks in ones tin, 4 sticks in tens tin and 3 sticks in hundreds tin.
2. Add 125 as 5 sticks in the ones tin, 2 sticks in the tens tin and 1 stick in the hundreds tin.
3. Count the sticks to get, 7 sticks in the ones tin, 6 sticks in the tens tin and 4 sticks in the hundreds tin.

$$\begin{array}{r} 342 \\ +\ 125 \\ \hline 467 \\ \hline \end{array}$$

Example 1

$$\begin{array}{r} 246 \\ +\ 132 \\ \hline 378 \end{array}$$

Ones : 6 + 2 = 8 Write 8
Tens : 4 + 3 = 7 Write 7
Hundreds : 2 + 1 = 3 Write 3

Example 2

157 + 232 = ☐

Write as

$$\begin{array}{r} 157 \\ +\ 232 \\ \hline 389 \end{array}$$

Add Ones
Add Tens
Add Hundreds

Work to do

1. Add

a) $\begin{array}{r} 324 \\ +\ 135 \\ \hline \\ \hline \end{array}$

b) $\begin{array}{r} 144 \\ +\ 351 \\ \hline \\ \hline \end{array}$

c) $\begin{array}{r} 266 \\ +\ 232 \\ \hline \\ \hline \end{array}$

d) $\begin{array}{r} 372 \\ +\ 120 \\ \hline \\ \hline \end{array}$

e) $\begin{array}{r} 274 \\ +\ 124 \\ \hline \\ \hline \end{array}$

f) $\begin{array}{r} 375 \\ +\ 121 \\ \hline \\ \hline \end{array}$

2. Add

a) 126 + 232 = ☐

b) 342 + 143 = ☐

c) 318 + 181 = ☐

d) 372 + 122 = ☐

Adding two 3 - digit numbers

Example 1

$$\begin{array}{r} 235 \\ +\ 147 \\ \hline \\ \hline \end{array}$$

	hundreds	tens	ones
		1	
	2	3	5
+	1	4	7
	3	8	2

Steps

1. Add 5 ones to 7 ones to get 12 ones.
2. Regroup 12 as 1 tens and 2 ones.
3. Write 2 in the ones column and take 1 tens to the tens column.
4. Add 1 tens to 3 tens and 4 tens to get 8 tens. Write 8 in the tens column.
5. Add 2 hundreds to 1 hundreds to get 3 hundreds.

Example 2

$$\begin{array}{r} 267 \\ +\ 452 \\ \hline \\ \hline \end{array}$$

267 + 452 = ☐

hundreds	tens	ones
2	6	7
+ 4	5	2
7	1	9

Steps

1. Arrange in columns.
2. Add 7 ones to 2 ones to get 9 ones.
3. Add 6 tens to 5 tens to get 11 tens. Regroup 11 tens as 1 hundreds and 1tens.
4. Write 1 in the tens column.
5. Take 1 hundreds to the hundreds column.
6. Add 1 hundreds to 2 and 4 hundreds to get 7 hundreds.

Work to do

1. $\begin{array}{r} 126 \\ +\ 348 \\ \hline \\ \hline \end{array}$

2. $\begin{array}{r} 257 \\ +\ 234 \\ \hline \\ \hline \end{array}$

3. $\begin{array}{r} 363 \\ +\ 129 \\ \hline \\ \hline \end{array}$

4. 227
+ 256
_____

5. 122
+ 181
_____

6. 281
+ 136
_____

7. 227 + 256 = ☐

8. 227 + 256 = ☐

9. Juma had 468 party chairs. He bought 125 party chairs. How many party chairs does he have altogether?

10. Asha had 135 kg of flour. Fatuma gave her 180 kg. How many kg does she have altogether?

Number patterns

Activity

Fill in the missing numbers

1	2		4	5	6	7			10
		13	14	15			18	19	
21		23			26				30
31	32			35		37	38		
41	42	43				47		49	50
51			54	55			58		
	62	63			66	67		69	
71			74	75			78		80
81	82		84		86		88		90
			94	95		97		99	100

Example 1

Fill in the missing numbers

422, 424, 426, 428, ____, _____

Steps

1. Get the rule by getting the difference through addition between two numbers following each other.
2. The rule is add 2 to the previous number.
3. To get the next number, add 2 to 428. The next number is 430.
4. To get the next missing number, add 2 to 430. The number is 432.

Example 2

Fill in the missing numbers

450, 460, 470, ___, ___, 500.

Steps

1. Get the rule by getting the difference through addition between two numbers following each other.
2. The rule is 10 more than the previous number.
3. To get the missing number, add 10 to 470. The next number is 480.
4. To get the next missing number, add 10 to 480. The number is 490.

Work to do

Work out the missing numbers

1. 125, 150, 175, ____, ___ , 250
2. 320, 325, 330, ____, ____, 345
3. 415, 430, 445, 460, ___,___
4. 200, 250, 300, 350, ____, ___
5. 75, 150, 225,300, ___, ___

Subtracting a 1 - digit number from a 2 - digit number

Example 1

$$\begin{array}{r} 28 \\ -\ \ 3 \\ \hline \\ \hline \end{array}$$

	tens	ones
	2	8
−		3
	2	5

Steps

1. Subtract 3 ones from 8 ones to get 5 ones.
2. Bring down 2 tens.

Example 2

Work out

79 - 5 = ☐

arrange as

	tens	ones
	7	9
−		5
	7	4

Steps

1. Subtract 5 ones from 9 ones to get 4 ones.
2. There is no tens in the second number.
3. Bring down 7.

Work to do

Subtract

1. 27
   - 5
   ---

2. 78
   - 3
   ---

3. 45
   - 4
   ---

4. 64
   - 1
   ---

5. 19
   - 6
   ---

6. 83
   - 3
   ---

7. 98 - 7 = ☐

8. 48 - 5 = ☐

9. A box contains 25 pieces of soap. Grade 3 learners used 5 pieces to wash their hands. How many pieces remained?

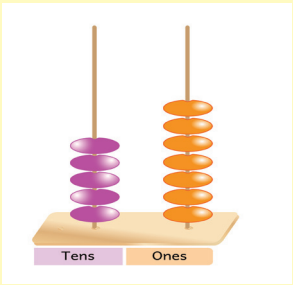
10. A poultry keeper had 83 chicken. She ate two. How many remained?

Subtracting two 2 - digit numbers

Activity

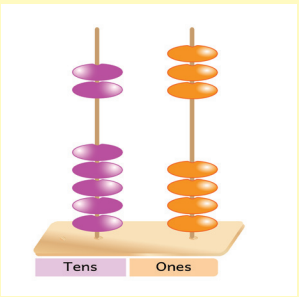
Using an abacus

$$\begin{array}{r} 57 \\ -\ 23 \\ \hline \\ \hline \end{array}$$

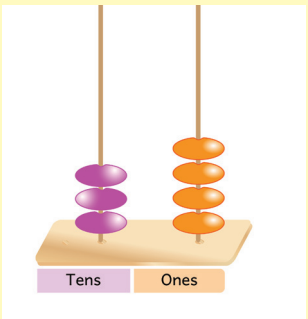


Steps

1. Represent 57 as 7 rings in the ones spike and 5 rings in the tens spike.



2. Remove 3 rings from the ones spike and 2 rings from the tens spike.



3. Count the remaining rings in the ones spike and record in ones place. Count the remaining rings in the tens spike and record in tens palce.

$$\begin{array}{r} 57 \\ -\ 23 \\ \hline 34 \\ \hline \end{array}$$

Example 1

$$\begin{array}{r} 36 \\ -\ 12 \\ \hline \\ \hline \end{array}$$

	tens	ones
	3	6
−	1	2
	2	4

Steps

1. Subtract 2 ones from 6 ones to get 4 ones.
2. Subtract 1 tens from 3 tens to get 2 tens.

Example 2

86 − 54 = ☐

arrange as

	tens	ones
	8	6
−	5	4
	3	2

Steps

1. Subtract 4 ones from 6 ones to get 2 ones.
2. Subtract 5 tens from 8 tens to get 3 tens.

Work to do

1. 42
   - 31
   ____

2. 29
   - 12
   ____

3. 17
   - 14
   ____

4. 31
   - 21
   ____

5. 85 - 61 = ☐

6. 66 - 44 = ☐

7. 75 - 43 = ☐

8. A class has 45 pupils. The number of boys is 30. How many girls are in that class?

9. Andrew bought 88 story books. He gave 43 to Grade 3 learners. How many remained?

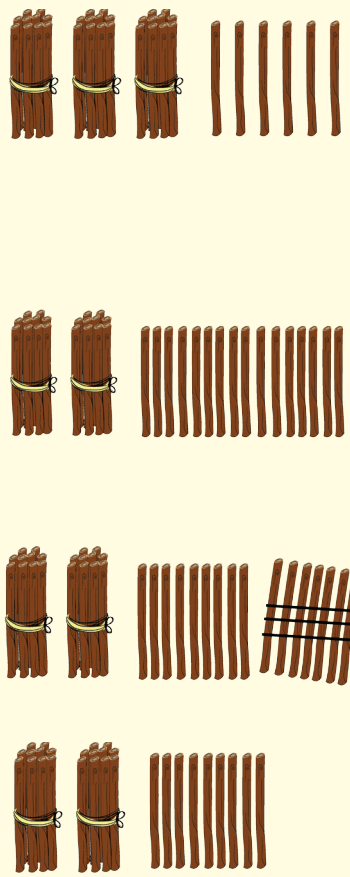
10. Morris had 54 bags of cement. Violet borrowed 32 bags. How many were left?

Subtracting a 1 - digit number from a 2 - digit number

Activity

Using Bundles of sticks

$$\begin{array}{r} 36 \\ -\ 7 \\ \hline \\ \hline \end{array}$$



Steps

1. Represent 36 as 3 bundles of tens and 6 single sticks.
2. Take 7 single sticks away from 6 single sticks. Since we cannot take 7 sticks from 6 sticks.
3. Untie 1 bundle of tens to get 10 single sticks. Add to the 6 single sticks to get 16 single sticks.
4. Remove 7 single sticks from 16 single sticks.
5. Count the remaining bundles of tens and single sticks to get 2 bundles of ten and 9 singles.

$$\begin{array}{r} 36 \\ -\ 7 \\ \hline 29 \\ \hline \end{array}$$

Example

$$\begin{array}{r} 63 \\ -\ 4 \\ \hline 59 \\ \hline \end{array}$$

Steps

1. Since you can not subtract 4 ones from 3 ones, regroup 6 tens as 5 tens and 10 ones. Add 10 ones to 3 ones to get 13 ones.
2. Subtract 4 ones from 13 ones to get 9 ones.
3. Bring down the remaining 5 tens

Work to do

Subtract

1. $\begin{array}{r} 87 \\ -\ 9 \\ \hline \\ \hline \end{array}$

2. $\begin{array}{r} 26 \\ -\ 7 \\ \hline \\ \hline \end{array}$

3. $\begin{array}{r} 14 \\ -\ 5 \\ \hline \\ \hline \end{array}$

4. $\begin{array}{r} 31 \\ -\ 3 \\ \hline \\ \hline \end{array}$

5. $\begin{array}{r} 62 \\ -\ 6 \\ \hline \\ \hline \end{array}$

6. $\begin{array}{r} 75 \\ -\ 6 \\ \hline \\ \hline \end{array}$

7. $\begin{array}{r} 90 \\ -\ 8 \\ \hline \\ \hline \end{array}$

8. $\begin{array}{r} 48 \\ -\ 9 \\ \hline \\ \hline \end{array}$

9. Boaz had 16 rabbits. He gave nine to his friends. How many was he left with?

10. A shopkeeper had a tray of 30 eggs. He sold five eggs. How many eggs remained?

Subtracting a 1 - digit number from a 2 - digit number

Example 1

$$\begin{array}{r} 44 \\ -\ 27 \\ \hline \\ \hline \end{array}$$

	tens	Ones
	4	4
-	2	7
	1	7

Steps

1. Since you can not subtract 7 ones from 4 ones, regroup 4 tens as 3 tens and 10 ones. Add 10 ones to 4 ones to get 14 ones.
2. Subtract 7 ones from 14 ones to get 7 ones.
3. Subtract 2 tens from the remaining 3 tens to get 1 tens

Example 2

$$\begin{array}{r} 88 \\ -\ 29 \\ \hline \\ \hline \end{array}$$

	tens	ones
	8	8
-	2	9
	5	9

Steps

1. Since you can not subtract 9 ones from 8 ones, regroup 8 tens as 7 tens and add 10 ones to 8 ones to get 18 ones.
2. Subtract 9 ones from 18 ones to get 9 ones.
3. Subtract 2 tens from the remaining 7 tens to get 5 tens.

Work to do

Subtract

1. 42 − 17 = ____

2. 34 − 28 = ____

3. 98 − 69 = ____

4. 35 − 27 = ____

5. 53 − 36 = ____

6. 92 − 46 = ____

7. 74 − 58 = ____

8. A teacher bought 82 mangoes to give to pupils on athletics day. The teacher gave out 49 mangoes. How many mangoes remained?

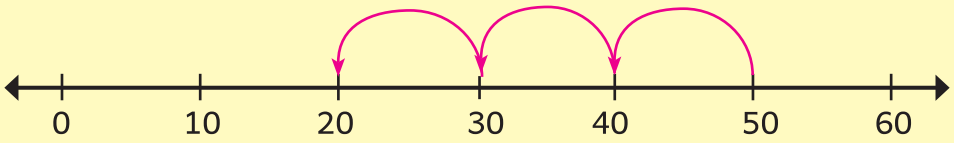
9. A mobile phone shop had 82 phones in the morning. By evening, 53 phones had been sold. How many phones remained?

10. Ouma bought 83 bananas to sell. Seventeen bananas were spoilt. How many bananas did he sell?

Subtracting multiples of 10

Example

50 - 30 = ☐



On the number line, start at 50 and skip backwards 3 steps in tens, to land at 20.

Work to do :

Subtract

1. 30 − 10 = ____
2. 40 − 30 = ____
3. 50 − 50 = ____
4. 50 − 40 = ____
5. 40 − 20 = ____
6. 70 − 40 = ____
7. 80 − 60 = ____
8. 90 − 70 = ____

9. A school had 90 plates. Thirty plates were broken. How many remained?

10. Alex had 20 shirts. He gave 10 shirts to his brother. How many was he left with?

Subtracting a 2 - digit number from a 3 - digit number

Example 1

What is 539 take away 16?

Represent the numbers in a place value chart.

Hundreds	Tens	Ones
5	3	9
—	1	6
5	2	3

Steps

1. Subtract 6 ones from 9 ones to get 3 ones.
2. Subtract 1 tens from 3 tens to get 2 tens.
3. Record 5 in the hundreds column.

Example 2

$$\begin{array}{r} 852 \\ -\ 20 \\ \hline \\ \hline \end{array}$$

Hundreds	Tens	Ones
8	5	2
—	2	0
8	3	2

Steps

1. Subtract 0 ones from 2 ones to get 2 ones. Record 2 in the ones column.
2. Subtract 2 tens from 5 tens to get 3 tens. Record 3 in the tens column.
3. Record 8 in the hundreds column.

Work to do :

Subtract

1. 462 − 31 = ____

2. 589 − 16 = ____

3. 666 − 145 = ____

4. 786 − 73 = ____

5. 585 − 72 = ____

6. 749 − 35 = ____

7. Muga has sh. 896. He spent sh. 64. How much money was he left with?

8. Albert's shop had 572 pairs of trousers. He sold 51 pairs. How many remained?

9. Judy had 158 litres of paraffin to sell. She sold 33 litres. How many litres remained?

10. The total number of teachers and learners in a school is 265. There are 12 teachers. How many learners are there in the school?

Number patterns

Example 1

What is the next number in the pattern?

40, 35, 30, 25 ____

Steps

1. Get the rule by getting the difference through subtraction between two numbers following each other.
2. The rule is subtract 5.
3. To get the next number, subtract 5 from 25. The next number is 20.

Example 2

What are the missing numbers in the pattern?

68, 64,60, ___, ___, 48

Steps

1. Get the rule by getting the difference through subtraction between two numbers following each other
2. The rule is subtract 4.
3. To get the next number, subtract 4 from 60. The next number is 56.
4. To get the next missing number, subtract 4 from 56. The number is 52.

Work to do

Fill in the missing numbers

1. 12, 10, 8, 6, _____, _____

2. 20, 17, 14, _____, _____, 5

3. 60, 50, 40, _____, _____, 10

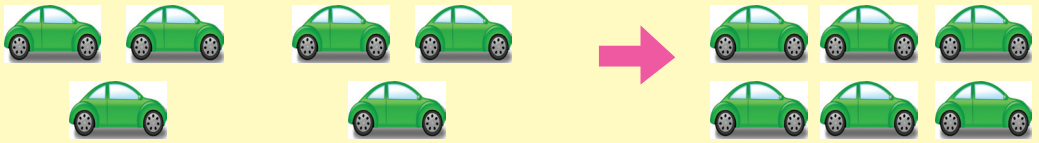
4. 75, 70, 65, 60, _____, _____

5. 90, 70, 50, 30, _____, _____

Multiplying numbers

Example 1

2 x 3 = ☐

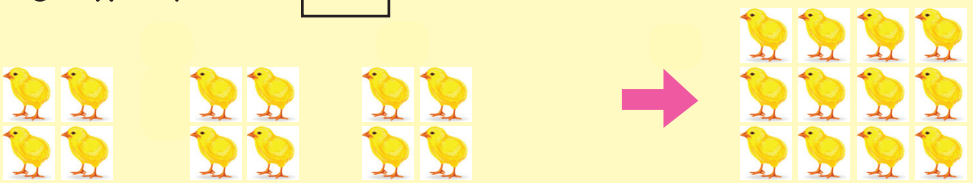


3 + 3 → 2 x 3

2 x 3 = 6

Example 2

3 x 4 = ☐



4 + 4 + 4 → 3 x 4

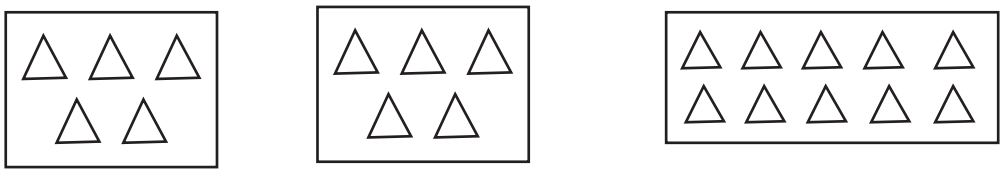
3 x 4 = 12

Work to do :

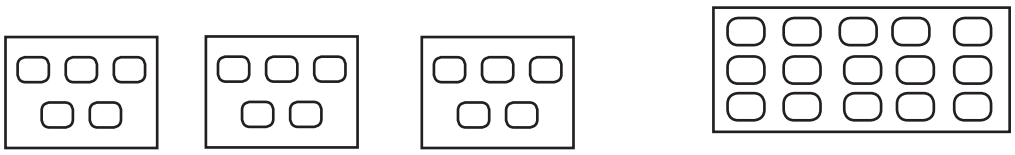
Fill in the missing numbers

1. 

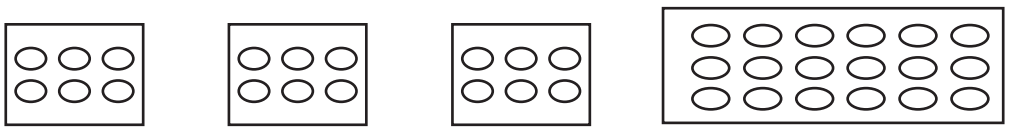
_____ + _____ → 2 x 4

2. 

5 + 5 ➡ ____ x ____ = 10

3. 

____ + ____ + ____ ➡ ____ x ____ = 15

4. 

___ + ____+ ____ + _____ ➡ ____ x ____ = 18

5. 7 + 7 ➡ ____ x____ = 14

6. 7 + 7 + 7 ➡ ____ x____ =____

7. 8 + 8 ➡ ____ x ____ = ____

Multiplying numbers

Multiplication table

X	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Examples

7 × 5 = ☐

Steps

1. Identify number 7 along the first row and number 5 along the first column.
2. Move along the row and the column indentified until they meet.
3. Identify the number where they meet as 35.

7 × 5 = 35

Work to do:

Multiply

1. $5 \times 1 =$ ☐

2. $4 \times 2 =$ ☐

3. $6 \times 3 =$ ☐

4. $7 \times 8 =$ ☐

5. $9 \times 10 =$ ☐

6. $5 \times 5 =$ ☐

7.
$$\begin{array}{r} 9 \\ \times\ 4 \\ \hline \\ \hline \end{array}$$

8.
$$\begin{array}{r} 5 \\ \times\ 7 \\ \hline \\ \hline \end{array}$$

9.
$$\begin{array}{r} 8 \\ \times\ 4 \\ \hline \\ \hline \end{array}$$

10.
$$\begin{array}{r} 5 \\ \times\ 8 \\ \hline \\ \hline \end{array}$$

Multiplying numbers

x	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Example

7 × 10 = ☐

Steps

1. Identify the number 7 in the first row and number 10 in the first column.
2. Move along the identified row and column until they meet.
3. Identify the number where they meet as 70.

   7 × 10 = 70

Work to do

Multiply

1. $10 \times 2 = \square$
2. $10 \times 3 = \square$
3. $10 \times 4 = \square$
4. $10 \times 5 = \square$
5. $10 \times 10 = \square$
6. $10 \times 6 = \square$
7. $10 \times 7 = \square$
8. $10 \times 8 = \square$
9. $10 \times 9 = \square$
10. $10 \times 1 = \square$

Dividing numbers

Example

$8 \div 2 = \square$

How many can we substract 2 from 8?

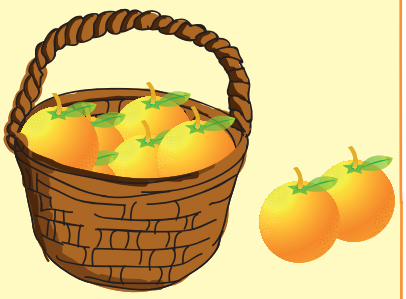
8 - 2 - 2 - 2 - 2 = 0 time

8 - 2 = 6 = 1 time

6 - 2 = 4 = 2 times

4 - 2 = 2 = 3 times

2 - 2 = 0 = 4 times



We can subtract 2 from 8 four times.

$8 \div 2 = 4$

Work to do

Divide

1. $4 \div 2 = \square$
2. $6 \div 2 = \square$
3. $8 \div 2 = \square$
4. $8 \div 4 = \square$
5. $9 \div 3 = \square$
6. $6 \div 2 = \square$
7. $4 \div 1 = \square$
8. $5 \div 1 = \square$

Dividing Numbers

Example 1

15 ÷ 5 = ☐

15 - 5 = 10 ⟶ 1 time
10 - 5 = 5 ⟶ 2 times
5 - 5 = 0 ⟶ 3 times

We can subtract 5 from 15 three times

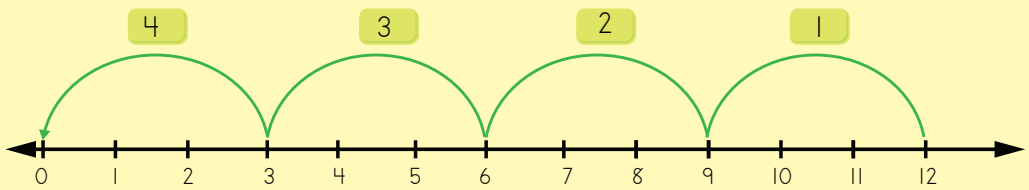
15 ÷ 5 = 3

Division as repeated subtraction on a number line

Example 2

Work out

12 ÷ 3 = ☐



From 12 skip backwards in 3's until you get to zero.
Count the number of skips made

12 ÷ 3 = 4

Work to do

Divide

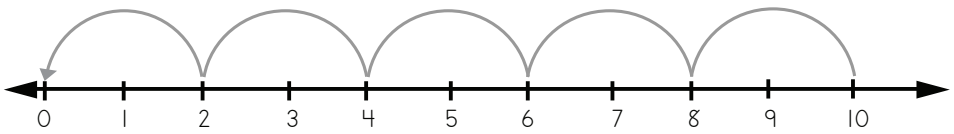
1. 12 ÷ 3 = ☐

2. 15 ÷ 3 = ☐

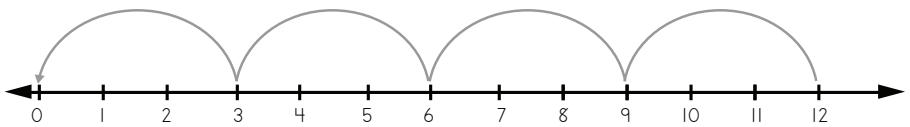
3. 20 ÷ 4 = ☐

4. 25 ÷ 5 = ☐

5. 16 × 4 = ☐

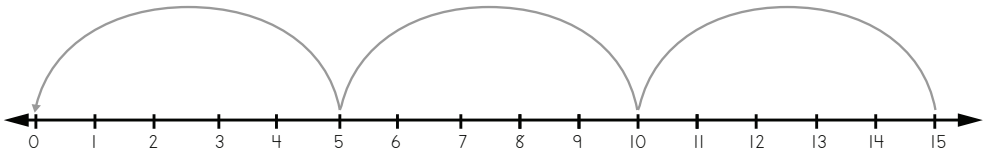
6. 

10 ÷ 2 = ☐

7. 

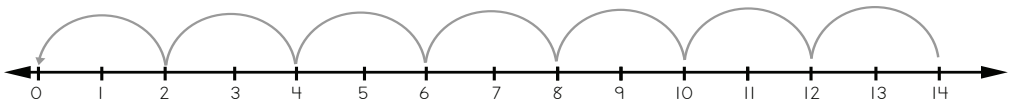
_____ ÷ _____ = _____

8.



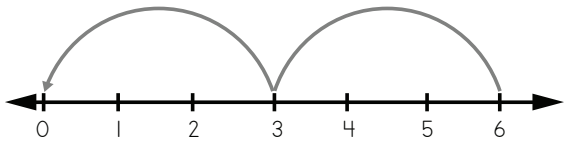
____ ÷ ____ = _____

9.



____ ÷ ____ = _____

10.



____ ÷ ____ = _____

Relationship between division and multiplication using multiplication table

×	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	4	6	8	10	12	14	16	18
3	3	6	9	12	15	18	21	24	27
4	4	8	12	16	20	24	28	32	36
5	5	10	15	20	25	30	35	40	45
6	6	12	18	24	30	36	42	48	54
7	7	14	21	28	35	42	49	56	63
8	8	16	24	32	40	48	56	64	72
9	9	18	27	36	45	54	63	72	81

Example

$24 \div 6 = \_\_\_\_$

$6 \times \_\_\_ = 24 \rightarrow$

$6 \times 4 = 24$

Steps

1. From 24 move up to 4 from 24 move across to 6.
2. Therefore $6 \times 4 = 24$ and $24 \div 6 = 4$

Work to do

Divide

1. 20 ÷ 4 = 5

   ___ × ___ = 20

2. 12 ÷ ___ = ___

   4 × ___ = 12

3. 12 ÷ ___ = 4

4. 25 ÷ ___ = 5

5. 10 ÷ ____ = 5

6. 15 ÷ 3 = ___

7. 8 ÷ ___ = 4

8. ____ ÷ 5 = 4

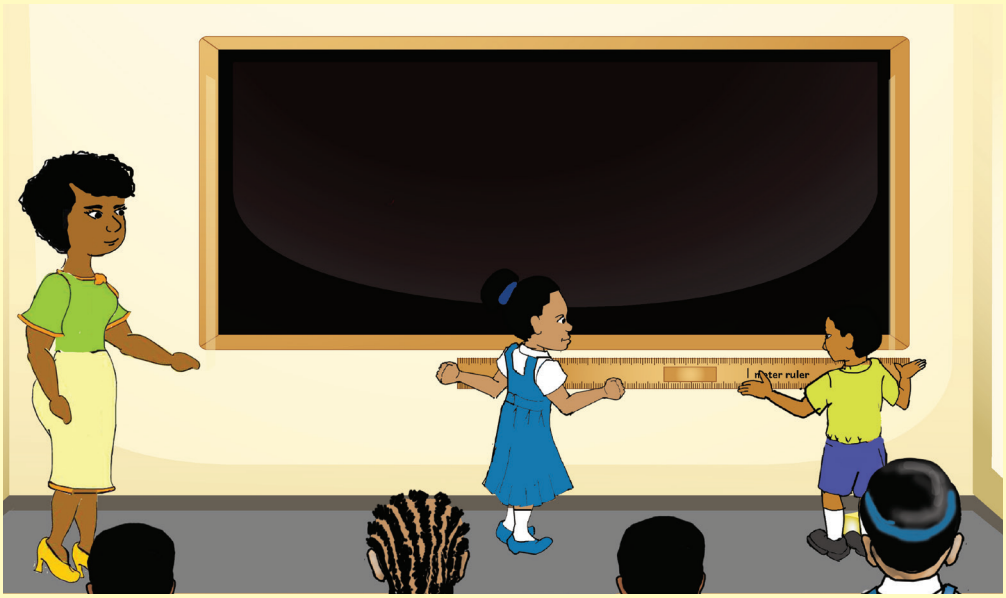
9. ____ ÷ 5 = 1

10. ____ ÷ 4 = 2

Measuring lengthin metres

Activity I

What is the length of the chalkboard?



Work to do

Measure

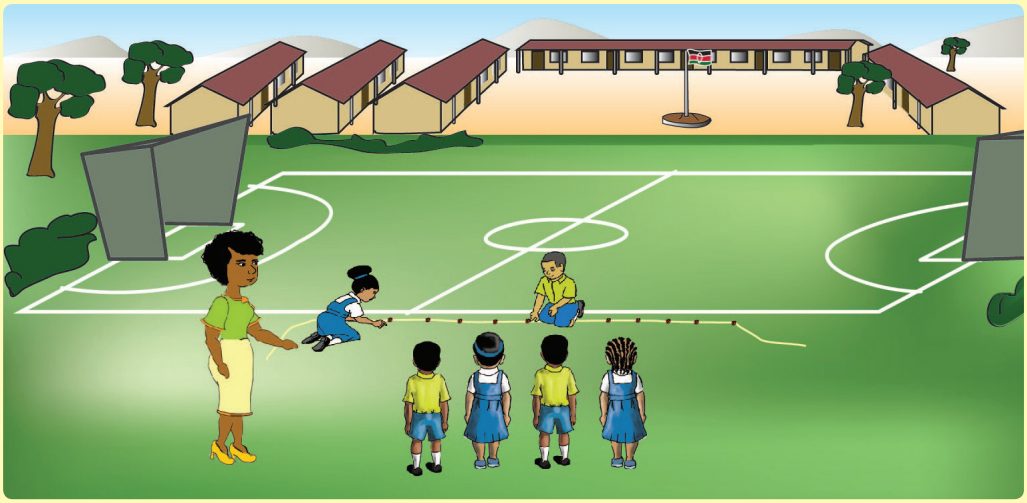
	Objects	Lengths in metres
1	Longer side of the classroom cupboard	
2	Shorter side of the classroom door	
3.	Length of classroom window	
4.	The shorter length of the football field	
5.	The length of the school garden	

Estimating length

Our School

Activity

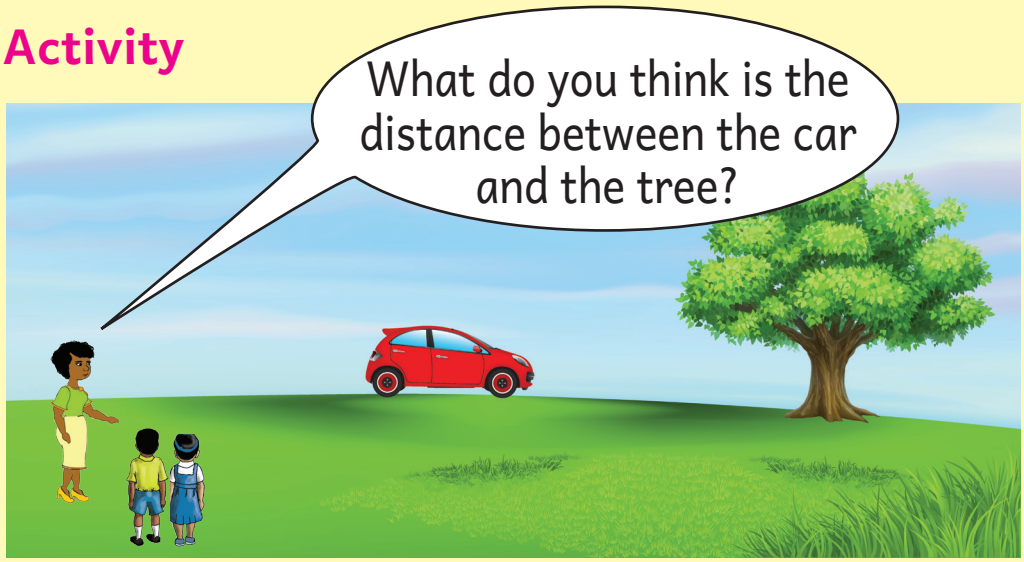
Estimate then measure



1. The distance from the head teacher's office to the flag post.
2. The shorter length of the football pitch.
3. The school garden.

Distance	Estimate in metres	Actual distance in metres	was the estimate close
1.			
2.			
3.			

Activity



Work to do

Estimate and measure the distance

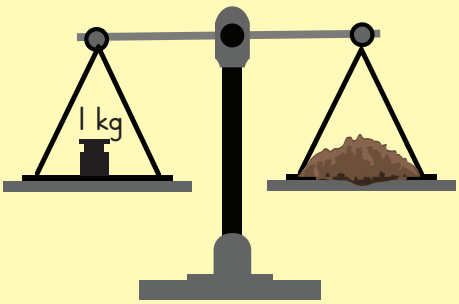
	Distance	Estimate in metres	Measurement in metres	How close was the estimate
1.	Staffroom to class			
2.	Flag post to the nearest tree			
3.	Between two trees			
4.	Between two classes			
5.	Between headteacher's office and flagpost			
6.	The shorter length of the pitch.			
7.	The length of the school garden			

Measuring mass in kilograms

The kilogram (kg) is used for measuring mass. A shopkeeper measures the mass of sugar, rice and flour in kilograms.

Activity 1

Make 1 kg masses of sand or soil using a beam balance



Activity 2

Using the beam balance and two 1-kg masses, guide learners to measure 2 kg of beans.

Work to do

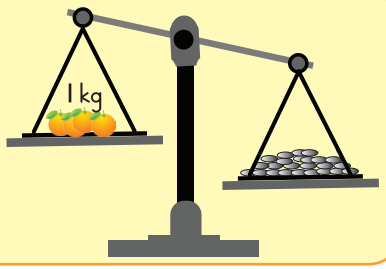
Measure the masses of other objects using the 1 kg mass.

	Objects	Mass in kg
a)	Mathematics textbooks	
b)	Chalkboard duster	
c)	Boxes of chalk	
d)	A packet of maize	
e)	A packet of beans	

Estimating mass

Activity 1

Using 1 kg masses estimate and measure the mass of pebbles. How close was the estimate?



Activity 2

Using soil of unknown mass, use 1 - kg masses to determine the mass of the soil. How close was the estimate?

Work to do

Estimate and measure mass in kg.

	Object	Estimated Mass	Actual Mass	How close was the estimate?
a)				
b)				
c)				
d)				
e)				
f)				

Measuring Capacity in Litres

Capacity is measured in litres. Liquids such as water, milk and petrol can be used to measure the capacity of different containers.

Activity 1

Measure the capacity using 1 litre container of water

Container	How many 1 litre containers	How many litres?
Pot		
Jerrican		
Sufuria		

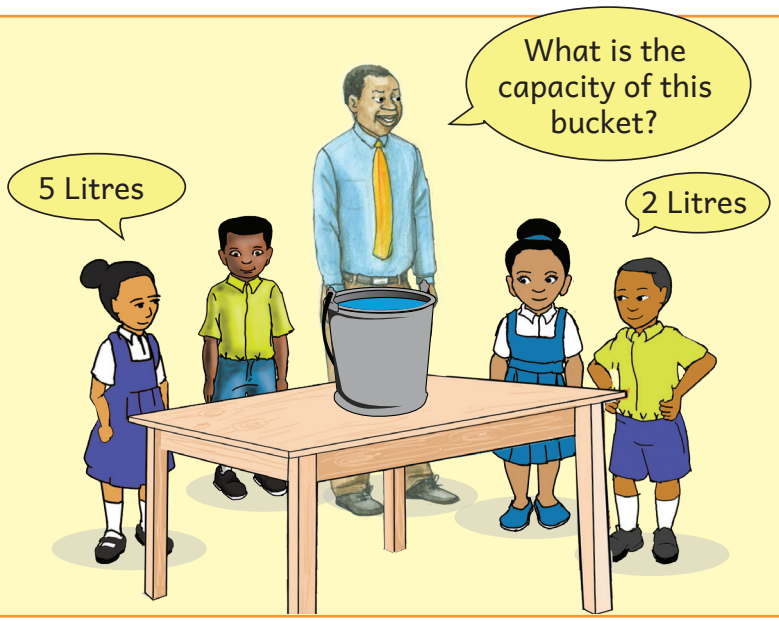
Work to do

How many litres?

1.		The bucket can be filled by 14 one litre containers. The bucket holds _____ litres.
2.		The bottle can be filled by 5 one litre containers The bottle holds _____ litres.
3.		The jug can be filled by 8 one litre containers. The jug holds _____ litres.

Estimating capacity

Activity



Work to do

Estimate and measure the capacity of the containers

Containers	Estimate	Actual	How close was the Estimate?
1. 			
2. 			
3. 			
4. 			

Hour hand and minute hand

Activity 1

This is a picture of a _____

1. Read the numbers it has.
2. The long hand is called the _____ hand
3. The short hand is the _____ hand.

Activity 2

Using the manila paper provided make a clock face of at least 15 cm wide

Work to do

Draw a clock face in your exercise books name the hour hand and the minute hand.

Relationship between hour hand and minute hand

1. The clock face has 12 equal divisions marked 1 to 12.
2. Each division between two numbers is an hour

3. Between two numbers are five smaller equal divisions. Each small division is a minute.

Activity

1. How many big divisions can you see on the clock face?
2. How many small divisions can you see on the clock face?

Work to do

Draw a clock face with

1. Hour hand pointing at 8 and minute hand pointing at 4
2. Hour hand pointing at 11 and minute hand pointing at 6
3. Hour hand pointing at 12 and minute hand pointing at 8
4. Hour hand pointing 3 and minute hand pointing 9

Time by the hour

Activity 1 : Read and tell time

The time is 3 o'clock

The time is 8 o'clock

The time is 6 o'clock

The time is 12 o'clock

Work to do

1. What is the time?

a)

____o'clock

b)

____o'clock

c)

____o'clock

d)

____o'clock

2. Show the time

a)

11 o'clock

b)

2 o'clock

c)

4 o'clock

d)

1 o'clock

Time past the hour

Example

Quarter past 12 o'clock
15 minutes past 12 o'clock

Half past 2 o'clock.
30 minutes past 2 o'clock

Work to do

What is the time ?

1. 

2. 

3. 

4. 

7. 

8. 

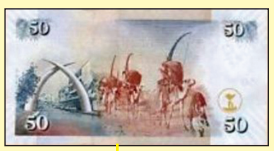
8. 

9. 

Kenya currency notes

Activity

Identify your shilling notes

50


100


200


500


1000

Work to do

Write what you can see in the Kenyan currency notes.

Counting money

Activity

How much money?

1. 

Sh. 50 + Sh. 100 = Sh. 150

2. 

Sh. 200 + Sh. 500 = Sh. 700

3. 

Sh. 500 + Sh. 100 = Sh. 600

4. 

Sh. 50 + Sh. 200 + Sh 500 = Sh. 750

Work to do

How much money?

1.  

2.  

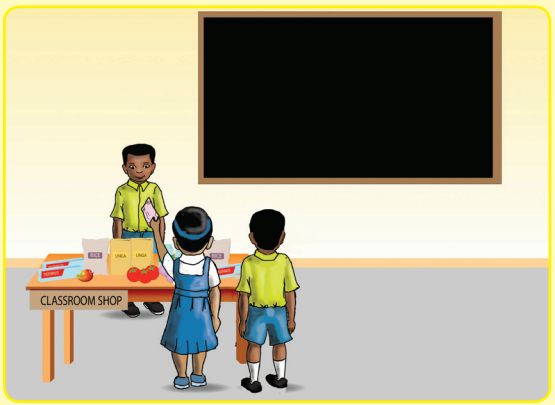
3.  

4.  

Shopping activities involving change.

Activities

Using the classroom shop.



1. John has a sh.100 note. How many sh. 50 notes will be get?
   John will get two sh.50 notes

Change is getting the same amount of money in smaller value

2. Jane has a sh. 200 note. How many sh. 50 notes will she get?
   Jane will get four sh. 50 notes

Work to do

How much money?

1. Asha has a sh. 1000 note. How many sh. 500 notes will she get?
2. Salim has a sh. 200 note. How many sh. 100 notes will he get?
3. James has a sh. 500 not. How many sh. 100 notes will he get?
4. Judy has a sh. 100 note. How many sh. 50 notes will she get?

Shopping activities involving balance.

Kenya currency notes

Examples

1. Jane has a sh. 500 note. She bought a book at sh. 300. How much money did she get back?

   sh. 500 – sh. 300 = sh. 200.

   She got sh. 200 back.

   Money she got back is called **balance.**

2. Peter had a sh. 200 note. He bought a bag at sh. 180. What was his balance?

   Sh. 200 – sh. 180 = sh. 20.

   His balance is sh. 20.

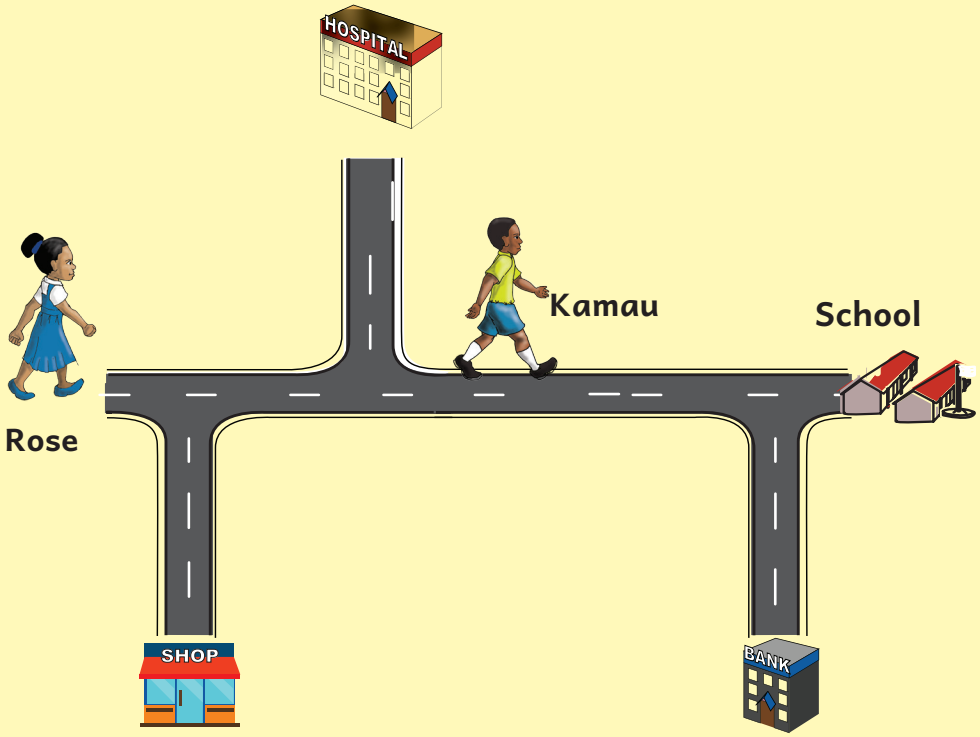
Work to do

How much balance?

1. Salim had a sh. 1000 note. He bought a chair for sh. 600. What was his balance?
2. James had a sh. 500 note. He bought a table at sh. 450. What was the balance?
3. Asha had a sh. 200 note. She bought a book at sh. 125. What was her balance?
4. Mary has a sh. 1000 note. She bought a dress for sh. 800. What was her balance?
5. Judy had sh. 100 note. She bought a pencil at shs. 30. What was her balance?

Turning to the right

Picture on position and direction



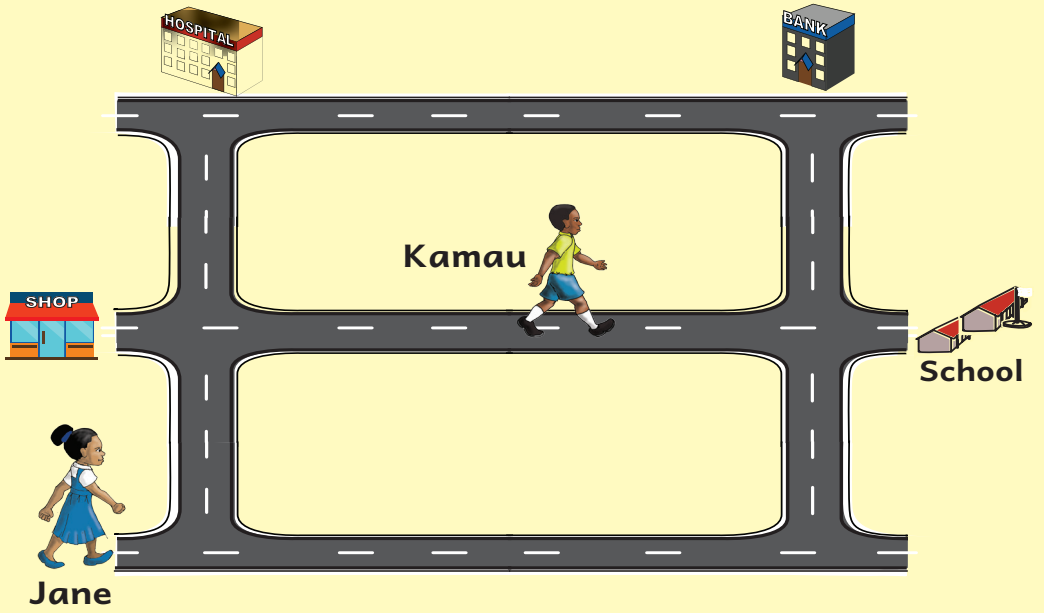
Work to do

Use the picture to fill in the spaces

1. To go to the school, Kamau will move _____.
2. To visit the bank, Kamau will walk straight then turn _____.
3. To visit the shop, Rose will walk straight and turn _____.
4. To visit Kamau, Rose will walk _____.
5. From the bank to the school one will walk straight then turn _____.

Turning to the left

Picture on position and direction



Work to do

Use the picture to fill in the space

1. To go to the bank Kamau will walk straight and then turn to the _____.
2. To go to the bank, Jane will walk straight then turn _____.
3. To visit the hospital, Jane will walk straight then turn _____.
4. From the shop, Kamau will turn _____ to the hospital.
5. From the hospital to the bank you walk _____.

Geometric shapes

Activity

Name the shapes

A is a _____

B is a _____

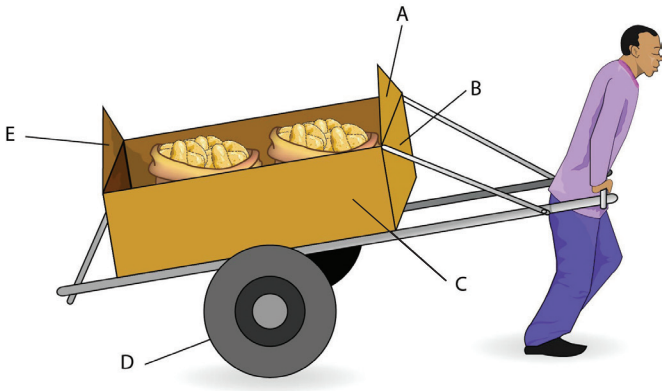
C is a _____

D is a _____

E is a _____

Work to do

I. Name the shapes



A is a _____

B is a _____

C is a _____

D is a _____

E is a _____

2. write straight or curved

a) 

b)

c) 

d) 

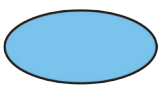
e)

f) 

3. Write straight or curved

a) A rectangle  is made of _____ lines

b) A triangle  is made of _____ lines

c) An oval  is made of _____ lines

Patterns

Example

Complete the pattern to the right

_____

the pattern is 

_____

the pattern is 

Work to do

Add the pattern to the right

1.  _____

2.  _____

3.  _____

4.  _____

TERM 2

Position

Activity

What is the position of the animals in the picture?

The weaver bird is in the first position. The eagle is in the second position. The rat is in the third position.

Work to do

Use the picture above to fill in the spaces

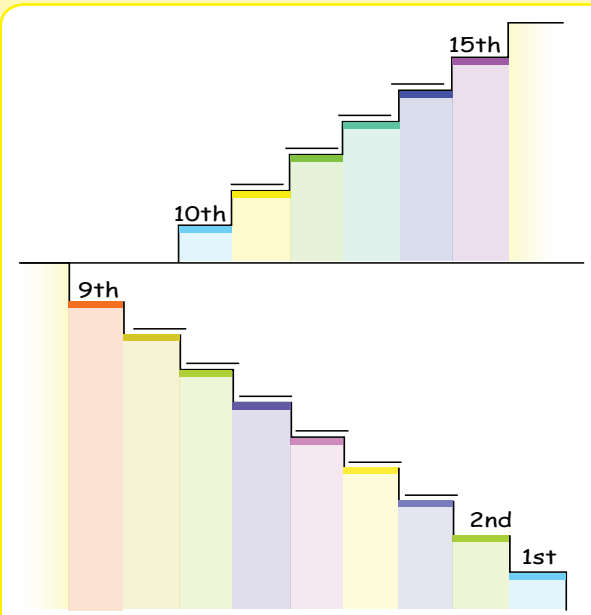
Animal	Position
Elephant	Tenth
Lion	Twelfth
Buffalo	
Cow	

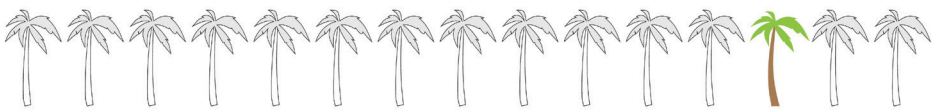
Giraffe	
Gazelle	
Sheep	
Cat	

Positions symbols

Activity

Fill in the missing positions

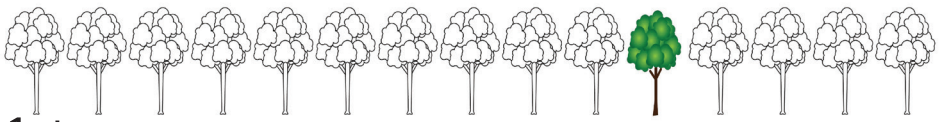




1st

Position

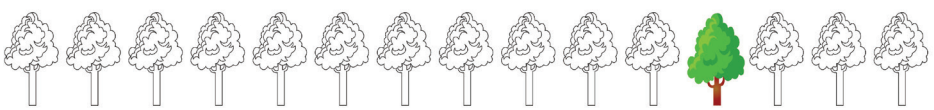
13th



1st

1st

1st



1st

Counting in fives

Activity

Count

1. 100, 805, 810,815, 820, 825, 830
2. 220, 225, 230, 235, 240, 245, 250
3. 400, 395, 390, 385, 380, 375, 370
4. 105, 100, 95, 90, 85, 80, 75, 70

Work to do

Count and fill in the missing numbers

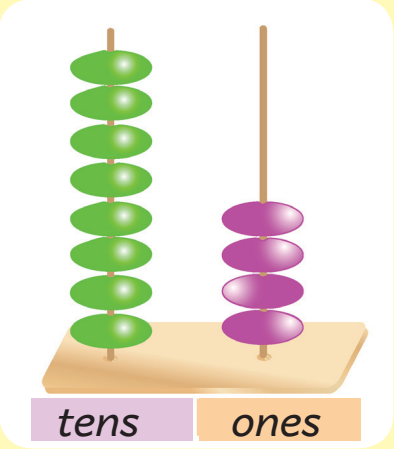
1. 327, 332, 337, 342, 347, 352.
2. 713, 718, 723, _____, _____, _____.
3. 625, 630, 635, _____, _____, _____.
4. 905, 910, 915, _____, _____, _____.
5. 1000, 995, 99,_____, _____, _____.
6. 581, 576, 571, ____, _____, _____.
7. 470, 465, 460, ____, _____, _____.

Place value

The chart shows the place value of digits in the number 84

tens	*ones*
8	4

The same number 84 can also be shown using an abacus as



84 = 8 **Tens and** 4 **Ones**

Work to do

Fill in the missing numbers

1. 17 = 1 tens 7 ones
2. 9 = ___tens _____ ones
3. 65 = ___tens _____ ones
4. 30 = ___tens _____ ones

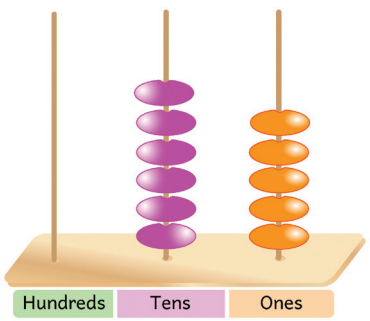
5. 54 = ____tens _____ ones

6. ____ = 7 tens 5 ones

7. ____ = 9 tens 2 ones

8. ____ = 4 tens 1 ones

9. ____ = 3 tens 7 ones

10. 

_____

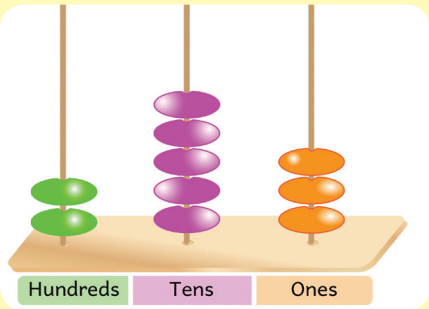
Place value

Example

The chart shows the place value of digits in the number 253

Hundreds	Tens	Ones
2	5	3

The same number 253 can also be shown using an abacus as



253 = 2 **Hundreds** 5 **Tens** 3 **Ones**

Work to do

Fill in the missing numbers

1. 125 = ___hundreds 2___tens 5___ones
2. 695 = ___ hundreds ___tens _____ ones
3. 741 = ___ hundreds ___tens _____ ones
4. 825 = ___ hundreds ___tens _____ ones

5. 970 = ____ hundreds ____tens _____ ones

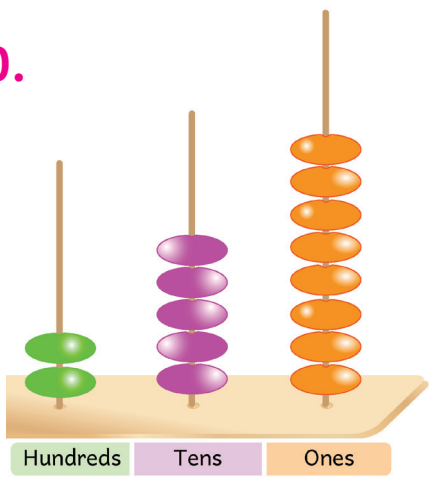
6. 53 = ____ hundreds ____tens _____ ones

7. _____ = 9 hundreds 8 tens 6 ones

8. _____ = 7 hundreds 3 tens 1 ones

9._____ = 1 hundreds 0 tens 4 ones

10.



_____

Reading in symbols

Activity

Let us read

798,	191,	289,	80,	75,
72,	63,	560,	654,	51,
49,	44,	332,	30,	427,
921,	19,	816,	14,	710.

Work to do

1. Learners in pairs or in groups to read number symbols 1 - 1000, both forward and backwards

Reading Numbers

Activity

Let us read

Number	Words
54	Fifty four
63	Sixty three
79	Seventy Nine
84	Eighty Four
90	Ninety
98	Ninety Eight
100	Hundred

Work to do

1. sixty nine 69
2. seventy six _____
3. seventy five _____
4. eighty nine _____
5. ninety three _____
6. ninety nine _____
7. one hundred _____

Numbers

Activity

Write number in words

Number	Words
80	eighty
75	seventy five
66	sixty six
78	seventy eight
89	eighty nine
99	ninety nine
100	hundred

Work to do

Write the numbers in words

1. 81 Eighty One
2. 77 _____
3. 64 _____
4. 87 _____
5. 98 _____
6. 90 _____
7. 93 _____
8. 100 _____

Number Patterns

Examples

Identify the missing numbers in the number patterns

30, 35, 40, 45 ____

To get the missing number count forward in 5s

The missing number is 50

199, 193, 187, 181 ____

To get the next number, subtract 6 from the number before. 181 - 6 = 175

The missing number is 175

Work to do

Fill in the missing number

1. 100, 96, 92, 88, ____, ____.
2. 321, 324, 327, ___, 333, ____, ____.
3. 76, 70, 64, ____, ____, 46
4. 410, 430, 450 , ____, ____.
5. 410, 430, 450, ____, ____.
6. 365, 361, 357, ____, ____.

Number Patterns

Examples

Identify the missing numbers in the number patterns

600, 650, 700, 750, ____.

To get to the next number count forward in 50s or add 50 to the number before. 750 + 50

The missing number is 800

424, 422, 420, ____, ____.

To get to the next number, count backwards in twos

The missing numbers are 418, 416

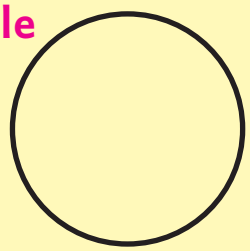
Work to do

Fill in the missing number

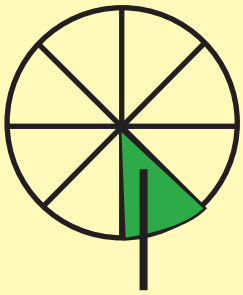
1. 866, 864, 862, ____, 858, ____
2. 218, 219, ____, 221, 222, ____
3. 717, 719, 721, ____, 725, 727
4. 540, 535, 530, ____, ____, ____
5. 580, 530, 480, ____, 380, ____
6. 370, ____, 410, 430, 450, ____

Eighth as part of a whole

Example



Whole

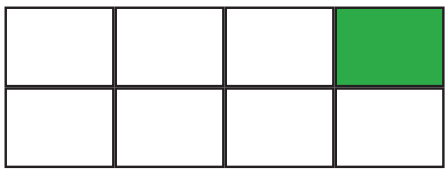


One eighth written as $\frac{1}{8}$

Work to do

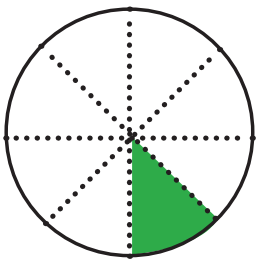
1. What fraction is shaded?

a)



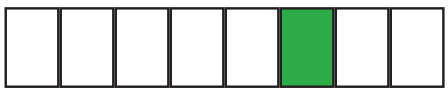
_____

b)



_____

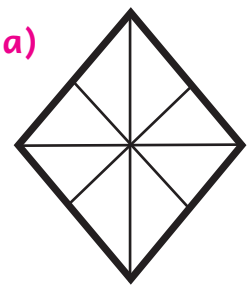
c)



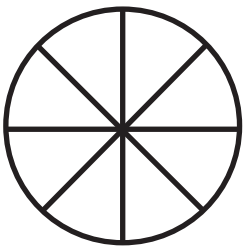
_____

2. Shade $\frac{1}{8}$ of the whole

a)



b)



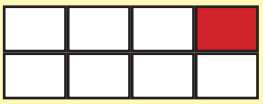
c)

Comparing $\frac{1}{4}$ and $\frac{1}{8}$

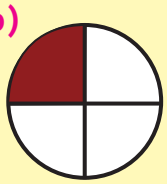
Example

What fraction is shaded. $\frac{1}{4}$ $\frac{1}{8}$

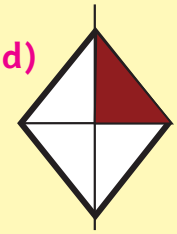
a)



b)



d)



e)

Work to do

Which fraction is bigger?

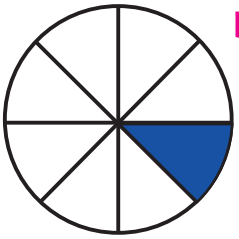
1.

a)

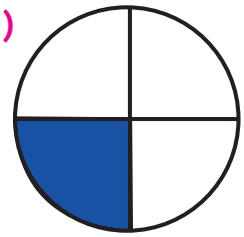
b)

2.

a)



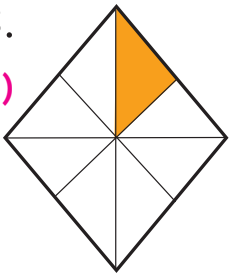
b)



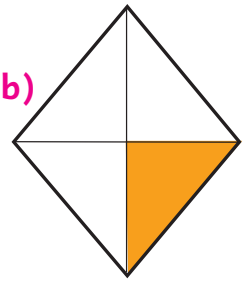
Which fraction is smaller?

3.

a)



b)



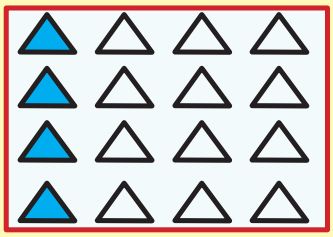
4.

a)

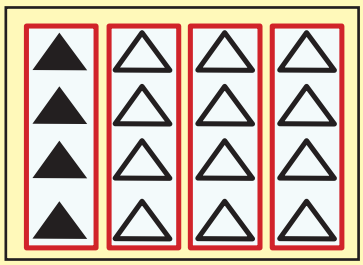
b)

Quarter as part of a group

Example



Whole group of 16

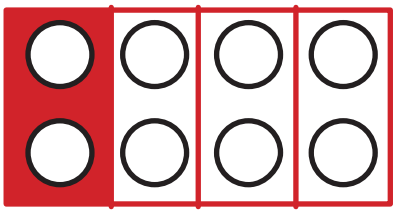


A quarter of 16 = 4

- We have a group of 16.
- Put them into four equal groups.
- These are four groups. One group is shaded.
- The shaded is a quarter.

Work to do

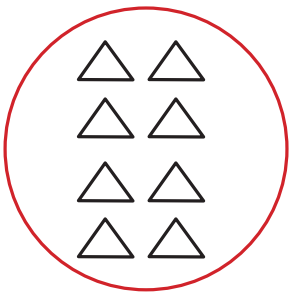
1. What is a quarter of 8 ?



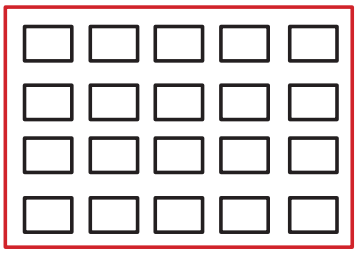
A quarter of 8 is ☐

2. Draw and shade $\frac{1}{4}$ of the group

a)



b)



3. What is

a) A quarter of 24 is ☐

b) A quarter of 32 is ☐

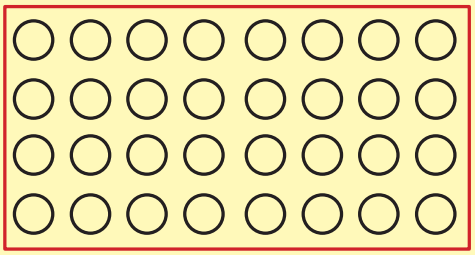
c) A quarter of 36 is ☐

d) A quarter of 48 is ☐

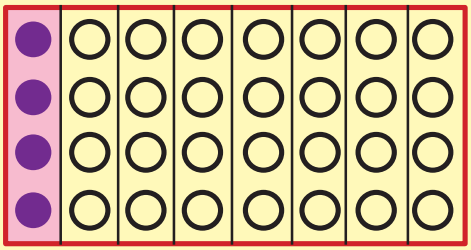
Eighth as part of a group

Example

What is an eighth of 32?



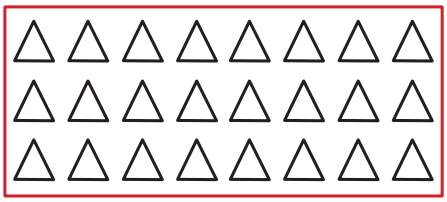
Whole group of 32



An eighth of 32 is 4

Work to do

1. What is an eighth of 24?

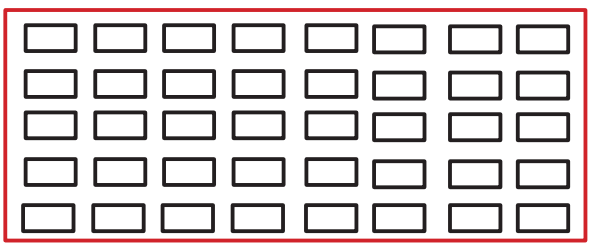


An eighth of 24 is

2. What is

a) An eighth of 16 is? ☐ b) $\frac{1}{8}$ of 16 is? ☐

c) $\frac{1}{8}$ of 40 is? ☐

3. 

Draw and shade $\frac{1}{8}$

Adding a 3-digit number to a 2-digit number

Example 1

$$\begin{array}{r} 346 \\ +\ 53 \\ \hline \\ \hline \end{array}$$

Steps

1. Add ones 6 + 3 = 9 ones
2. Add tens 4 + 5 = 9
3. Bring down the 3 hundreds

$$\begin{array}{r} 346 \\ +\ 53 \\ \hline 399 \\ \hline \end{array}$$

Example 2

$$\begin{array}{r} 532 \\ +\ 46 \\ \hline \\ \hline \end{array}$$

Steps

1. Add ones 2 + 6 = 8
2. Add tens 3 + 4 = 7
3. Bring down 5 hundreds in the hundreds place

$$\begin{array}{r} 532 \\ +\ 46 \\ \hline 578 \\ \hline \end{array}$$

Work to do

Add

1. $\begin{array}{r} 246 \\ +\ 32 \\ \hline \\ \hline \end{array}$

2. $\begin{array}{r} 318 \\ +\ 81 \\ \hline \\ \hline \end{array}$

3. $\begin{array}{r} 425 \\ +\ 64 \\ \hline \\ \hline \end{array}$

4. 861
+ 26
_____

5. 972
+ 26
_____

6. 555
+ 22
_____

7. 617
+ 42
_____

8. 734
+ 35
_____

9. 181
+ 17
_____

10. 802
+ 95
_____

Adding a 3 - digit number to a 2 - digit number

Example 1

472 + 26 = ☐

Steps

1. Add ones 2 + 6 = 8
2. Add tens 7 + 2 = 9
3. Write 4 hundreds in hundreds place

472 + 26 = 498

Example 2

312 + 65 = ☐

Steps

1. Add ones 2 + 5 = 7
2. Add tens 1 + 6 = 7
3. Write 3 hundreds in hundreds place

312 + 65 = 377

Work to do

Add

1. 253 + 36 = ☐
2. 765 + 21 = ☐
3. 155 + 43 = ☐
4. 661 + 12 = ☐
5. 315 + 73 = ☐
6. 900 + 84 = ☐
7. 482 + 10 = ☐
8. 501 + 57 = ☐
9. 230 + 61 = ☐
10. 873 + 26 = ☐

Add a 3 - digit number to a 2- digit number

Example 1

```
  352
+  29
-----
```

Steps

1. Add 2 ones to 9 ones to get 11 ones
2. Regroup 11 as 1 tens and 1 ones
3. Write 1 in the ones column and take 1 tens to the tens column
4. Add 1 tens to 5 tens and 2 tens to get 8 tens.
5. Bring down the 3 hundreds

```
  1
  352
+  29
-----
  381
-----
```

Example 2

413 + 77 = ☐

Steps

1. Arrange vertically
2. Add 3 ones to 7 ones to get 10 ones
3. Regroup 10 as 1 tens and 0 ones
4. Write 0 in the ones column and take 1 tens to the tens column
5. Add 1 tens to 1 tens and 7 tens to get 9 tens.
6. Bring down the 4 hundreds

```
   1
  413
+  77
-----
  490
-----
```

Work to do

Add

1. 246 + 48 = _____

2. 367 + 24 = _____

3. 406 + 55 = _____

4. 555 + 39 = _____

5. 724 + 36 = _____

6. 848 + 13 = _____

7. 826 + 58 = ☐

8. 914 + 69 = ☐

9. 876 + 19 = ☐

10. 653 + 29 = ☐

Add a 3 - digit number to a 2 - digit number

Example 1

$$\begin{array}{r} 367 \\ +\ 52 \\ \hline \\ \hline \end{array}$$

Steps

1. Add 7 ones to 2 ones to get 9 ones.
2. Add 6 tens to 5 tens to get 11 tens. Regroup 11 tens as 1 hundreds and 1 tens.
3. Write 1 in the tens column and take 1 hundreds to the hundreds column.
4. Add 1 hundreds to 3 to get 4 hundreds.

$$\begin{array}{r} 367 \\ +\ 52 \\ \hline 419 \\ \hline \end{array}$$

Example 2

$782 + 47 = \square$

Steps

1. Arrange vertically.
2. Add 2 ones to 7 ones to get 9 ones.
3. Add 8 tens to 4 tens to get 12 tens. Regroup 12 tens as 1 hundreds and 2 tens.
4. Write 2 in the tens column and take 1 hundreds to the hundreds column.
5. Add 1 hundreds to 7 hundreds to get 8 hundreds.

$$\begin{array}{r} 782 \\ +\ 47 \\ \hline 829 \\ \hline \end{array}$$

Work to do

Add

1. 263 + 75 = _____

2. 384 + 35 = _____

3. 680 + 47 = _____

4. 652 + 93 = _____

5. 567 + 40 = _____

6. 781 + 55 = _____

7. 856 + 63 = ☐

8. 475 + 63 = ☐

9. 160 + 45 = ☐

10. Peter had 246 bottles of soda in his shop. He bought another 70 bottles. How many bottles of soda does he have altogether?

Add 3 single digit number

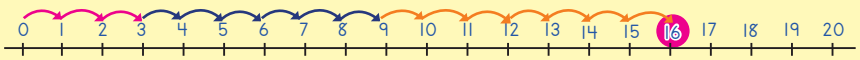
Example 1

3 + 6 + 7 = ☐

Steps

1. Count on 6 steps from 3 steps to get 9.
2. Count on 7 steps from 9 to get 16

OR



1. Using a number line. Start from 0, skip 3 steps forward, then 6 steps and lastly 7 steps to get to 16

3 + 6 + 7 = 16

Work to do

Add

1. 2 + 4 + 6 = ☐
2. 7 + 6 + 5 = ☐
3. 5 + 4 + 8 = ☐
4. 6 + 7 + 5 = ☐
5. 3 + 6 + 9 = ☐
6. 3 + 6 + 9 = ☐

7.
$$\begin{array}{r} 5 \\ 7 \\ +\ 6 \\ \hline \\ \hline \end{array}$$

8.
$$\begin{array}{r} 9 \\ 5 \\ +\ 3 \\ \hline \\ \hline \end{array}$$

9.
$$\begin{array}{r} 3 \\ 8 \\ +\ 7 \\ \hline \\ \hline \end{array}$$

10.
$$\begin{array}{r} 4 \\ 8 \\ +\ 6 \\ \hline \\ \hline \end{array}$$

Example 1

$$\begin{array}{r} 273 \\ +\ 116 \\ \hline \\ \hline \end{array}$$

Steps

1. Add 3 ones to 6 ones to get 9 ones
2. Add 7 tens to 1 tens to get 8 tens
3. Add 2 hundreds to 1 hundreds to get 3 hundreds

$$\begin{array}{r} 273 \\ +\ 116 \\ \hline 389 \\ \hline \end{array}$$

Example 2

$502 + 496 = \square$

Steps

1. Arrange the numbers vertically
2. Add 2 ones to 6 ones to get 8 ones
3. Add 0 tens to 9 tens to get 9 tens
4. Add 5 hundreds to 4 hundreds to get 9 hundreds

$$\begin{array}{r} 502 \\ +\ 496 \\ \hline 998 \\ \hline \end{array}$$

Work to do

Add

1. 186
   + 202
   _____

2. 214
   + 375
   _____

3. 382
   + 417
   _____

4. 406
   + 511
   _____

5. 215 + 340 = ☐

6. 461 + 392 = ☐

7. 600 + 392 = ☐

8. 812 + 161 = ☐

9. 710 + 281 = ☐

10. 827 + 172 = ☐

Add Two 3 - digit numbers

Example 1

$$\begin{array}{r} 625 \\ +\ 247 \\ \hline \\ \hline \end{array}$$

$$\begin{array}{r} {\scriptstyle 1} \\ 625 \\ +\ 247 \\ \hline 872 \\ \hline \end{array}$$

Steps

1. Add 5 ones to 7 ones to get 12 ones
2. Regroup 12 ones a 1 tens and 2 ones
3. Write 2 ones in the ones column and take 1 tens to the tens column.
4. Add 1 tens to 2 and 4 to get 7 tens
5. Add 6 hundreds to 2 hundreds to get 8 hundreds

Example 2

463 + 528 = ☐

$$\begin{array}{r} {\scriptstyle 1} \\ 463 \\ +\ 528 \\ \hline 991 \\ \hline \end{array}$$

Steps

1. Arrange vertically
2. Add 3 ones to 8 ones to get 11 ones
3. Regroup 11 ones as 1 tens and 1 ones
4. Write 1 ones in ones column and take 1 tens to tens column.
5. Add 1 tens to 6 and 2 to get 9 tens
6. Add 4 hundreds to 5 hundreds to get 9 hundreds

Work to do

1. 226 + 154 = _____

2. 371 + 209 = _____

3. 465 + 128 = _____

4. 345 + 236 = _____

5. 514 + 239 = _____

6. 427 + 353 = _____

7. 729 + 231 = _____

8. 648 + 117 = _____

9. 856 + 128 = _____

10. 183 + 207 = _____

Add Two 3 - digit numbers

Example 1

$$\begin{array}{r} 365 \\ +\ 452 \\ \hline \\ \hline \end{array}$$

$$\begin{array}{r} 365 \\ +\ 452 \\ \hline 817 \\ \hline \end{array}$$

Steps

1. Add 5 ones to 2 ones to get 7 ones
2. Add 6 tens to 5 tens to get 11 tens. Regroup 11tens as 1 hundreds and 1 tens
3. Write 1 in the tens column and take 1 hundreds to the hundreds column.
4. Add 1 hundreds to 3 and 4 hundreds to get 8 hundreds.

Example 2

614 + 295 = ☐

$$\begin{array}{r} 614 \\ +\ 295 \\ \hline 909 \\ \hline \end{array}$$

Steps

1. Add 4 ones to 5 ones to get 9 ones
2. Add 1 tens to 9 tens to get 10 tens. Regroup 10 tens as 1 hundreds and 0 tens
3. Write 0 in the tens column and take 1 hundreds to the hundreds column.
4. Add 1 hundreds to 6 hundreds and 2 hundreds to get 9 hundreds

Work to do

1. 179 + 340 = _____

2. 264 + 485 = _____

3. 346 + 382 = _____

4. 473 + 356 = _____

5. 667 + 252 = _____

6. 782 + 176 = _____

7. 449 + 290 = ☐

8. 236 + 193 = ☐

9. 527 + 281 = ☐

Number Patterns

Example 1

Work out the missing numbers

550, 600, 650, 700, ____, ____.

Steps

1. Get the rule by getting the difference between two numbers following each other.
2. The rule is 50 more than the previous number.
3. To get the next number, add 50 to 700. The next number is 750.
4. To get the next missing number, add 50 to 750. The number is 800.

Example 2

425, 430, _____, 440, _____ , 450, 455

Steps

1. The rule is count on in 5s to get the next number.
2. By counting on the first missing number after 430 is 435 and the second missing number is 445.

Work to do

Fill in the missing numbers

1. 310, 385, 460, 535 _____, _____

2. 460, 520, 580, 640 _____, _____

3. 200, 250, 300, 350 _____, _____

4. 300, 375, _____, 475, 500, _____

5. 570, 590, _____, 630, 650, _____

6. 250, 400, 550, 700, _____, _____

7. 280, 360, 440, 520 _____, _____

Subtracting Two 2 - digit Numbers

Examples

1. 98
   - 67
   ———

98
- 67
31
———

Steps

1. Subtract 7 ones from 8 ones to get 1 ones.
2. Subtract 6 tens from 9 tens to get 3 tens.

2. 72 - 30 = ☐

72
- 30
42
———

Steps

1. Arrange vertically.
2. Subtract 0 ones from 2 ones to get 2 ones.
3. Subtract 3 tens from 7 tens to get 4 tens.

Work to do

Subtract

1. 57
   - 36
   ———

2. 64
   - 22
   ———

3. 85
   - 60
   ———

4. 79
- 55
_____

5. 38
- 26
_____

6. 96
- 74
_____

7. A school had 56 clean cups, thirty two cups were used. How many were not used?

8. A head teacher had 49 mathematics books. She gave 25 to grade three learners. How many remained?

9. A class of 55 learners visited an old peoples' home. Twenty learners cleaned the rooms. The rest washed utensils. How many learners washed the utensils?

10. A school had 77 learners in one year. 25 learners were transferred. How many were left?

Subtracting a single digit number from a 3 - digit number

Example 1

$$\begin{array}{r} 476 \\ -\ \ 5 \\ \hline \\ \hline \end{array}$$

Steps

1. Subtract 5 ones from 6 ones to get 1 ones.
2. Bring down 7 tens and 4 hundreds.

$$\begin{array}{r} 476 \\ -\ \ 5 \\ \hline 471 \\ \hline \end{array}$$

Example 2

546 - 3 = ☐

$$\begin{array}{r} 546 \\ -\ \ 3 \\ \hline \\ \hline \end{array}$$

Steps

1. Arrange vertically.
2. Subtract 3 ones from 6 ones to get 3 ones.
3. Bring down 4 tens and 5 hundreds.

Work to do

Subtract

1. $\begin{array}{r} 138 \\ -\ \ 4 \\ \hline \\ \hline \end{array}$

2. $\begin{array}{r} 234 \\ -\ \ 1 \\ \hline \\ \hline \end{array}$

3. $\begin{array}{r} 308 \\ -\ \ 5 \\ \hline \\ \hline \end{array}$

4. 449
- 7
_____

_____

6. 506
- 6
_____

_____

7. 676
- 2
_____

_____

8. 789
- 2
_____

_____

9. Eight hundred and ninety nine bags of maize were given to a zone. Kaloleni primary school received 6 bags. How many bags were left for the other schools?

10. During a school tree planting day 349 trees were planted. Teachers planted 8 trees. How many trees did pupils plant?

Subtract two 2 - digit numbers

Example 1

$$\begin{array}{r} 82 \\ -\ 47 \\ \hline \\ \hline \end{array}$$

Steps

1. Since you cannot subtract 7 ones from 2 ones, regroup 8 tens as 7 tens and 10 ones.
2. Add 10 ones to 2 ones to get 12 ones.
3. Subtract 7 ones from 12 ones to get 5 ones.
4. Subtract 4 tens from the remaining 7 tens to get 3 tens.

$$\begin{array}{r} 82 \\ -\ 47 \\ \hline 35 \\ \hline \end{array}$$

Example 2

70 - 34 = ☐

Steps

1. Arrange vertically.
2. Regroup 7 tens as 6 tens and 10 ones.
3. Subtract 4 ones from 10 ones to get 6 ones.
4. Subtract 3 tens from the remaining 6 tens to get 3 tens.

$$\begin{array}{r} 70 \\ -\ 34 \\ \hline 36 \\ \hline \end{array}$$

Work to do

Subtract

1. 72 − 48 = _____

2. 51 − 32 = _____

3. 67 − 18 = _____

4. 20 − 19 = _____

5. 33 − 27 = _____

6. 85 − 56 = _____

7. A shopkeeper has 42 packets of biscuits. He sells 27 packets. How many packets were left?

8. A farmer harvested 64 bags of maize. He gave out 38 bags to a childrens home. How many bags of maize were left?

9. A Grade 3 class had 80 learners. One day 32 learners went for a trip. How many were left?

10. A matchbox had 32 sticks. In one week 14 were used. How many were left?

Subtract a single digit number from a 3 - digit number

Example 1

$$\begin{array}{r} 684 \\ -\ \ 5 \\ \hline 679 \end{array}$$

Steps

1. Since you can not subtract 5 ones from 4 ones, regroup 8 tens as 7 tens and 10 ones. Add 10 ones to 4 ones to get 14 ones.
2. Subtract 5 ones from 14 ones to get 9 ones.
3. Bring down the remaining 7 tens and 6 hundreds.

Example 2

$$\begin{array}{r} 172 \\ -\ \ 3 \\ \hline 169 \end{array}$$

Steps

1. Since you can not subtract 3 ones from 2 ones, regroup 7 tens as 6 tens and 10 ones. Add 10 ones to 2 ones to get 12 ones.
2. Subtract 3 ones from 12 ones to get 9 ones.
3. Bring down the remaining 6 tens and 1 hundreds

Work to do

Subtract

1. 346
   - 7
   ---

2. 553
   - 5
   ---

3. 460
   - 4
   ---

4. 271
   - 6
   ---

5. 892
   - 8
   ---

6. 934
   - 7
   ---

7. Abdi had 615 kg of flour in his shop. He sold 6 kg. How many were left?

8. Alex had 783 goats. 4 died. How many were left?

9. A class had 150 textbooks. 2 got lost. How many were left?

10. A shopkeeper had 124 packets of milk. She sold 5 packets. How many packets were left?

Subtracting two 3 - digit numbers

Example 1

1.

$$\begin{array}{r} 738 \\ -\ 526 \\ \hline \\ \hline \end{array}$$

$$\begin{array}{r} 738 \\ -\ 526 \\ \hline 212 \\ \hline \end{array}$$

Steps

1. Subtract 6 ones from 8 ones to get 2 ones.
2. Subtract 2 tens from 3 tens to get 1 tens
3. Subtract 5 hundreds from 7 hundreds to get 2 hundreds

Example 2

482 - 381 = ☐

$$\begin{array}{r} 482 \\ -\ 381 \\ \hline 101 \\ \hline \end{array}$$

Steps

1. Subtract 1 ones from 2 ones to get 1 ones.
2. Subtract 8 tens from 8 tens to get 0 tens
3. Subtract 3 hundreds from 4 hundreds to get 1 hundreds

Work to do

Subtract

1. 264 - 152 = _____

2. 986 - 731 = _____

3. 697 - 224 = _____

4. 455 - 340 = _____

5. 347 - 105 = _____

6. 888 - 777 = _____

7. A garden had 719 seedlings. In one day 616 seedlings were sold. How many were left?

8. A wholesale shop had 328 bags of fertilizer. In one month, 120 bags were sold. How many were left?

9. Ole Sakida had 478 sheep. He sold 324. How many were left??

10. A tank had 566 litres of water. A family used 323 litres. How many were left?

Subtract 2 - digit numbers from 3 - digit numbers

Example 1

$$\begin{array}{r} 442 \\ -\ 36 \\ \hline 406 \\ \hline \end{array}$$

Steps

1. Since you can not subtract 6 ones from 2 ones, regroup 4 tens as 3 tens and 10 ones. Add 10 ones to 2 ones to get 12 ones.
2. Subtract 6 ones from 12 ones to get 6 ones.
3. Subtract 3 tens from 3 tens to get 0 tens.
4. Bring down the 4 hundreds.

Example 2

$$\begin{array}{r} 753 \\ -\ 26 \\ \hline 727 \\ \hline \end{array}$$

Steps

1. Since you can not subtract 6 ones from 3 ones, regroup 5 tens as 4 tens and 10 ones. Add 10 ones to 3 ones to get 13 ones.
2. Subtract 6 ones from 13 ones to get 7 ones.
3. Subtract 2 tens from the remaining 4 tens to get 2 tens.
4. Bring down the 7 hundreds.

Work to do

Subtract

1. 426
   - 71

   ---

2. 914
   - 37

   ---

3. 836
   - 58

   ---

4. 632
   - 18

   ---

5. 619
   - 34

   ---

6. 708
   - 72

   ---

7. 257
   - 82

   ---

8. A fish pond had 508 fish. On one day, 67 died. How many were left?

9. A farmer harvested 335 bags of beans. In June he sold 82 bags. How many were left?

10. A shopkeeper had 124 packets of milk. She sold 5 packets. How many packets were left?

Subtract multiples of 10

Example 1

$$\begin{array}{r} 300 \\ -\ 100 \\ \hline 200 \end{array}$$

Steps

1. Subtract 0 ones from 0 ones to get 0 ones.
2. Subtract 0 tens from 0 tens to get 0 tens.
3. Subtract 1 hundreds from 3 hundreds to get 2 hundreds.

OR

1. Count backwards by hundreds from 300 to 100.
2. Get how many hundreds you have counted, which is 2 hundreds (200).

Example 2

670 - 520 = ☐

$$\begin{array}{r} 670 \\ -\ 520 \\ \hline 150 \end{array}$$

Steps

1. Arrange vertically.
2. Subtract 0 ones from 0 ones to get 0 ones.
3. Subtract 2 tens from 7 tens to get 5 tens.
4. Subtract 5 hundreds from 6 hundreds to get 1 hundreds.

Work to do

Subtract

1. 90 − 40 = _____

2. 120 − 110 = _____

3. 360 − 30 = _____

4. 880 − 440 = _____

5. 790 − 690 = _____

6. 650 − 50 = _____

7. 240 − 220 = _____

8. 70 − 60 = _____

9. 430 − 430 = _____

10. A school took 80 learners for a music festival. 30 learners performed a traditional dance and the rest recited a poem. How many learners recited a poem?

Number patterns

Example 1

Work out the missing numbers

200, 195, 190, 185, ____, ____

Steps

1. Get the rule by getting the difference through subtraction between two numbers following each other.
2. The rule is subtract 5 from the nuber before.
3. To get the next number, subtract 5 from 185. The next number is 180.
4. To get the next missing number, subtract 5 from 180. The number is **175.**

Example 2

900, 800, 700, ____, ____, 400

Steps

1. Get the rule by getting the difference through subtraction between.
2. two numbers following each other.
3. The rule is 100 less.
4. To get the next number, count backwards from 700 to get **600** and **500.**

Work to do

Fill in the missing numbers

1. 55, 50, 45, 40, ___, ___

2. 117, 115, 113, ___,___, 107

3. 170, 160, 150, ___, ___, 120

4. 288, 284, 280, ___, ___, 268

5. 390, 387, 384, ____, ___, 375

6. 800, 750, 700, 650, ___, ___.

7. 520, 420, 320, 220, ____, ____

8. 713, 710, 707, ____, ___,698

Multiplying numbers

Example

3 + 3 + 3 + 3 + 3 = 15

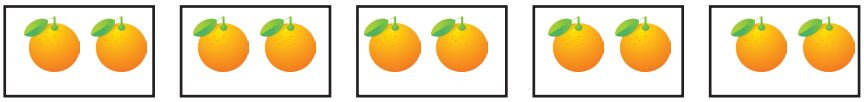
5 x 3 = 15

Work to do

Multiply

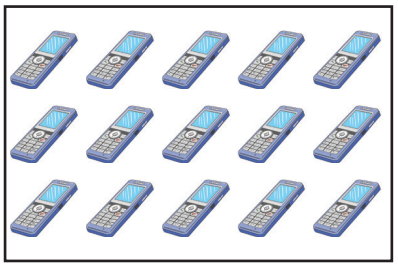
1. 

5 x 1 = ☐

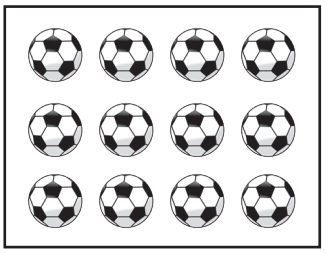
2. 

5 x ☐ = ☐

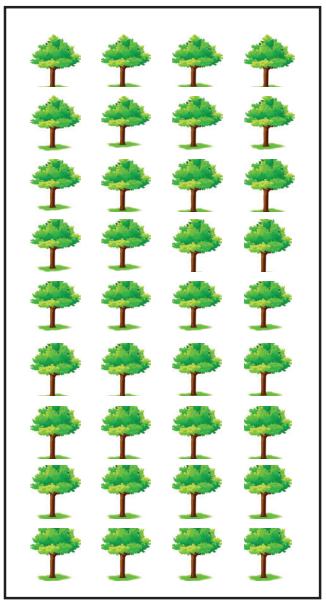
Write in multiplication

3. 

____ x ____ = _____

4. 

____ x ____ = _____

5. 

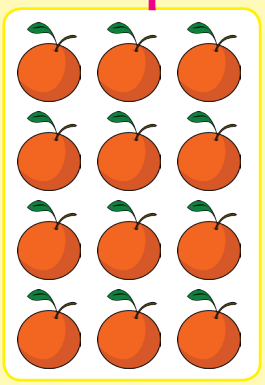
_____ x _____ = _____

6. Complete the table

X	1	2	3	4	5	6	7	8	9
1									
2					10				
3								24	
4									
5						30			

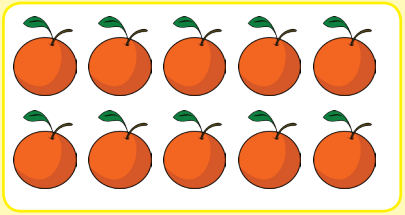
Multiplying numbers

Example 1



4 x 3 = 12

Example 2

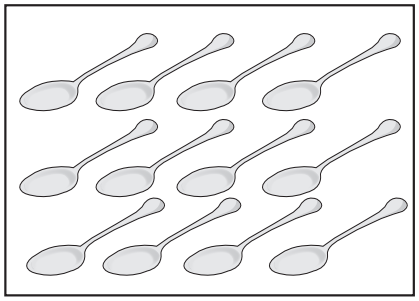


2 x 5 = 10

Work to do

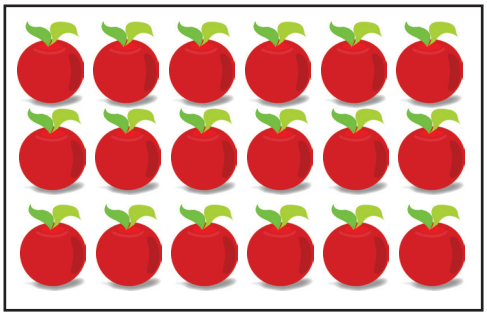
1. Write the following multiplication

a)



____ x ____ = ____

b)



____ x ____ = ____

2. Multiply

a) 3 × 2 = _____

b) 5 × 2 = _____

c) 3 × 5 = _____

d) 5 × 5 = _____

3. Multiply

a) $5 \times 4 =$ ☐

b) $3 \times 4 =$ ☐

c) $5 \times 1 =$ ☐

d) $4 \times 4 =$ ☐

e) $4 \times 2 =$ ☐

f) $4 \times 1 =$ ☐

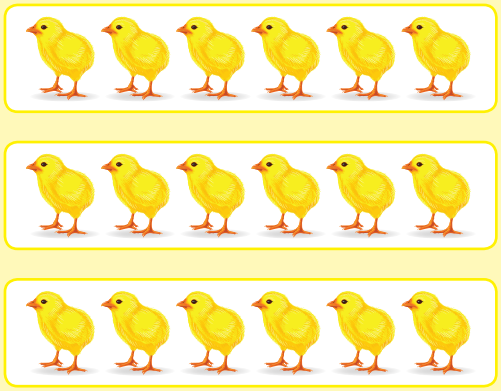
4. Fill in the multiplication table

X	1	2	3	4	5
1					
2					
3		6			
4					
5					25

Multiplying numbers

Example

$3 \times 6 = \square$

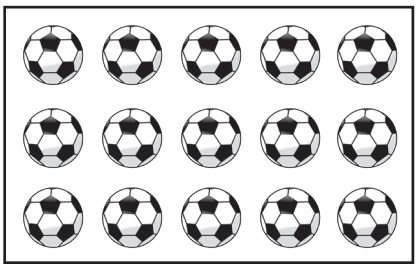


There are 3 groups each with 6 chicks.

The multiplication is
$3 \times 6 = 18$

Work to do

There are 3 groups each with 5 balls. Write as multiplication.

1. 

_____ x _____ = _____

2. Multiply

a) 6 x 6 = ☐

b) 6 x 7 = ☐

c) 6 x 8 = ☐

3. Multiply

a) $\begin{array}{r} 9 \\ \times\ 6 \\ \hline \\ \hline \end{array}$

b) $\begin{array}{r} 10 \\ \times\ 6 \\ \hline \\ \hline \end{array}$

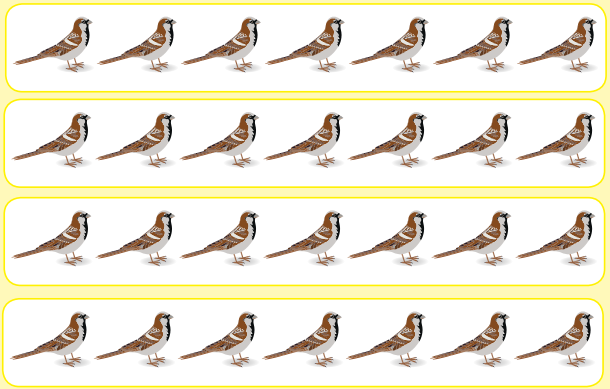
4. Peter works out 6 mathematics questions each day. How many questions will he work out in 5 days?

5. Kaunda eats 5 bananas each day. How many bananas will he eat in 6 days?

Multiplying numbers

Example

4 x 7 = ☐



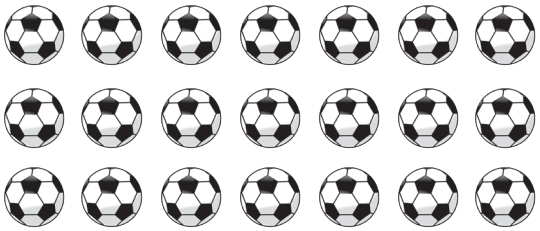
There are 4 groups of 7 birds each.

The multiplication is

4 x 7 = 28

Work to do

1. There are 3 groups each with 7 balls Write as multiplication.



____ x ____ = _____

2. Multiply

a) 7 x 5 = ☐

b) 7 x 4 = ☐

c) 7 x 7 = ☐

3.

a) $\begin{array}{r} 7 \\ \times\ 8 \\ \hline \\ \hline \end{array}$

b) $\begin{array}{r} 7 \\ \times\ 9 \\ \hline \\ \hline \end{array}$

4. A teacher uses 2 pieces of chalk each day. How many pieces will she use in 7 days?

5. John plants 3 trees at home each month. How many trees does John plant in 7 months?

Dividing numbers

Multiplication table

X	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	4	6	8	10	12	14	16	18
3	3	6	9	12	15	18	21	24	27
4	4	8	12	16	20	24	28	32	36
5	5	10	15	20	25	30	35	40	45
6	6	12	18	24	30	36	42	48	54
7	7	14	21	28	35	42	49	56	63
8	8	16	24	32	40	48	56	64	72
9	9	18	27	36	45	54	63	72	81

Example 1

18 ÷ 6 = ☐

From 18 move up to find 6 in the first row.
From 18 move across to find 3 in the first column

18 ÷ 6 = 3

Example 2

15 ÷ 3 = ☐

From 15 move up to find 3 in the first row.
From 15 move across to find 5 in the first column

15 ÷ 3 = 5

Work to do

Divide

1. $9 \div 3 = \square$
2. $10 \div 2 = \square$
3. $12 \div 6 = \square$
4. $16 \div 8 = \square$
5. $18 \div 9 = \square$
6. $20 \div 4 = \square$
7. $25 \div 5 = \square$

8. A mother shared 24 oranges equally among 4 children. How many oranges did each child get?
9. A class teacher shared 18 pencils between 3 groups of learners. How many pencils did each group get?
10. A farmer put 15 water melons into 3 baskets equally. How many water melons were put in each basket?

Dividing numbers

Multiplication table

X	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Example

72 ÷ 8 = ☐

From 72 move up to find 8 in the first row. ⟶ 72 ÷ 8 =

From 72 move across to find 9 in the first column. 72 ÷ 8 = 9

Work to do

Divide

1. 72 ÷ 9 = ☐

2. 90 ÷ 10 = ☐

3. 14 ÷ 7 = ☐

4. 15 ÷ 5 = ☐

5. 21 ÷ 7 = ☐

6. 27 ÷ 3 = ☐

7. 36 ÷ 6 = ☐

8. Bakari had 36 mathematics books. He shared equally among 9 groups in his grade. How many did each group get?

9. Wavinya had 64 rubbers. She shared equally among 8 of her friends. How many did each friend get?

10. A shopkeeper had 72 bags of rice. He shared them equally among 8 other shopkeepers. How many bags did each shopkeeper get?

Dividing numbers

Multiplication table

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Example 1

$32 \div 4 = \square$

Steps

1. Write 32 ÷ 4 in long form.
2. From 32 move up to find 4, in the first row.
3. From 32 move across to find 8, in the first column.
4. Write 8 on top of the long division sign.
5. Multiply 8 by 4 to get 32 and subtract 32 to get 00.

$$\begin{array}{r} 8 \\ 4\overline{)32} \\ -\,32 \\ \hline 00 \end{array}$$

Example 2

$9\overline{)90}$

$$\begin{array}{r} 10 \\ 9\overline{)90} \\ -\,90 \\ \hline 00 \end{array}$$

Work to do

Divide

1. $6\overline{)48}$
2. $8\overline{)64}$
3. $9\overline{)27}$
4. $7\overline{)63}$
5. $8\overline{)32}$
6. $9\overline{)45}$
7. $8\overline{)24}$

8. Eight learners shared 72 mangoes equally. How many mangoes did each learner get?
9. A father shared 54 biscuits among his 6 children. How many biscuits did each child get?
10. Seven teachers shared 35 bottles of mineral water equally. How many bottles of mineral water did each teacher get?

Adding and subtracting length

Activity 1

Measure the longer and the shorter lengths of your classroom floor.

Floor distance	Length in metres
Longer length	
Shorter length	
Longer length	
Shorter length	

Add the lengths

Longer length + shorter length

_____ + _____ = _____

Longer length + longer length

_____ + _____ = _____

Shorter length + shorter length

_____ + _____ = _____

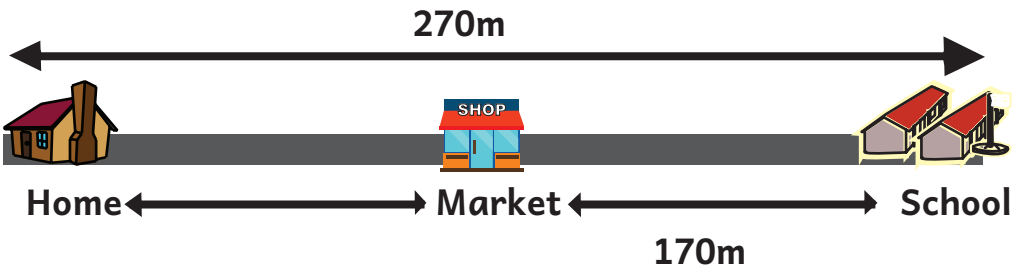
Activity 2

Measure the lengths

	Longer length	Shorter length
Teacher table		
Learner desk/ bench		
The classroom window		

Work to do:

I. Look at the following



a) Asha walks from home to the school. How many metres does she walk altogether?

_____

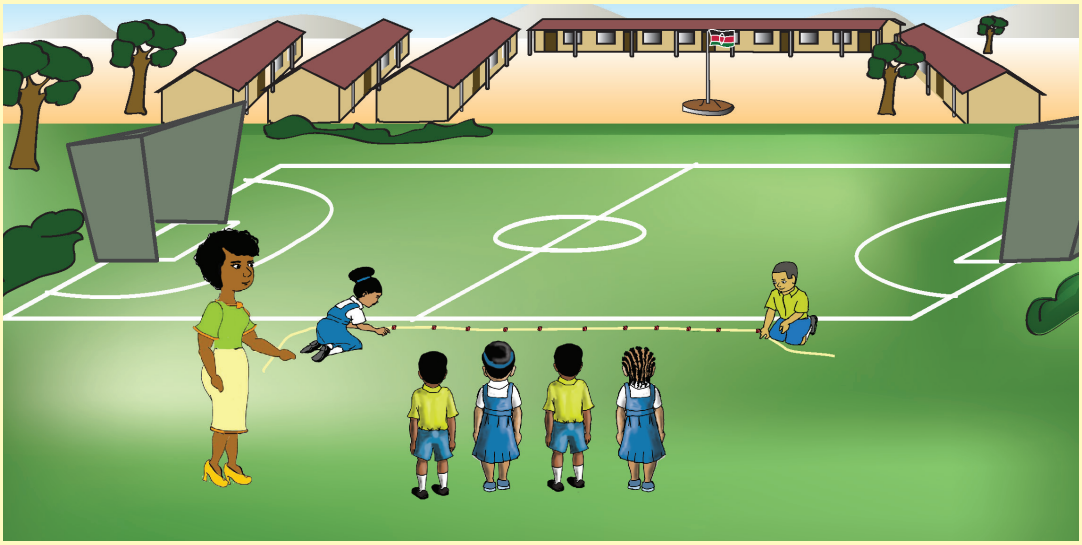
b) Asha walks from school to the market. How many metres does she walk altogether? _____

c) How many metres does Asha walk from the market to her home?_____

2. Mercy had a string measuring 64 metres. She used 31 metres to make a basket. How many metres of string was she left with?

3. Joshua ran 240 metres on Monday morning. He also ran 155 metres in the evening. How many metres did he run altogether?

Estimating length



Activity 1

Measure the lengths

Object	Length in metres
Length of class room	
Length of chalkboard	
Length of a block of classrooms	

Work to do

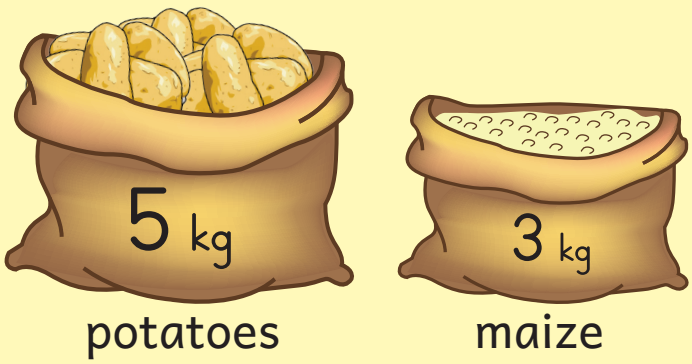
Estimate and measure

Object	Estimate	Actual	How close was the estimate
Width of class			
Length of tables			
Length of desk			
Length of classroom floor			
Lenth of football pitch			

Adding mass in kilograms

Example

What is the total mass of potatoes and maize?



potatoes maize

5kg + 3kg = 8kg

The total mass of potatoes and maize is **8kg**

Work to do

1. Jane has 2 of kg beans and 7 kg of maize. How many kg does she have altogether?

2. Peter has 4 kg of coffee and 3 kg of tea leaves. How many kg does he have altogether?

3. Halima has 2 kg of meat and 3 kg of potatoes. How many kg does she have altogether?

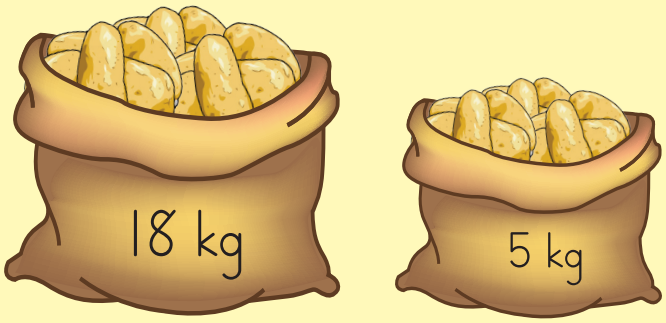
4. In a hotel, there are 20 kg of rice and 14 kg of vegetables. How many kg are there altogether?

5. A school has 12 kg of sugar and 5 kg of coffee. How many kg are there altogether?

Subtracting mass in kilograms

Example

Halima has 18 kg of potatoes, she gave Jacinta 5 kgs. How many kgs were left?



18kg – 5kg = 13kg

Halima is left with **13 kg** of potatoes

Work to do:

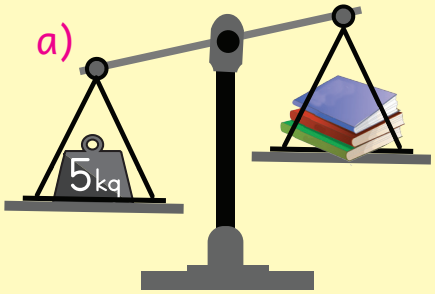
1. James bought 25 kg of meat. He gave 10 kg to John. How many kg was he left with?
2. Mary had 16 kg of beans. She cooked 9 kg. how many kg were left?
3. Jane has 22 kg of sugar. She gave Asha 10 kg. How many kg of sugar was she left with?

Estimating mass

Activity

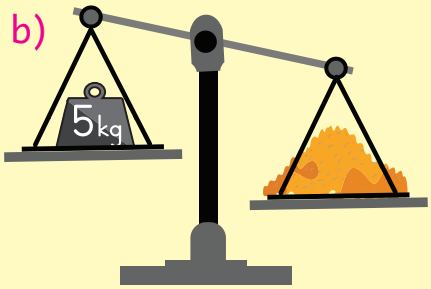
1. Estimate the mass in kilograms.

a)



Estimate mass of wood _____

b)



Estimate mass of sand _____

2. Measure

Mass of wood is _____?

Mass of sand is _____?

3. How close were the estimates?

Work to do

Activity

Estimate and measure

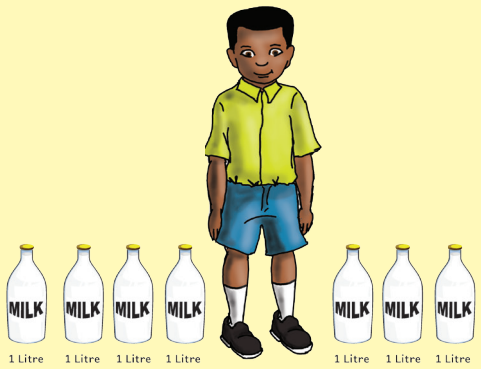
Object	Estimate in kg	Actual in kg	How close was the estimate
Books 			
Bags 			

Object	Estimate in kg	Actual in kg	How close was the estimate
Shoes 			
Stones 			
Soil 			
sand 			

Adding capacity

Example

John bought 4 litres of milk. His grandmother brought him 3 litres of milk. How many litres does he have altogether? 4 litres + 3 litres = 7 litres



Work to do

1. Jane wanted to make tea. She used 2 litres of milk and 5 litres of water. How many litres of tea did she make?
2. Juma had 23 litres of water. He was given 8 more litres. How many litres of water does he have altogether?
3. A tank had 134 litres of water. Helen added 57 litres of water into the tank. How many litres does it have altogether?
4. A cook prepared 14 litres of porridge in the morning. He prepared 9 litres of porridge in the afternoon. How many litres of porridge did he prepare altogether?
5. Mary bought 12 litres of juice. Ann bought 9 litres of juice. How many litres of juice did they have altogether?

Subtracting capacity

Example

A car had 26 litres of petrol. It used 14 litres. How many litres were left?

26 litres – 14 litres = 12 litres.

Work to do

1. Juma had 43 litres water. He used 5 litres. How many litres of water was left?
2. A shopkeeper had 93 litres of milk. He sold 38 litres. How many litres of milk were left?
3. A school tank had 532 litres of water. The school used 117 litres. How many litres of water were left?
4. Amina had 749 litres of diesel. She sold 63 litres. How many litres of diesel were left?
5. A bucket had 26 litres of water. Mwau used 15 litres. How many litres were left.

Estimating capacity

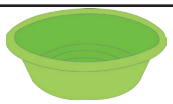
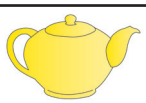
Activity

Estimate capacity of each container.

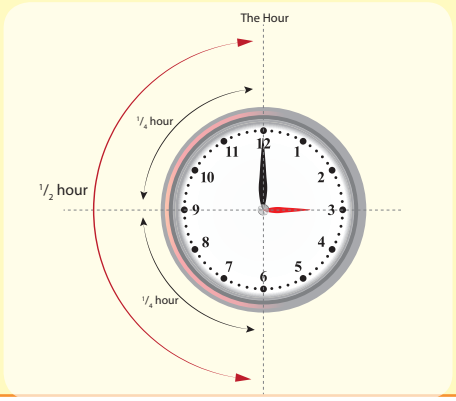
How many litres can each container hold?

Work to do

Estimate and measure.

Containers	Estimate in litres	Actual in litres	How close was the Estimate?
1. 			
2. 			
3. 			
4. 			
5. 			
6. 			
7. 			

Reading and telling time "to" the hour



Examples

1. 

Quarter to 12 o'clock

2. 

20 minutes to 10 o'clock

Work to do

What is the time?

1. 

_____

2. 

_____

3. 

_____

4. 

_____

5. 

_____

6. 

_____

7. 

_____

8. 

_____

Reading and telling time

Examples

What is the time?

Time within the day time

half past 1

quarter past 12

half past 4

Time within the night

8 o'clock

half past 1

half past 4

Work to do

What is the time?

During the day time

1. 

2. 

3. 

4. 

5. 

6. 

During the night

7. 

_____

8. 

_____

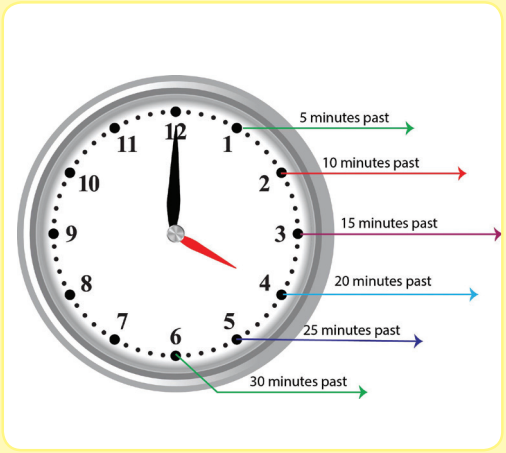
9. 

_____

10. 

_____

Writing time "past" the hour



Examples

1. 

3 o'clock

2. 

15 minutes past 1 o'clock

3. 

25 minutes past 1 o'clock

Work to do

What is the time?

1. 

____ minutes past 11

2 

____ minutes past____

3. 

____ minutes past____

4 

__ minutes past ____

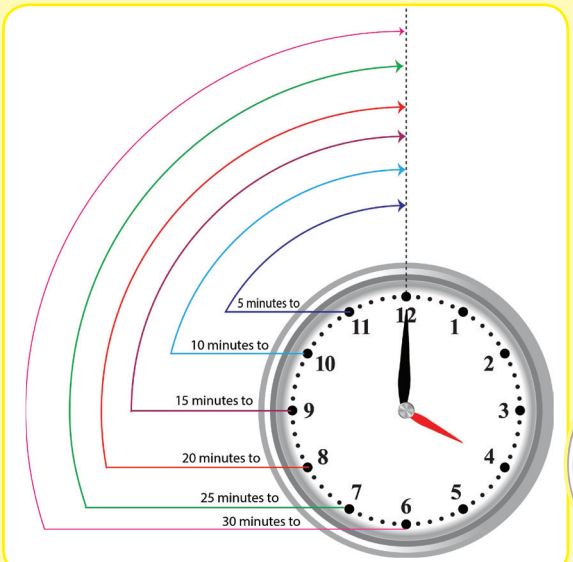
5. 

__ minutes past ____

6. 

__ minutes past ____

Writing time "to" the hour



Examples

1. 

15 minutes to 8 o'clock

2. 

20 minutes to 2 o'clock

Work to do

What is the time?

1. 

____ minutes past 11

2. 

____ minutes past____

3. 

____ minutes past____

4. 

__ minutes past ____

5. 

__ minutes past ____

6. 

__ minutes past ____

Shopping activities involving change.

Use the classroom shop.

Examples

1. Peter has a sh.1000 note. How many sh.500 notes will he get?

Peter gets two sh.500 notes as change.

Change is the same amount of money but in different denominations.

2. Hellen has five sh.100 notes. How many sh.500 notes will she get?

Hellen gets one sh. 500 note as change.

Work to do

1. Juma has a sh.200 note. How many one hundred shillings notes will he get as change?

2. Judy has a sh.100 note. How many sh.50 notes will she get as change?

3. Abdi has a sh.200 note. How many sh.50 notes will he get as change?

4. Moses has a sh.500 note. How many sh.100 notes will he get as change?

5. Asha has a sh.1000 note. How many sh.200 notes will she get as change?

6. Mary has five sh.200 notes. How many sh.1000 notes will she get as change?

7. Tom has a sh.1000 note. How many five hundred shillings notes will he get as change?

Shopping activities involving balance.

Examples

Using the classroom shop

1. Tom had a sh.1000 note. He bought a bag for sh.600. How much money was he left with?
   Sh.1000 – sh.600 = sh.400
   sh 400 **is the balance.**
2. Asha had a sh.500 note. She bought a book for sh.320. What was the balance?
   sh.500 – sh.320 = sh.180

Work to do

1. Martin had a sh.500 note. He bought a stool for sh.300. What balance did he get?
2. David had a sh.1000 note. He bought a school bag for sh.950. What balance did he get?
3. Joan has a sh.500 note. She bought petrol for her care for sh.350. What balance did sheget?

Adding and subtracting money

Example 1

Mary had sh. 345. Her mother gave her sh. 225 more. How much money did she have altogether?

	sh.
	345
+	225
	570

Example 2

Maurice had sh. 32 He spent sh 16. How much money was he left with?

	sh.
	32
-	16
	16

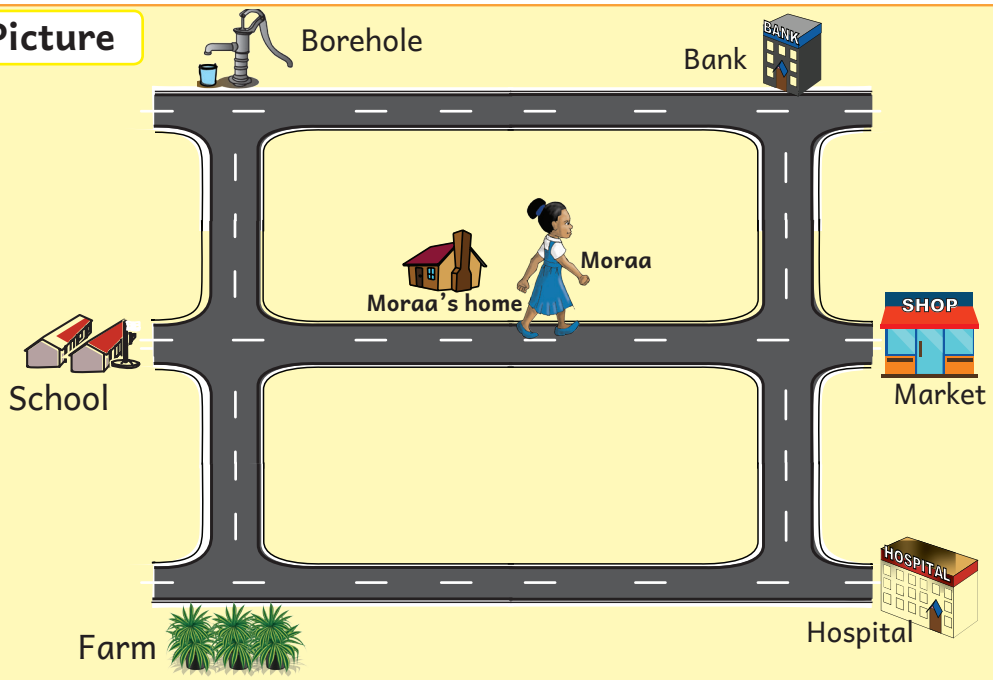
Work to do

1. Peter bought sugar for sh.176. He also bought flour for sh 206. How much did he spend altogether?
2. Babu spent sh 341 at the market. He spent sh.270 on transport. How much did he spend altogether?
3. A family spends sh.514 on lunch. It also spends sh.275 on super. How much does it spend altogether?

4. A watchman is paid sh.626 a day. A sweeper is paid sh.302 a day. How much are they paid altogether?
5. Peris had sh. 714. She used sh.220 to buy a dress. How much money was she left with?
6. Joshua has sh 403. He uses sh 53 to buy a toy. How much money is he left with?
7. Onesmus was given sh.256. He used sh 141. How much money was he left with?

Turning to the Right

Picture



Example

Using the picture

To visit the bank from the hospital, a person moves straight then turns **RIGHT**

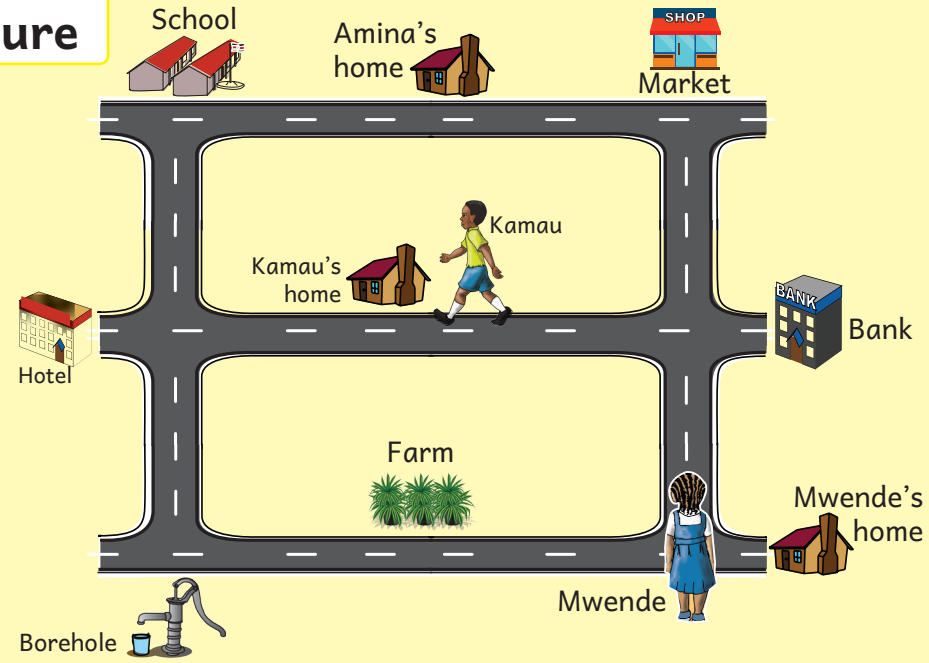
Work to do

Fill in

1. To visit the bore hole from the hospital, one walks straight then turns _____
2. From the market to the bank one will walk straight then turn _____
3. From the farm to Moraa's home you walk straight then turn _____

Turning to the Left

Picture



Example

Using the picture

To fetch water from the borehole Kamau walks straight then turns to the **LEFT**

Work to do

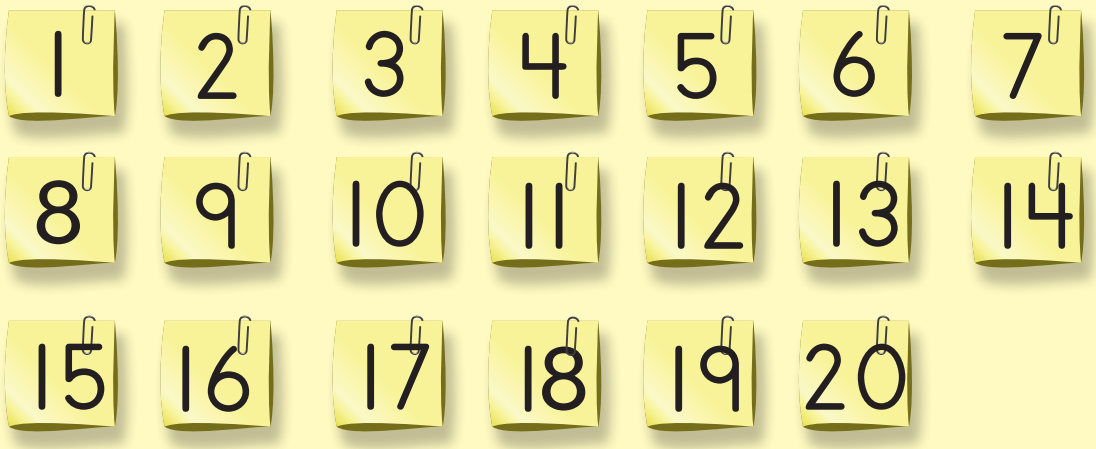
Fill in

1. For Mwende to visit Amina she walks straight then turns _____
2. From the hotel to the market the farmer will move straight then turn _____
3. To reach Mwende's home from the bank, a person moves straight then turns _____

TERM 3

Position names

Number cards



Activity

Match the number cards above with their position.

eleventh 11 fifteenth _____

twelfth _____ sixteenth _____

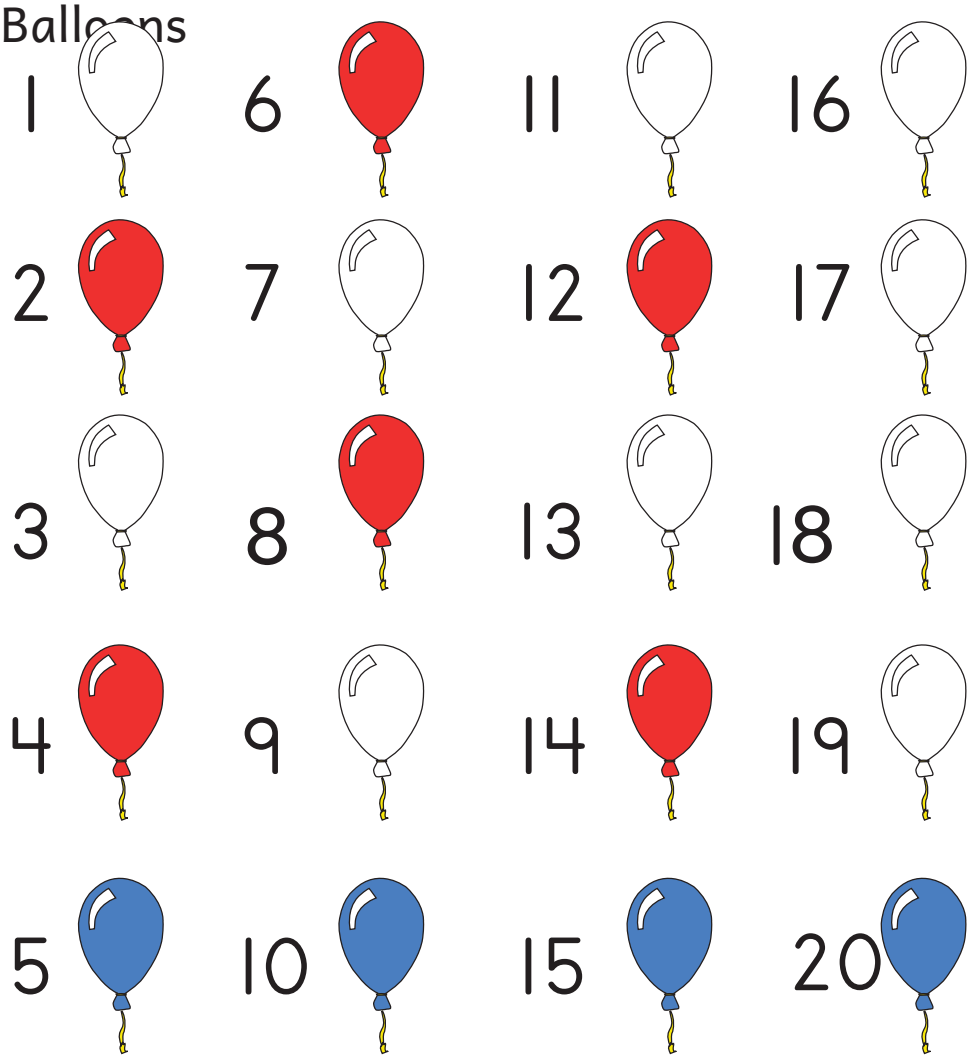
thirteenth _____ seventeenth _____

fourteenth _____ eighteenth _____

nineteenth 19 twentieth _____

Work to do

Balloons

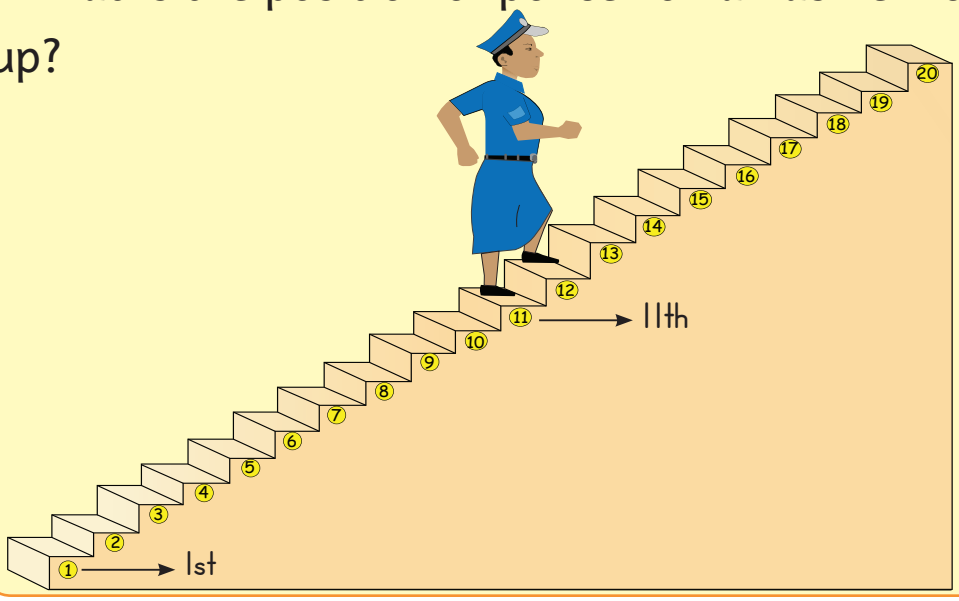


What is the position of the red balloons?

Position 1st to 20th

Example

What is the position of policewoman as he moves up?



Work to do

Complete the table

Number	Position
11	11th
12	12th
13	13th
14	14th
15	15th
16	
17	
18	
19	
20	

Counting in Tens

Activity

Count

80, 90, 100, 110, 120, 130, 140

310, 320, 330, 340, 350, 360, 370

520, 530, 540, 550, 560, 570, 580

920, 930, 940, 950, 960, 970, 980, 990

810, 800, 790, 780, 770, 760, 750

1000, 990, 980, 970, 960, 950, 940

600, 590, 580, 570, 560, 550, 540

Work to do

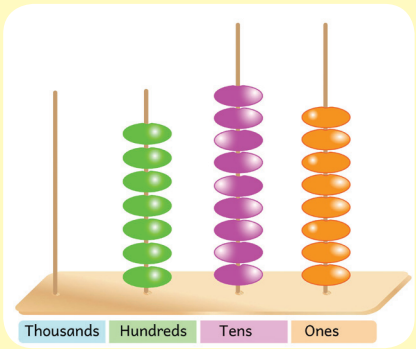
Fill in the missing numbers

1. 280, 290, 300, 310, _____, _____, _____
2. 360, 350, 340, 330, _____, _____, _____
3. 580, 570, 560, 550, 540, ____, ____, ____
4. 780, 790, 800, _____, _____, _____
5. 890, 900, 910, _____, _____, _____

Place value

Example 1

798 can be shown as follows



Thousands	Hundreds	Tens	Ones
	7	9	8

7 hundreds, 9 Tens , 8 Ones

Example 2

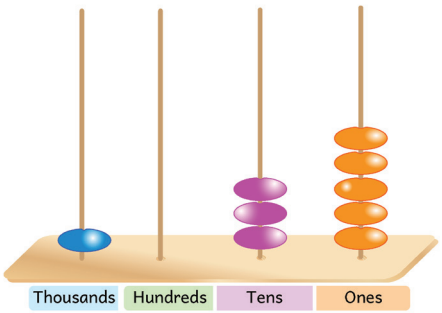
1000 **is shown on the place value chart as**

Thousands	Hundreds	Tens	Ones
1	0	0	0

That is 1 thousands 0 hundreds, 0 tens and 0 ones.

Work to do

Fill in the missing numbers

1. 205 = ____ hundreds _____tens _____ones
2. 983 = ____ hundreds _____tens _____ones
3. ____ = _4_ hundreds _5_ tens _6_ ones
4. 7291 = ___ thousands __hundreds__ tens __ones
5. 8457 = ___ thousands __hundreds ___ tens __ones
6. ____ = 1 thousands_3_ hundreds _4_ tens _9_ ones
7. ____ = 5 thousands_9_ hundreds _8_ tens _6_ ones
8. 3546 = ___ thousands __hundreds ___ tens __ones
9. 521 = ___ thousands __hundreds ___ tens __ones
10. 

_____

Reading Numbers 1 to 1000

Read

101	204	350	427	505
687	790	812	855	900
999	1000	10	20	35
40	45	50	65	70
11	12	13	33	47
67	89	93	26	555
452	835	326	142	742

Work to do

1. In turns learners pair out and read whole numbers using number cards.
2. In groups learners read whole numbers using number cards.

Reading and writing numbers in words

Activity

Match

Number	Words
12	fifteen
15	thirty five
23	eighty
35	twelve
57	fifty seven
69	ninety four
70	One hundred
80	twenty three
94	sixty nine
100	seventy

Work to do

Write the numbers

	Number	Words
1.	66	Sixty six
2.	27	_____
3.	58	fifty eigth
4.	98	_____
5.	19	_____
6.	____	Fifty nine
7.	99	_____
8.	____	One hundred

Number Patterns 1 to 1000

Example1

Work out the missing numbers

20, 25, 30, ____, _____, _____, 50

Counting on in 5's the missing numbers are

35, 40, 45

Example 2

Work out the missing numbers

1, 5, 9, _____, _____, 21, _____, 29

The rule is adding 4 to get the next number.
From 9 the next numbers is 9 + 4 to get 13

The next number is 13 + 4 to get 17.

From 17 the next is 17 + 4 to get 21.

From 21 the next number is 21 + 4 to get 25

Example 3

Work out the missing numbers

403, 413, 423, _____, _____

By counting on in 10's the missing numbers are
433, 443.

Work to do

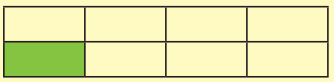
Fill in the missing numbers

1. 30, 29, 28, 27, _____, _____, _____
2. 128, 129, 130, _____, _____, _____
3. 432, 434, 436, _____, _____, _____
4. 770, 760, 750, _____, _____, _____
5. 830, 880, 930, _____, _____, _____
6. 228, 223, 218, _____, _____, _____

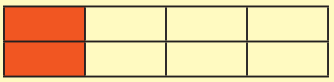
Comparing $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{8}$

Example

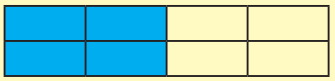
Which fraction is bigger?



$\frac{1}{8}$



$\frac{1}{4}$



$\frac{1}{2}$

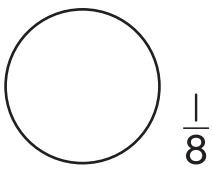
$\frac{1}{4}$ is bigger than $\frac{1}{8}$

$\frac{1}{2}$ is bigger than $\frac{1}{4}$

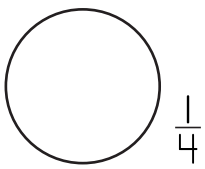
$\frac{1}{2}$ is bigger than $\frac{1}{8}$

Work to do

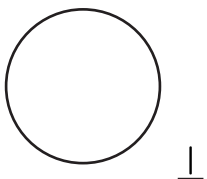
1. Shade



$\frac{1}{8}$



$\frac{1}{4}$



$\frac{1}{2}$

2. Which is bigger?

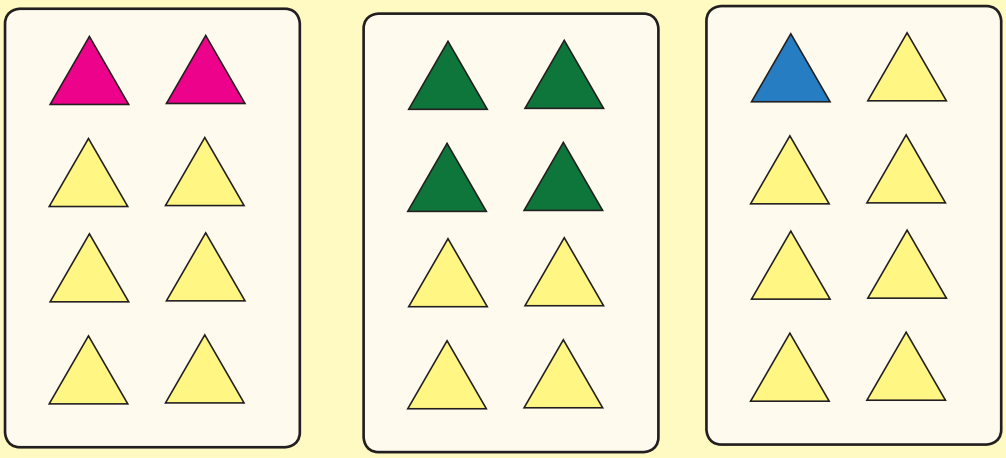
a) $\frac{1}{8}$ or $\frac{1}{2}$?_____ b) $\frac{1}{2}$ or $\frac{1}{4}$? _____

c) $\frac{1}{2}$ or $\frac{1}{4}$?_____

Comparing $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{8}$

Example

Which fraction is bigger?



$\frac{1}{4}$ of 8=2

$\frac{1}{2}$ of 8=4

$\frac{1}{8}$ of 8=1

$\frac{1}{2}$ greater than $\frac{1}{4}$

$\frac{1}{4}$ greater than $\frac{1}{8}$

$\frac{1}{2}$ greater than $\frac{1}{8}$

Work to do

Which fraction is bigger?

1. $\frac{1}{2}$ of 20 or $\frac{1}{4}$ of 20 ? ☐

2. $\frac{1}{4}$ of 16 or $\frac{1}{8}$ of 16 ? ☐

3. $\frac{1}{4}$ of 12 or $\frac{1}{2}$ of 12 ? ☐

Which is the biggest fraction?

4. $\frac{1}{4}$ of 24 or $\frac{1}{2}$ of 24 or $\frac{1}{8}$ of 24 ☐

5. $\frac{1}{2}$ of 32 or $\frac{1}{8}$ of 32 or $\frac{1}{4}$ of 32 ☐

Adding a 3 - digit number to a 1 - digit number

Examples

1.
$$\begin{array}{r} 472 \\ +\ \ 6 \\ \hline 478 \end{array}$$

2. $690 + 8 = \square$

$$\begin{array}{r} 690 \\ +\ \ 8 \\ \hline 698 \end{array}$$

Work to do

Add

1. $436 + 3$ _____

2. $247 + 2$ _____

3. $452 + 7$ _____

4. $650 + 9$ _____

5. $256 + 3 = \square$

6. $621 + 7 = \square$

7. $784 + 5 = \square$

8. $923 + 6 = \square$

9. Ali had 800 goats. He bought 8 more goats. How many goats does he have now?

10. Mary had 102 packets of unga. She bought 7 more packets. How many packets does she have altogether?

Adding a 3 - digit number to a 2 - digit number

Example

1.
$$\begin{array}{r} 670 \\ +\ 28 \\ \hline 698 \end{array}$$

2. $572 + 27 = \square$

$$\begin{array}{r} 572 \\ +\ 27 \\ \hline 599 \end{array}$$

Work to do

Add

1. $\begin{array}{r} 625 \\ +\ 34 \\ \hline \\ \hline \end{array}$

2. $\begin{array}{r} 216 \\ +\ 52 \\ \hline \\ \hline \end{array}$

3. $\begin{array}{r} 400 \\ +\ 60 \\ \hline \\ \hline \end{array}$

4. $\begin{array}{r} 608 \\ +\ 40 \\ \hline \\ \hline \end{array}$

5. $\begin{array}{r} 900 \\ +\ 99 \\ \hline \\ \hline \end{array}$

6. $921 + 65 = \square$

7. $862 + 34 = \square$

8. $743 + 51 = \square$

9. $600 + 90 = \square$

10. Otieno had 125 bottles of juice. He bought 72 more bottles of juice. How many bottles of juice does he have altogether?

11. Muso had 200 packets of pencils. He bought 66 more packets of pencils. How many packets of pencils does he have altogether?

Adding a 3 - digit number to a 1 - digit number

Example

1. 172 + 9 = 181

2. 409 + 8 = ☐

409 + 8 = 417

Work to do :

Add

1. 126 + 7 = ☐

2. 214 + 8 = ☐

3. 326 + 9 = ☐

4. 484 + 6 = ☐

5. 688 + 7 = ☐

6. 714 + 8 = ☐

7. 525 + 8 = ☐

8. 672 + 9 = ☐

9. 918 + 8 = ☐

10. 982 + 8 = ☐

11. Fatuma had 105 buttons in her shop. She bought another 6 buttons. How many buttons does she have altogether?

12. A box of mangoes weighs 126 kg. Another 48kg of mangoes were added. How many kilograms are there altogether?

Adding a 3 - digit number to a 2 - digit number

Example

1. 462 + 73 = 535

2. 782 + 47 = ☐

Re-write this as

782 + 47 = 829

Work to do

Add

1. 260 + 57 = ☐
2. 384 + 35 = ☐
3. 672 + 47 = ☐
4. 652 + 93 = ☐
5. 567 + 42 = ☐
6. 784 + 55 = ☐
7. 856 + 63 = ☐
8. Peter had 246 bottles of soda in his shop. He bought 70 more bottles of soda. How many bottles of soda does he have altogether?
9. Juma has 256 oranges. Amina has 71 oranges. How many oranges do they have altogether?
10. Lesiampe has 174 goats. His brother Leshere has 92 goats. How many goats do they have altogether?

Adding a 3 - single digit numbers

Example 1

7 + 6 + 9 = ☐

Write 6 as 5 + 1

7 + 5 + 1 + 9 =

7 + 5 + 10 =

Write 5 as 3 + 2

7 + 3 + 2 + 10 =

10 + 2 + 10 =

2 + 20 = 22

Example 2

5 + 8 + 6 = ☐

13 + 6 = 19

Work to do

Add

1. 3 + 4 + 8 = ☐
2. 6 + 7 + 5 = ☐
3. 7 + 4 + 6 = ☐
4. 7 + 8 + 6 = ☐
5. 8 + 9 + 7 = ☐
6. 9 + 9 + 9 = ☐

7.
  6
  4
+ 3

8.
  7
  6
+ 8

9.
  9
  8
+ 4

10.
  6
  9
+ 9

Adding two 3-digit numbers

Example

1. 467 + 221 = 688

2. 159 + 740 = 899

769 + 220 = 989

Work to do

Add

1. 375 + 423 = _____

2. 854 + 135 = _____

3. 695 + 302 = _____

4. 632 + 103 = _____

5. 191 + 806 = _____

6. 329 + 260 = _____

7. 807 + 191 = _____

8. 275 + 310 = _____

9. 737 + 251 = ☐

10. 426 + 302 = ☐

Adding two 3 - digit numbers

Example

1. 235
+ 147
_____

_____

1
235
+ 147
_____
382
_____

Steps

1. Add 5 ones to 7 ones to get 12 ones. Write 2 in ones column, and take 1 tens to tens column.
2. Add 1 tens to 3 tens to 4 tens to get 8 tens. write 8 in tens column.
3. Add 2 hundreds to 1 hundreds to get 3 hundreds Write 3 in the hundreds column.

---

2. 281
+ 136
_____

_____

1
281
+ 136
_____
417
_____

Steps

1. Add 1 ones to 6 ones to get 7 ones.
2. Add 8 tens to 3 tens to get 11 tens. Write 1 in tens column and take 1 hundreds to the hundreds column.
3. Add 1 hundreds to 2 hundreds to 1 hundreds to get 4 hundreds.
4. Write 4 in hundreds column.

Work to do

Add

1. 426 + 348 = _____

2. 257 + 234 = _____

3. 363 + 129 = _____

4. 227 + 292 = _____

5. 122 + 181 = _____

6. 479 + 214 = _____

7. 546 + 219 = ☐

8. 127 + 292 = ☐

9. 248 + 171 = ☐

10. 567 + 182 = ☐

Number patterns

Example 1

Create a pattern in 5s starting at 150

You make 5 dashes ____, ____, ____, ____, ___

The pattern in 5s starting at 150 is

150, 155, 160, 165, 170, 175

Example 2

Create a pattern in 10's starting at 300

You make 5 dashes ____, ____, ____, ____, ___

The pattern in 10's starting at 300 is

300, 310, 320, 330, 340, 350

Work to do

Create patterns

1. Create a pattern in 10's starting at 320
2. Create a pattern in 100's starting at 550
3. Create a pattern in 50's starting at 630
4. Create a pattern in 5's starting at 811
5. Create a pattern in 20's starting at 460

Subtracting a 2 - digit number from a 3 - digit number

Example 1

```
  537
- 24
-----
  513
-----
```

Steps

1. Subtract 4 ones from 7 ones to get 3 ones
2. Subtract 2 tens from 3 tens to get 1 tens.
3. Bring down 5 hundreds

Example 2

897 - 25 = ☐

```
  897
- 25
-----
  872
-----
```

Steps

1. Arrange vertically
2. Subtract 5 ones from 7 ones to get 2 ones
3. Subtract 2 tens from 9 tens to get 7 tens.
4. Write 8 in the hundreds place

Work to to

Subtract

1) 378 − 52 = _____

2. 267 − 23 = _____

3. 146 − 15 = _____

4. 489 − 63 = _____

5. 596 − 42 = _____

6. 985 − 14 = _____

8. 689 - 72 =

9. 689 - 65 =

10. A town has 196 adults. There are 84 men. How many are women?

Subtracting a 2 - digit number from a 3 - digit number

Example 1

```
  266
- 82
-----
-----

  1
 ~~2~~66
- 82
-----
 184
-----
```

Steps

1. Subtract 2 ones from 6 ones to get 4 ones.
2. Since you can not subtract 8 tens from 6 tens, regroup 2 hundreds as 1 hundreds and 10 tens. Add 10 tens to 6 tens to get 16 tens.
3. Subtract 8 tens from 16 tens to get 8 tens.
4. Bring down the remaining 1 hundreds.

Example 2

```
  646
-  73
-----
-----

 5
 ~~6~~46
-  73
-----
 573
-----
```

Steps

1. Subtract 3 ones from 6 ones to get 3 ones.
2. Since you can not subtract 7 tens from 4 tens, regroup 6 hundreds as 5 hundreds and 10 tens. Add 10 tens to4 tens to get 14 tens.
3. Subtract 7 tens from 14 tens to get 7 tens.
4. Bring down the remaining 5 hundreds.

Work to do

Subtraction

1. 135
- 72

2. 347
- 62

3. 349
- 52

4. 734
- 63

5. 456
- 75

6. 839
- 43

7. 923
- 72

8. 527
- 94

9. 337
- 54

10. A farmer harvested 425 oranges. He gave 64 of them to children. How many oranges were left?

Subtracting a 3 - digit number from a 3 - digit number

Example 1

```
  416
- 245
-----
-----
```

Steps

1. Subtract 5 ones from 6 ones to get 1 ones.
2. Since you can not subtract 4 tens from 1 tens, regroup 4 hundreds as 3 hundreds and 10 tens. Add 10 tens to 1 tens to get 11 tens.
3. Subtract 4 tens from 11 tens to get 7 tens
4. Subtract 2 hundreds from the remaining 3 hundreds to get 1 hundreds

```
  3
  ~~4~~16
- 245
-----
  171
-----
```

Example 2

```
  518
- 457
-----
-----
```

Steps

1. Subtract 7 ones from 8 ones to get 1 ones.
2. Since you can not subtract 5 tens from 1 tens, regroup 5 hundreds as 4 hundreds and 10 tens. Add 10 tens to 1 tens to get 11 tens.
3. Subtract 5 tens from 11 tens to get 6 tens
4. Subtract 4 hundreds from the remaining 4 hundreds to get 0 hundreds

```
  4
  ~~5~~18
- 457
-----
  61
-----
```

Work to do

Subtract

1. 527
   - 241

2. 306
   - 245

3. 675
   - 193

4. 736
   - 373

5. 957
   - 562

6. 489
   - 197

7. 778
   - 593

8. 807
   - 432

9. A forester had 638 seedlings. He gave out 475 seedlings. How many seedlings was he left with?

10. A school bought 535 pencils. The headteacher gave 365 pencils to his learners. How many pencils were left?

Subtracting multiples of 10

Example 1

$$\begin{array}{r} 680 \\ -\ 130 \\ \hline \\ \hline \end{array}$$

Steps

1. Subtract 0 ones from 0 ones to get 0 ones.
2. Subtract 3 tens from 8 tens to get 5 tens
3. Subtract 1 hundreds from 6 hundreds to get 5 hundreds

$$\begin{array}{r} 680 \\ -\ 130 \\ \hline 550 \\ \hline \end{array}$$

Example 2

$770 - 40 = \square$

Steps

1. Arrange vertically
2. Subtract 0 ones from 0 ones to get 0 ones.
3. Subtract 4 tens from 7 tens to get 3 tens
4. Bring down 7 hundreds

$$\begin{array}{r} 770 \\ -\ 40 \\ \hline 730 \\ \hline \end{array}$$

Work to do

Subtract

1. 190
   - 30

2. 780
   - 70

3. 670
   - 550

4. 380
   - 160

5. 940
   - 230

6. 880
   - 370

7. 440 - 320 = ☐

8. 590 - 160 = ☐

9. 680 - 150 = ☐

10. On Monday, 750 passengers got onto a train from Mombasa to Nairobi. At Voi, 30 passengers got off the train. How many passengers were left in the train?

Numbers in patterns

Example 1

Workout missing numbers

800, 750, 700, 650, ____, ____

Steps

1. Get the rule by getting the difference through subtraction between two numbers following each other.
2. The rule is subtract 50.
3. To get the next number, subtract 50 from 650. The next number is 600.
4. To get the next missing number, subtract 50 from 600. The number is 550.

Example 2

975, 825, _____, 525, 475, _____

Steps

1. Get the rule by getting the difference through subtraction between two numbers following each other.
2. The rule is subtract 150.
3. To get the missing number, subtract 150 from 825 .The next number is 675.
4. To get the next missing number, subtract 150 from 475. The number is 325.

Work to do

Work out the missing numbers

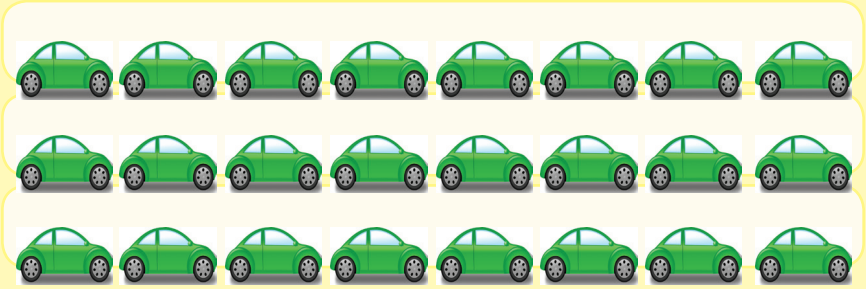
1. 535, 460, 385, 310, _____, _____
2. 640, 580, 520, 460, _____, _____
3. 450, 300, 250, 200, _____, _____
4. 500, 425, _____, 325, 300, _____
5. 650, 630, _____, 590, 570, _____
6. 850, 700, 550, 400, _____, _____
7. 520, 440, 360, 280, _____, _____

Multiplying 8, 9 and 10

Example 1

3 X 8 = ☐

There are 3 groups of 8 toy cars each

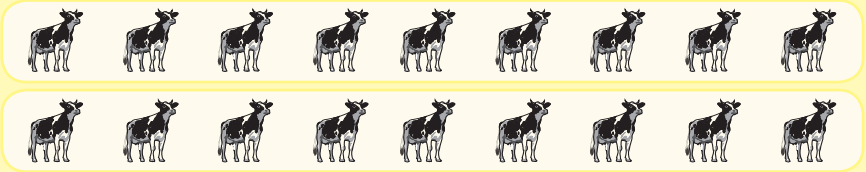


3 X 8 = 24

Example 2

2 X 9 = ☐

There are 2 groups of 9 cows each



2 X 9 = 18

Work to do

Multiply

1. $8 \times 4 = \square$
2. $8 \times 10 = \square$
3. $10 \times 5 = \square$
4. $8 \times 8 = \square$
5. $9 \times 3 = \square$
6. $9 \times 7 = \square$
7. $8 \times 9 = \square$

8.
$$\begin{array}{r} 10 \\ \times\ 2 \\ \hline \\ \hline \end{array}$$

9.
$$\begin{array}{r} 9 \\ \times\ 2 \\ \hline \\ \hline \end{array}$$

10.
$$\begin{array}{r} 9 \\ \times\ 1 \\ \hline \\ \hline \end{array}$$

Multiplying 8, 9 and 10

Use multiplication table to multiply

X	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Examples

1. 8 x 7 = 56
2. 10 x 9 = 90

Work to do

Complete the multiplication table below

1.

X	1	2	3	4	5
8				32	
9		18			
10					50

Multiply

2. 8 x 9 = ☐

3. 9 x 5 = ☐

4. 10 x 8 = ☐

5. 9 x 9 = ☐

Multiplying 8, 9 and 10 by 1 - 10

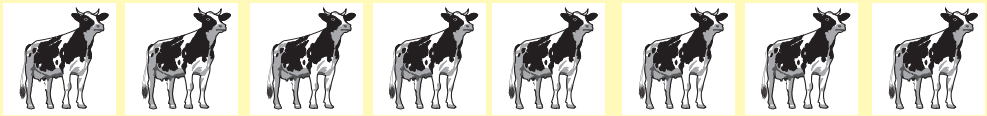
Examples

1. A pencil costs sh.10. How much do I pay for 5 pencils?

   Sh.10 + sh.10 + sh.10 + sh.10 + sh.10

   = 5 x Sh.10 = sh.50

2. A cow has four legs. How many legs do 8 cows have?



8 x 4 = 32 legs

Work to do

Multiply

1. Jane sells 10 apples every day. How many apples will she sell in 9 days?
2. A cow produces 8 litres of milk in a day. How many litres will it produce in 5 days?
3. James sells 9 packets of milk every day. How many packets of milk will he sell in 8 days?

4. A farmer planted 10 rows of cabbage in one hour. How many rows of cabbage did he plant in 5 hours?

5. There are 4 windows in a classroom. How many windows are there in 8 classrooms?

Dividing numbers

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Example

1. $54 \div 6 =$ ☐

Steps

1. Read the number 54 on the multiplication table.
2. Move horizontally on the row to identify 6.
3. Move vertically on the column to identify 9.

$54 \div 6 = 9$

$$\begin{array}{r} 9 \\ 6\overline{)54} \\ -\,54 \\ \hline 00 \end{array}$$

2. $9\overline{)90}$

$$\begin{array}{r} 10 \\ 9\overline{)90} \\ -\,90 \\ \hline 00 \end{array}$$

$90 \div 9 = 10$

Work to do

Divide

1. $48 \div 6 = \square$

2. $63 \div 7 = \square$

3. $81 \div 9 = \square$

4. $72 \div 8 = \square$

5. $54 \div 6 = \square$

6. $7\overline{)49}$

7. $10\overline{)60}$

8. $9\overline{)63}$

9. $8\overline{)64}$

Word questions involving division

Example

45 pupils were shared equally among 5 cars. How many pupils did each car carry.

45 ÷ 5 = ☐ 45 ÷ 5 = 9

1. John shared sh 72 equally among 9 children. How much money did each get?
2. Nasieku shared 64 oranges equally among 8 children. How many oranges did each child get?
3. Halima had 36 fish. She shared them equally among her 4 daughters. How many fish did each daughter get?
4. Perez shared 24 biscuits equally among 6 children. How many biscuits did each child get?
5. An egg tray has 24 eggs. The eggs are shared equally among 3 people. How many eggs did each person get?
6. Mother had 56 bananas. She shared them equally among her 8 children. How many bananas did each child get?

Adding Lengths in Metres

Example

Add the lengths

Longer length _____ + shorter length _____ =

Longer length _____ + longer length _____ =

Shorter length _____ + shorter length _____ =

Work to do

1. The distance from grade 3A to grade 3B is 5 metres. The distance from grade 3B to the staffroom is 8 metres. What is the distance from grade 3A to the staffroom.

2. The distance from the gate to the office is 10 metres. John walked from the gate to the office and back. How many metres did he walk?

3. The distance from Bens home to the market is 450 metres. The distance from the market to the school is 360 metres. What is the distance in metres from Bens home to the school.

Subtracting lengths in metres

Example 1

John has a 5m rope. He gives Paul 4m of the rope. How many metres of rope was John left with?

5m – 4m = 1m

Example 2

Subtract 450m from 625m. Arrange as follows

$$\begin{array}{r} 625\text{m} \\ -\ 450\text{m} \\ \hline 175\text{m} \end{array}$$

625m - 450m = 175m

Work to do

1. A piece of timber is 27m long. 7m is cut from it. How long is the remaining timber?
2. The length of a classroom block is 87m. A worker painted 58m. How many metres remained?

3. Maria's home is 687m from the market. After walking for 397m from the market towards home, maria rested. How far was she from home when she rested?

4. Peter left home for school, which is 200m away. After walking for 70m, Peter stopped. How far was he from the school?

5. Mwende walked to the hospital which is 870m away from home. After walking for 630m, mwende rested. What was the remaining distance?

Adding and subtracting mass in kilograms

Example 1

What is the total mass of beans and maize?

Beans

Maize

26kg + 11kg = 37kg

The mass of beans and maize is 37kg

Example 2

Brandon has 28kg of sugar. He gave Jusper 19kg. How many kg were left?

28kg - 19kg = 9kg

Brandon is left with 9kgs of potatoes

Work to do

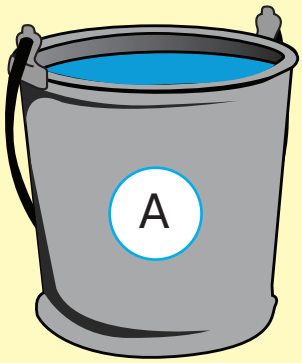
Add

1. Maina has 4kg beans and 18kg of maize. How many kg does she have altogether.
2. Kuria has 37kg of coffee and 16kg of tea leaves. How many kg does he have altogether?
3. Kefa has 62kg of meat and 7 kg of potatoes. How many kg does he have altogether?
4. A shopkeeper has 158kg of sugar. He sells 28kg. How many kg of sugar are left?
5. Patel had 120kg of rice. he sold 75kg. How many kg were left.
6. Jerry bought 25kg of meat. He gave Elijah 17kgs. How many kg was he left with?
7. Cyprine had 56kg of beans. She cooked 9kg. how many kg were left?
8. Juma has 42kg of potatoes. She gave Fatuma 20kg. How many kg of potatoes was she left with?

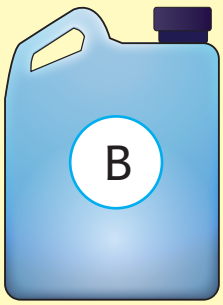
Measuring capacity in litres

Activity

Measure to find out how much each can hold.
Use the 1 litre container to measure.



Container



Container

A = _____ litres

B = _____ litres

Work to do

Measure the capacity of the following containers using 1 litre container.

Container	Capacity in litres
Bucket	_____
Jerrican	_____
Sufuria	_____
Basin	_____
Jug	_____

Subtract capacity in litres

Example

A lorry was transporting 81 litres of water. On the way, 7 litres spilled. How many litres of water were remained?

Litres in the lorry = 81

Litres poured = 7

Litres left = ☐

81 litres - 7 litre = 74 litres

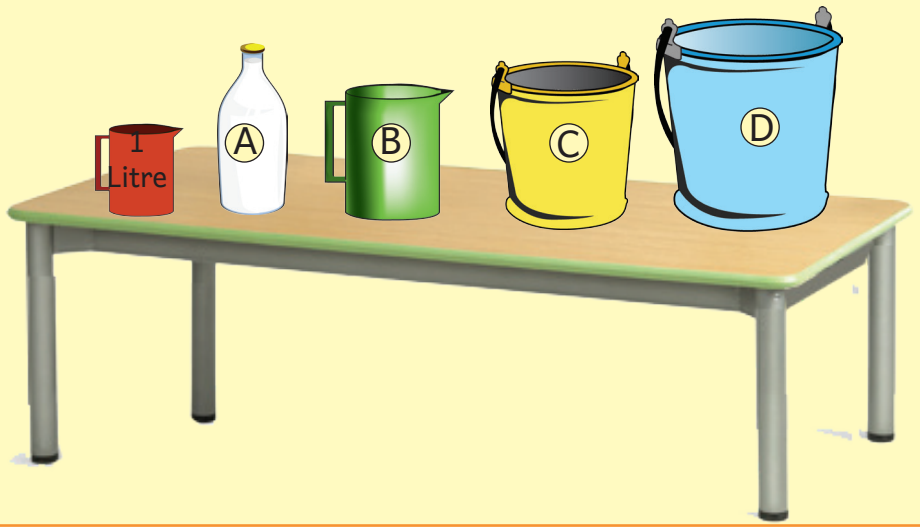
Work to do :

1. Wambua has 53 litres of milk. He sold 19 litres. How many litres was he left with?
2. Wafula has 443 litres of cooking oil. He used 72 litres. How many litres was he left with?
3. A family had 773 litres of water at a party. They used 429 litres. How many litres was left?
4. A vehicle had 517 litres of petrol. It used 134 litres. How many litres were left?
5. A school tank had 896 litres of water. Learners used 524 litres. How many litres were left?

Estimating capacity

Activity

1. How many litres can container a, b, c and d hold? Record your estimates in the table.
2. Measure the actual capacity using 1 Litre container and record alongside the estimates.



Work to do

Estimate and measure the capacity of containers

Containers	Estimate in Litres	Actual Litres	How close
A			
B			
C			
D			

Add time in hours and minutes

Example

1. John used 2 hours and 45 minutes to cycle to the market. Rose used 4 hours and 5 minutes to walk to the same market. How many hours and minutes did they use altogether?

   John used 2 hours and 45 minutes
   Rose used 4 hours and 5 minutes

	2 hrs	45 mins
+	4 hrs	5 mins
	6 hrs	50 mins

2. A bus used 4 hours and 51 minutes to move to Nairobi. A lorry used 5 hours and 4 minutes to move to Nairobi. How many hours and minutes did the bus and the lorry use altogether?

   Bus used 4 hours and 51 minutes
   Lorry used 5 hours and 4 minutes

	4 hrs	51 mins
+	5 hrs	4 mins
	9 hrs	55 mins

Work to do

1. A tailor used 4 hours and 22 minutes to make a pair of trousers. He used 2 hours and 17 minutes to make a shirt. How many hours and minutes did he use altogether?

2. Perpetua used 2 hours and 34 minutes to wash clothes. She used 2 hours and 15 minutes to clean the compound. How many hours and minutes did she use altogether?

3. Teacher Joy used 1 hour and 15 minutes to teach language activities. She used 1 hour and 20 minutes to teach mathematics activities. How many hours and minutes did she use in teaching altogether?

Subtract time in hours and minutes

Example

1. Mr. Omolo used 1 hour and 45 minutes to run a race. Miss Claire used 1 hour and 15 minutes to run the same race. By how many hours and minutes was miss Claire faster than Mr. Omolo?

   Mr. Omolo used 1 hour and 45 minutes

   Miss Claire used 1 hour and 15 minutes

	1 hr	45 mins
-	1 hr	15 mins
		30 mins

Work to do

1. A cook used 3 hours and 44 minutes to roast meat. He used 2 hours and 12 minutes to bake a cake. How many more hours and minutes did he use in roasting?

2. A bus took 8 hours and 20 minutes to reach Nakuru. A matatu took 7 hours and 15 minutes. By how many hours and minutes was the matatu faster than the bus?

3. A boda boda rider used 2 hours and 35 minutes to Pondamali market. A car used 1 hour and 25 minutes to reach the same market. By how many hours and minutes was the car faster than the boda boda?

Relating money to goods and services

Picture showing goods and services

Unga

Sh 130

Matatu

Sh 200

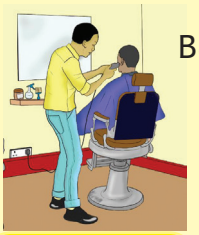
Doctor

Sh 400

School bag

Sh 900

Barber



Sh 50

Chair

Sh 850

Work to do :

Fill in as a good or a service

Item	Good or Service	Amount
Hair cut	Service	sh.50
Flask	Good	sh. 300
Transport		sh. 200
Cloth repair		sh. 100
Book		sh 400
Pencil		sh. 20
School Sweater		sh. 800
Shoe repair		sh. 50

Needs and wants

Example

Complete the table using the following items: phone, car, clothes, toy, house, bus, radio, food, TV.

Needs	Wants

Fill in as needs and wants

Item	Needs	Wants
a) Bicycle		
b) Car		
c) Chair		
d) Table		
e) Pencil		
f) Duster		
g) Watch		
h) Clothes		
i) Toy		
j) House		
k) Book		
l) Food		

Spending and saving

Example

John received sh.300 from his uncle. He spent sh. 50 on a book. How much did he save?

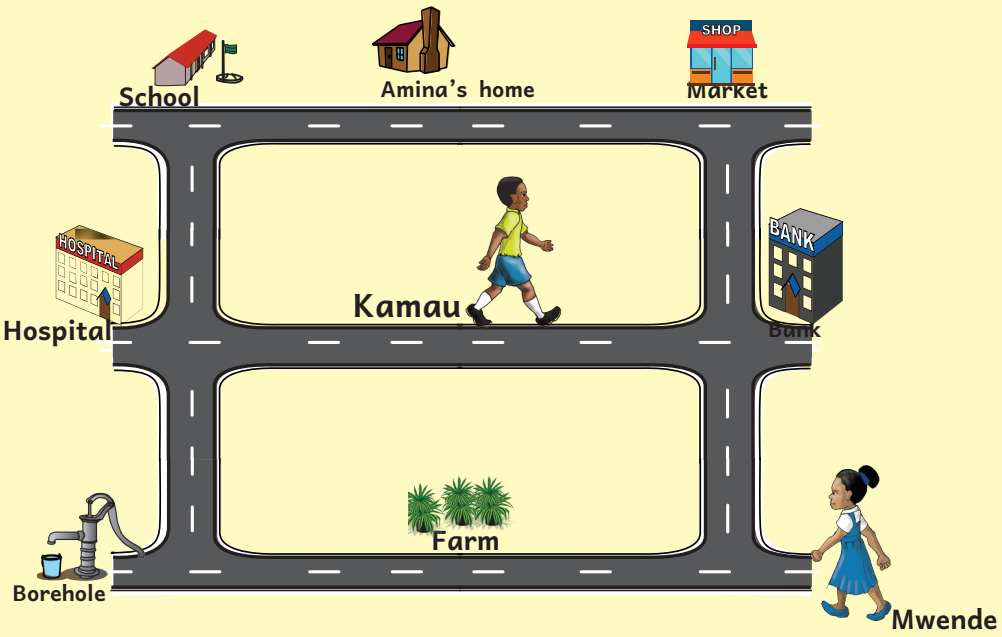
Shillings	Spending in shillings	Saving in shillings
300	50	250

Work to do

Fill in as a spending or saving

Shillings before spending	Spending in shillings	Saving in shillings
1. 500	300	200
2. 1000	400	_____
3. 650	250	_____
4. 500	400	_____
5. 200	150	_____
6. 400	350	_____
7. 1000	400	_____
8. 700	_____	400
9. 800	_____	300
10. 900	_____	500

Turning to the right and left from a point



Example

To get to the hospital from school, a learner will walk straight then turn _**right**_

Work to do

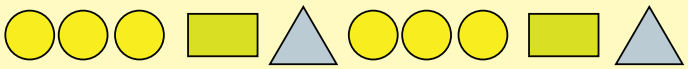
Use the map above to fill in

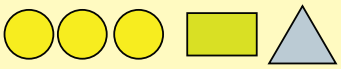
1. To get to school Mwende moves straight then turns _____
2. To visit the market Mwende will walk straight then turn _____
3. To walk to the market, Kamau will move straight then turn _____
4. From the school to the borehole, learners will walk _____
5. To visit the farm from school, a teacher will walk straight then turn _____

Pattern making using shapes

Example

This is a pattern. On the right we put?

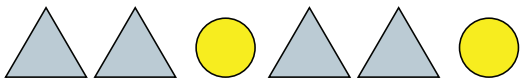


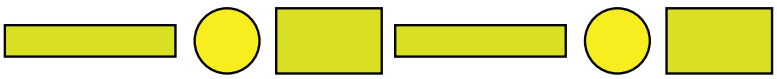
We put 

Work to do

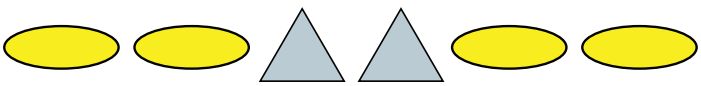
Complete the pattern

1. 

2. 

3. 

4. 

5. 

REPUBLIC OF KENYA

MATHEMATICS

PUPIL'S BOOK 3

This book has been developed for use by learners in Grade 3.
This book has:

- Covered all the concepts in the mathematics curriculum design for grade 3.
- Identified lessons for each week
- Variety of examples and activities
- Variety of strategies for working out questions
- Clear illustrations

This book has been developed by a team of experts from the Kenya Institute of Curriculum Development (KICD), Ministry of Education (MoE), Primary Education Development Project (PRIEDE), Teachers Service Commission (TSC) Centre for Mathematics Science and Technology Education in East Africa (CEMASTEA).

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