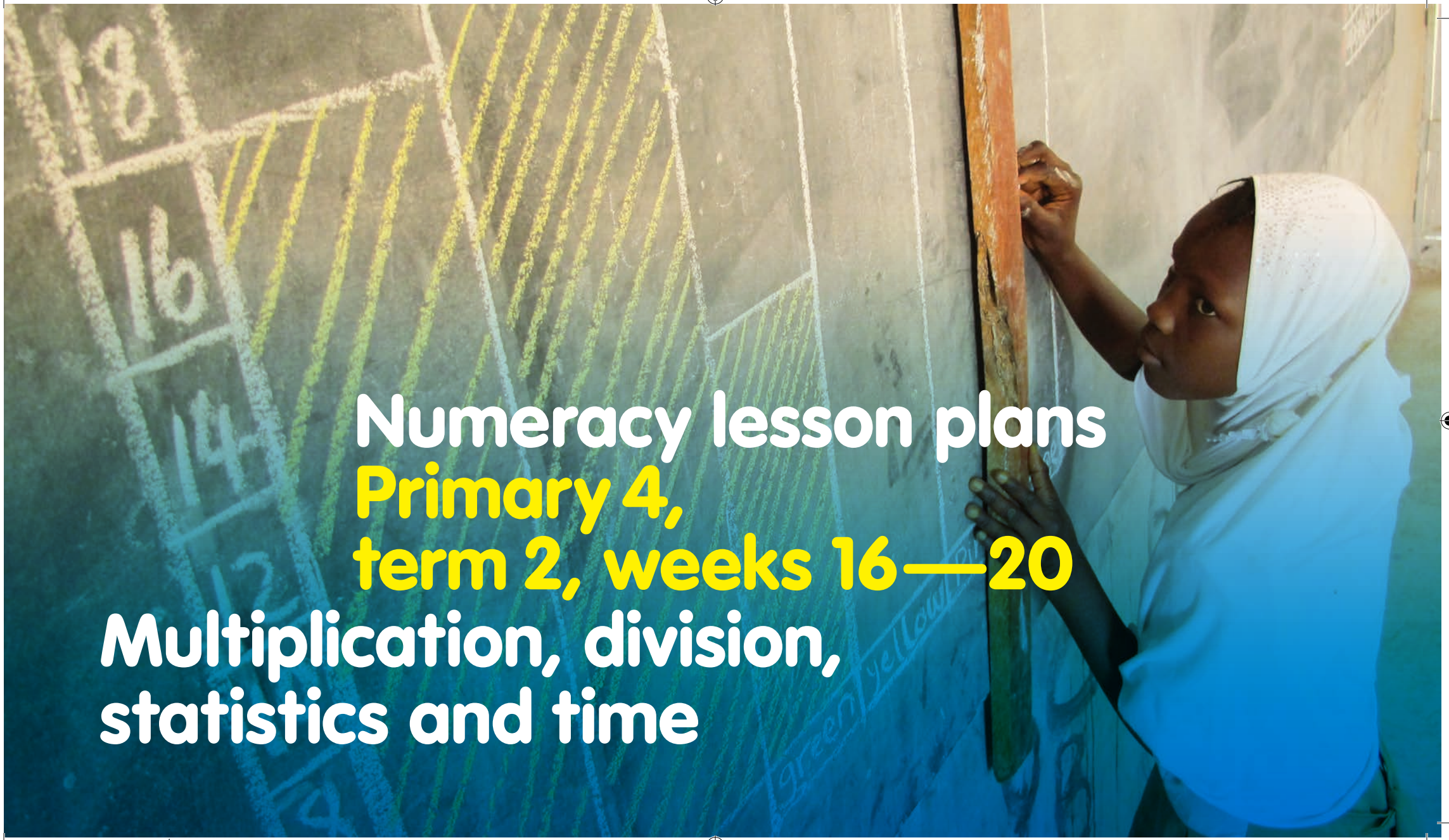


Numeracy lesson plans Primary 4, term 2, weeks 16—20

Multiplication, division, statistics and time

Numeracy lesson plans Primary 4, term 2, weeks 16—20

Multiplication, division, statistics and time

Introduction

Quality education is key to the development of every society. And one essential ingredient in ensuring quality education is the teacher.

The State Ministry of Education conducted baseline surveys to assess Kano teachers, head teachers and pupil learning outcomes. The findings were discouraging, with little difference in outcomes between qualified and unqualified teachers. It was clear that despite substantial inputs into education, most teachers were victims of a shambolic system.

Subsequently, the State Ministry of Education, the State Universal Basic Education Board (SUBEB) and the local government education authorities (LGEAs), supported by the Education Sector Support Programme in Nigeria (ESSPIN), initiated a series of school reforms.

Teaching Skills Program (TSP) was introduced to help: primary teachers deliver competent lessons; head teachers operate effectively; and to strengthen organisational structures to enable SUBEB and LGEA to provide effective support. TSP phase 1 benefited more than 19,269 participants through cluster- and school-based training.

To consolidate these benefits, 21,000 sets of Primary 1—3 lesson plans and learning outcome benchmarks were shared with 5,728 public and Islamiyya-integrated primary schools. Now, a carefully designed series of Primary 4—6 lesson plans has been developed. These provide step-by-step guides to literacy and numeracy teachers, while ensuring that children become active learners.

We are confident that these lesson plans will strengthen children's learning abilities quickly and considerably, and will improve the quality of children proceeding to higher levels of education. They will enable teaching and learning to be more exciting, and will form an important element in all classes at the primary level.

We commend all those who have worked hard on these plans and training schemes. We thank the UK Department for International Development (DFID) for its ongoing support for education reform in Kano State through its ESSPIN programme. 'Let's make every Kano school an improving school.'

Tajudeen A Gambo
Honourable Commissioner for Education, Kano State

Wada Zakari
Executive Chairman, SUBEB, Kano State

The numeracy lessons teach calculation, shape, symmetry, fractions and time. Each week focuses on one of these topics.

How

How?

This section illustrates a key concept through simple instructions and photographs. A sign at the top of the column shows you which part of the lesson uses this resource.

Learning expectations

Every pupil in the class will be at a different stage of understanding in maths. The first page of each week outlines learning expectations for the week. These learning expectations are broken into three levels:

What **all** pupils will be able to do.

What **most** pupils will be able to do.

What **some** pupils will be able to do.

Assessment

On each weekly page there is an assessment task for you to carry out with five pupils at the end of the week. This will help you find out whether they have met the learning expectations.

Next to the task, there is an example of a pupil's work, which shows what a pupil can do if they have met the learning expectations.

If most pupils have not met the learning expectations, you may have to teach some of the week again.

Daily practice

Helps the pupils to practise something they have previously learned. It should only last 15 minutes and move at a fairly fast pace.

Introduction

Provides the focus for the lesson. Often involves a variety of fun, quick activities which prepare the pupils for the main topic.

Main activity

Gives the pupils the opportunity to explore the main topic in different ways. This usually involves group, pair or individual tasks. Your role as a teacher during the main activity is to work with groups and individuals to help them to understand the ideas.

Plenary

Finishes the lesson with different ways of reviewing learning.

Grade/
Type of lesson plan

Lesson
title

Weekly page
Primary 4, numeracy lesson plans

Week 16:
Multiplication

Multiplication square

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

Words/phrases

Write these words on the chalkboard and leave them there for the week.

fraction
equivalent
multiplication square
grid method
place value
decimal numbers
tenths

Learning expectations

By the end of the week:

All pupils will be able to:
Multiply a two-digit number by a single-digit number, using the grid method.

Most pupils will be able to:
Multiply decimal numbers using the grid method.

Some pupils will be able to:
Solve multiplication word problems that involve decimals.

Assessment task

Instructions:

1
Ask individual pupils to write two three-digit numbers with one decimal place.

2
Ask the pupils to place the numbers under the correct place value headings.

3
Ask the pupils to solve the following sums using the grid method:
23.5 x 3 =
78.3 x 4 =

4
Ask the pupils to solve the following word problem:
Hassan wants to travel to his family four times a year. His family lives 256.7km away from Hassan. How many km does Hassan travel in one year?

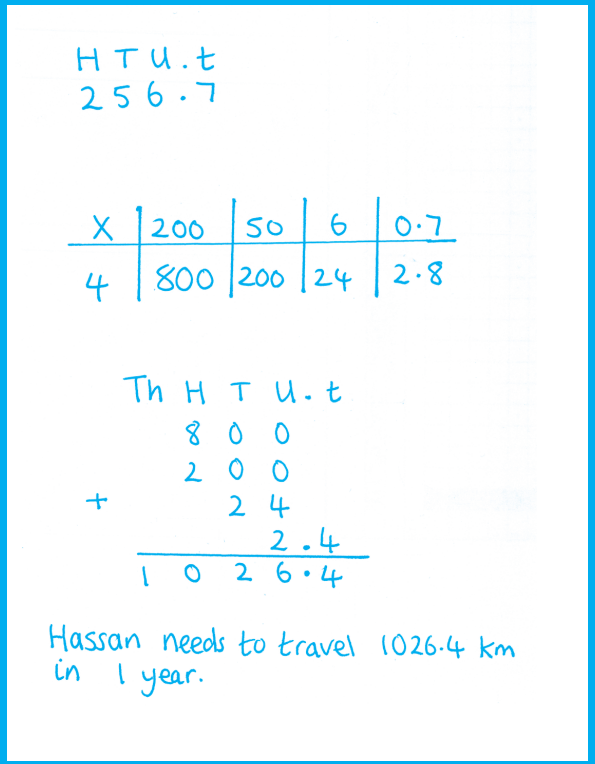
Example of a pupil's work

This pupil can:

Place a decimal number under the correct value headings.

Multiply decimal numbers using the grid method.

Solve a word problem using decimal multiplication.



Lesson title

Paper/ Multiplication square

Week 16: Multiplication

Day 1: The grid method

Learning outcomes

By the end of the lesson, most pupils will be able to:

Identify simple fractions.

Multiply a two-digit number by a single-digit number.

Preparation

Before the lesson:

Have ready three pieces of paper.

Read How? Fractions, as shown below.

Draw a multiplication square on the chalk-board, as shown on this week's weekly page, and leave it there for the week.

How? Fractions

Draw a rectangle divided into eighths.

Shade in two eighths and ask a pupil to write the fraction that is shaded.

Draw a square, shade three quarters and ask a pupil to write the fraction.

Repeat the process, drawing more squares.

Ask the pupils to say and write the fractions.

15 minutes	How	Paper	10 minutes	Multiplication square	25 minutes		10 minutes

Daily practice

Whole class teaching

Remind the class that a fraction is a part of a whole.

Demonstrate by folding pieces of paper into halves, quarters and eighths.

Teach How? Fractions, as shown left.

Ask the pupils to draw squares in their exercise books showing the following fractions:

$\frac{5}{8}$ $\frac{4}{10}$ $\frac{1}{4}$

Introduction

Pair task

Ask the pairs to say the 2, 3, 4 and 5 times tables to each other.

Show the class how to find the answer to 7 x 8, using the multiplication square.

Put a finger on the 7 in the first column and a finger on the 8 in the first row. Move one finger down the column and the other finger along the row until they meet at the answer, 56.

Ask the pairs to find the answers to the following multiplication sums, using the multiplication square:

6 x 9
8 x 6
7 x 9
4 x 7

Main activity

Whole class teaching

Write '48 x 3 =' on the chalkboard and ask the pupils what method they could use to work it out.

Revise the grid method with them:

x	40	8
3	120	24

120 + 24 = 144

Remind them to add the Units, then the Tens.

Repeat with 28 x 3 =

Pair task

Write the following sums on the chalkboard for the pairs to complete in their exercise books:

13 x 4 =
19 x 4 =
25 x 5 =
26 x 3 =
57 x 5 =
56 x 3 =

Remind them to use the grid method.

Plenary

Pair task

Choose some pairs to show how they worked out their answers on the chalkboard.

Ask the other pairs to check that they are correct.

Lesson title

Multiplication square

Week 16: Multiplication

Day 2: Multiplying decimal numbers

Learning outcomes

By the end of the lesson, most pupils will be able to:

Order fractions.

Multiply a simple decimal number by one digit.

Preparation

Before the lesson:

Display the multiplication square from Week 16, Day 1 (yesterday).

Read How? Multiply decimals, as shown below.

How? Multiply decimals

Write, '0.3' on the chalkboard and write the place values above the digits.

Write, '0.3 x 3 =', explain that we now have nine tenths and write the answer.

Write, '0.4 x 3 =' and explain that the answer is 12 tenths.

Explain that 12 tenths is 1 Unit and 2 tenths. Write in the answer.

Write, '0.8 x 4 =' then multiply the tenths and change the answer to Units and tenths.

15 minutes	10 minutes	Multiplication square	25 minutes	How	Multiplication square	10 minutes

Daily practice

Pair task

Choose some pupils to help you draw squares on the chalkboard showing the following fractions:

$\frac{1}{4}$ $\frac{1}{2}$ $\frac{1}{6}$ $\frac{1}{5}$

Ask the class, 'Which is the biggest fraction?', 'Which is the smallest fraction?'

Remind the pupils of the meaning of the symbols < and >.

Ask the pairs to use the correct symbol to complete these number sentences in their exercise books:

$\frac{1}{8} \square \frac{1}{10}$

$\frac{1}{6} \square \frac{1}{2}$

Introduction

Whole class teaching

Remind the pupils how to use the multiplication square.

Choose some pupils to come and find the answers to the following sums:

8 x 8 =
7 x 7 =
4 x 8 =

Ask the pairs to write four sums from the times tables in their exercise books.

Tell them to swap books and write the answers using the multiplication square.

Main activity

Whole class teaching

Ask the pupils, 'How many tenths are there in a whole?' (10)

Explain that if we have 14 tenths then we have 1 Unit and 4 tenths.

Write it on the chalkboard under the correct place value headings.

Ask, 'If I have 16 tenths, how many Units and tenths do I have?'

Teach How? Multiply decimals, as shown left.

Pair task

Write the following sums on the chalkboard for the pupils to complete in their exercise books:

0.7 x 2 =
0.6 x 3 =
0.5 x 5 =
0.4 x 7 =
0.6 x 6 =
0.4 x 9 =
0.8 x 7 =
0.6 x 8 =

Remind them to look at the multiplication square if they need to.

Plenary

Whole class teaching

Write this word problem on the chalkboard, 'Kassim needs 0.4m of fabric to make a skirt. How many metres does he need to make eight skirts?'

Ask a pupil to write the calculation needed to solve this on the chalkboard. (0.4 x 8 =)

Choose some pupils to help you complete the calculation on the chalkboard.

Lesson title

Week 16: Multiplication

Day 3: Multiplying decimals with the grid method

Multiplication square/ Paper

Learning outcomes

By the end of the lesson, most pupils will be able to:

Generate equivalent fractions.

Multiply decimal numbers using the grid method.

Preparation

Before the lesson:

Read How? Grid method with decimals, as shown below.

Display the multiplication square from Week 16, Day 1 (earlier this week).

Have ready a large piece of paper.

How? Grid method with decimals

Write '45.4 x 4 =' on the chalkboard.

Expand the number, draw the grid underneath and write 'x 4'.

Multiply the tenths, Units and Tens.

Add the tenths, Units, Tens and Hundreds.

Put the number together:
100 + 80 + 1.6 = 181.6

15 minutes	Paper	10 minutes	25 minutes	How	Multiplication square	10 minutes

Daily practice

Whole class teaching

Remind the pupils that 'equivalent fractions' are fractions that have the same value.

Fold the large piece of paper to demonstrate that two quarters are the same as one half.

Remind the pupils that we can make equivalent fractions by multiplying the numerator and the denominator by the same number.

Choose some pupils to help you make equivalent fractions for $\frac{3}{4}$ and $\frac{2}{3}$

Introduction

Whole class teaching

Expand 368.2 on the chalkboard:
300 + 60 + 8 + 0.2

Ask different pupils to help you expand the following numbers:
908.7
560.2
770.9
888.8

Write on the chalkboard:
600 + 80 + 0.3 =
500 + 40 + 0.7 =
500 + 90 + 7 + 0.3 =

Ask the pupils to help you write the numbers under the correct place value headings.

Main activity

Whole class teaching

Teach How? Grid method with decimals, as shown left.

Repeat, asking the pupils to help you solve the following:
38.3 x 5 =
27.5 x 6 =

Pair task

Write the following sums on the chalkboard and ask the pairs to complete them in their exercise books, using the grid method:
37.8 x 2 =
25.6 x 3 =
33.7 x 4 =
42.9 x 5 =

Remind the pupils that they can use the multiplication square to help with the times tables.

Plenary

Whole class teaching

Write this word problem on the chalkboard,
'Each sack of mangoes weighs 28.8kg. How much do five sacks weigh?'

Ask a pupil to write the calculation needed to solve this on the chalkboard (28.8 x 5 =).

Choose some pupils to help you complete the calculation on the chalkboard.

Lesson title

Week 16: Multiplication

Day 4: Word problems

Flash cards/ Multiplication square

Learning outcomes

By the end of the lesson, most pupils will be able to:

- Identify some common equivalent fractions.
- Solve multiplication word problems involving decimals.

Preparation

Before the lesson:

- Prepare a set of fraction flash cards for each group, as outlined in How? Matching fractions game, below.
- Display the multiplication square from Day 1.

How? Matching fractions game

Make a set of fraction flash cards for all the eighths and quarters.

Also make flash cards for thirds and sixths, and make three 'half' flash cards.

Place all of the flash cards face up so the pupils can see them.

Ask the pupils, in turn, to pick two equivalent fractions.

Continue until there are no more equivalent fractions.

15 minutes	How	Flash cards	10 minutes	25 minutes	Multiplication square	10 minutes

Daily practice

Whole class teaching

Write 'a half' on the chalkboard and ask the pupils to say some equivalent fractions.

Teach How? Matching fractions game, as shown left.

Give each group a set of fraction flash cards to play the game.

Tell the pupils they can only keep the cards if they have equivalent fractions.

The pupil with the most cards at the end is the winner.

Introduction

Group task

Remind the pupils that they have been using the grid method to multiply numbers containing decimals.

Teach How? Grid method with decimals, as shown in Week 16, Day 3 (yesterday).

Demonstrate with the following sums:
63.4 x 3 =
24.8 x 6 =

Main activity

Whole class teaching

Write the following word problems on the chalkboard:

'Nura travels 466.8km. Sani travels three times as far. How far does Sani travel?'

'A fence measures 56.4m. How much do four fences of the same length measure?'

'A sack of bricks weighs 30.5kg. How much do six sacks of bricks weigh?'

'A family uses 45.2 litres of water every day. How much water does the family use in a week?'

Read and explain each word problem.

Ask each group to say the calculation needed for one of the problems.

Ask each group to complete a different problem in their exercise books.

If there is time, tell the groups to complete some of the other problems.

Remind the pupils that they can use the multiplication square to help with the times tables.

Plenary

Pair task

Ask the pupils to work with a partner to make up their own word problem.

Ask one or two pairs to share their problem with the rest of the class.

Lesson title

Week 16: Multiplication

Day 5: More word problems

Flash cards/
Multiplication square

Learning outcomes

By the end of the lesson, most pupils will be able to:

Write the 9 times table quickly.

Solve multiplication word problems.

Preparation

Before the lesson:

Have ready a set of matching fraction flash cards for each group.

Display the multiplication square from Week 16, Day 1 (earlier in the week).

Read about the grid method in Week 16, Days 1 and 3 (earlier this week).

Read How? Times tables, as shown below.

How? Times tables

Ask a pupil to find the answer to 7 x 7 on the multiplication square.

Write the 9 times table on the chalkboard, using the multiplication square.

Ask the pupils if they can see any patterns in the 9 times table.

Explain that the digits in each answer add to 9.

Explain that the first digit of each answer is one less than the number multiplied, so 2 x 9 = 18.

15 minutes	Flash cards	10 minutes	How	Multiplication square	25 minutes	10 minutes

Daily practice

Group task

Give each group the matching fraction flash cards.

Tell the groups to place the flash cards face up on the desk.

Tell the pupils to take turns picking two cards.

Remind them that they can only keep the cards if they have equivalent fractions.

The pupil with the most cards at the end is the winner.

Ask some of the pupils to read their equivalent fraction cards.

Introduction

Whole class teaching

Teach How? Times tables, as shown left.

Ask the pupils to think about the patterns as you ask them questions from the 9 times table.

Choose some pupils to come and check their answers on the multiplication square.

Main activity

Whole class teaching

Ask some pupils to help you demonstrate how to solve the following sums on the chalkboard using the grid method:
56 x 3 =
31.2 x 9 =

Remind them to think carefully about the place value of each number.

Group task

Write the following word problems on the chalkboard:

'A farmer planted five rows of yams, with 39 yams in each row. How many yams did he plant?'

'A school has four classes, with 39 pupils in each. How many pupils are in the school?'

'Yakub walks 28.5km every week. How many km does he walk in nine weeks?'

Read and explain the word problems.

Ask the groups to complete each problem in their exercise books, using the grid method.

Plenary

Whole class teaching

Ask the pupils some questions from the 9 times table.

Ask the pupils some questions from the 2, 3, 4 and 5 times tables.

Grade/
Type of lesson plan

Lesson
title

Weekly page
Primary 4, numeracy lesson plans

Week 17:
Division

Words/phrases

Write these words on the chalkboard and leave them there for the week.

multiplication
division
divide
share
repeated subtraction
multiples
chunking
tricky sixes
remainder
relay

Songs

Write this song on the chalkboard and leave it there for the week.

Tricky sixes:
Beat the drums,
Clap your hands,
We know these sums:
6 x 1 is 6
6 x 2 is 12
6 x 3 is 18
6 x 4 is 24
6 x 5 is 30
Tricky sixes! Tricky sixes!
Pick up sticks,
6 x 6 is 36
Touch your shoe,
6 x 7 is 42
Shut the gate,
6 x 8 is 48
Lock the door,
6 x 9 is 54
and 6 x 10 is 60
Beat the drums,
Clap your hands,
We know these sums!

Learning expectations

By the end of the week:

All pupils will be able to:
Divide small numbers using times tables.

Most pupils will be able to:
Divide a two-digit number by a single-digit number with remainders, using repeated subtraction.

Some pupils will be able to:
Solve word problems involving three-digit numbers and remainders.

Assessment task

Instructions:

Ask the individual pupils to complete these tasks in their exercise books.

1
Ask individual pupils to solve the following sums:
3 x 6 =
7 x 5 =
9 x 6 =

2
Ask the pupils to solve the following sums using repeated subtraction:
112 ÷ 8 =
75 ÷ 5 =
95 ÷ 4 =

3
Ask the pupils to solve the following word problem using repeated subtraction:
Aisha sells oranges at the weekends. She has 123 oranges and sells them in bags of eight. How many bags can she sell? How many oranges does she have left?

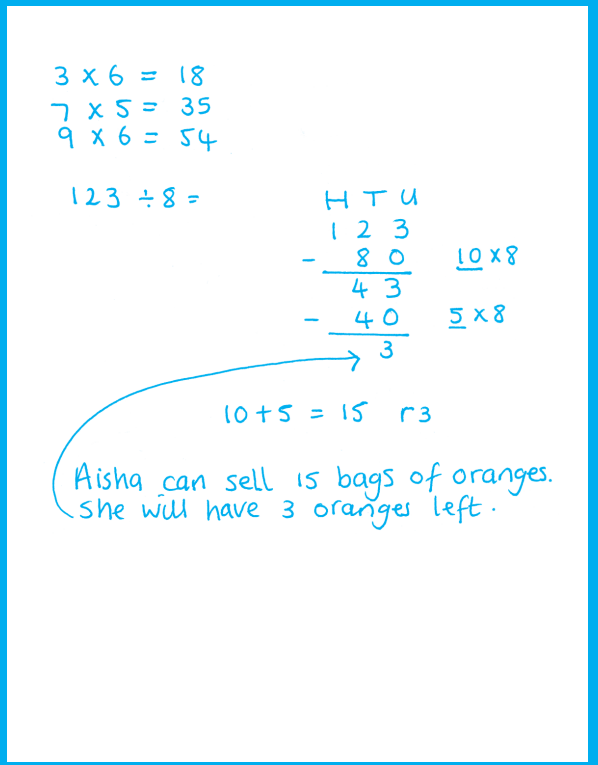
Example of a pupil's work

This pupil can:

Use the 5 and 6 times tables to solve simple multiplication sums.

Solve division sums using repeated subtraction and remainders.

Solve a division word problem with remainders.



Lesson title

Week 17: Division

Day 1: Using multiplication for division

Multiplication square

Learning outcomes

By the end of the lesson, most pupils will be able to:

Say answers to questions from the 5 times table.

Solve simple division problems.

Preparation

Before the lesson:

Copy the multiplication square from the Week 16 weekly page and display it in the classroom.

Read How? Quick division, as shown below.

How? Quick division

Tell the pairs to write a division sum in their exercise books.

Tell them to swap books.

Tell them to write the multiplication sum needed to work out the division sum.

Tell them to give the book back to their partner and write in the answer.

Repeat this process several times.

15 minutes	Multiplication square	10 minutes	How	25 minutes	Fraction strips	10 minutes

Daily practice

Whole class teaching

Ask some pupils to point to answers to the 2, 3 and 4 times tables in the multiplication square.

Choose some pupils to help you write the 5 times table on the chalkboard.

Ask the class, 'What do you notice?' (They end in 0 or 5.)

Ask the pupils to help you write the 10 times table.

Ask, 'What do you notice about the answers in the 5 times table and the 10 times table?' (Answers in the 5 times table are half of the answers in the 10 times table.)

Ask the pupils questions from the 5 times table.

Introduction

Pair task

Write '5 x 7 = 35' on the chalkboard and remind the pupils that this means 5 groups of 7.

Ask them what other facts they know using these numbers, ie:
7 x 5 = 35
35 ÷ 7 = 5
35 ÷ 5 = 7

Remind the class that we can use times tables to work out division sums.

Teach How? Quick division, as shown left.

Main activity

Whole class teaching

Write these word problems on the chalkboard:

'Five friends pick 40 mangoes. How many can they have each?'

'A rope measures 36cm. It is cut into four equal pieces. How long is each piece?'

'Yusuf collects 24 litres of water. How many three-litre jugs can he fill with water?'

'Musa's book has 96 pages. He reads six pages every day. How many days will it take him to read the book?'

Read and explain the questions and ask the pupils to say the calculation needed for each problem (division).

Pair task

Tell the pairs to work out the word problems in their exercise books.

Remind them to use the times tables to help them.

Plenary

Whole class teaching

Tell the pupils to get into a circle.

Tell one pupil to say a division sum from the 5 times table, eg: 40 ÷ 5 = and tell the next pupil to say the multiplication sum needed to answer it, eg: 5 x 8 = 40.

Repeat this process until all the pupils have had a turn.

Lesson title

Week 17: Division

Day 2: Division using repeated subtraction

Multiplication square/ Song

Learning outcomes

By the end of the lesson, most pupils will be able to:

Say answers to questions from the 6 times table.

Use repeated subtraction to solve division calculations with remainders.

Preparation

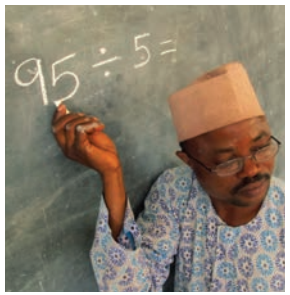
Before the lesson:

Have ready the multiplication square from Week 17, Day 1 (yesterday).

Write the Tricky sixes song from the weekly page on the chalkboard and leave it there for the rest of the week.

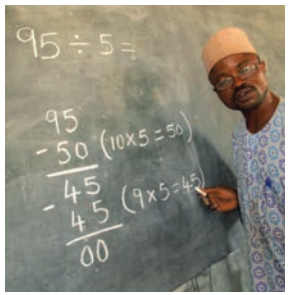
Read How? Repeated subtraction, as shown below.

How? Repeated subtraction



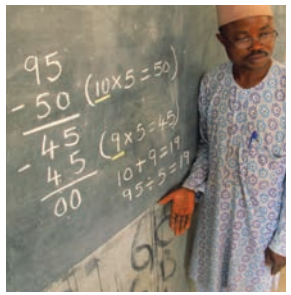
To solve 95 ÷ 5, ask the pupils to think of about the 5 times table.

10 x 5 = 50, so tell the pupils to subtract 50 from 95 (45).



Ask them to think of a multiple nearest to 45 in the 5 times table (9 x 5 = 45).

Ask them to add together the answers.



10 + 9 = 19 so the answer is 19.

15 minutes	Multiplication square/ Song	10 minutes	How	25 minutes		10 minutes	Song

Daily practice

Group task

Ask the class questions from the 5 times table and check their answers in the multiplication square.

Ask the pupils to help you write the 6 times table on the chalkboard.

Explain that they already know some of it from the other times tables they have learned.

Teach the class the Tricky sixes song and make up actions for it.

Ask the pupils questions from the 6 times table and check their answers in the multiplication square.

Introduction

Group task

Remind the class that they can use 'repeated subtraction' to solve division sums with bigger numbers.

Ask the pupils to use repeated subtraction, as shown left in How? Repeated subtraction, to help you solve 95 ÷ 5 =

Repeat with 96 ÷ 4 =

Explain that this method is also called 'chunking', because we try to find big chunks to take away.

Explain that sometimes there will be remainders (numbers left over).

Main activity

Whole class teaching

Write '85 ÷ 6 =' on the chalkboard and use repeated subtraction to solve it:

```
  T U
  8 5
– 6 0  (10 x 6)
  2 5
```

Ask, 'What multiple in the 6 times table is closest to 25?' (4 x 6 = 24).

Continue the calculation:

```
  T U
  8 5
– 6 0  (10 x 6)
  2 5
– 2 4  (4 x 6)
    1
```

Explain that we cannot subtract further multiples of 6 so 1 is a remainder, or 'R'.

Add the multiples and the remainder (10 + 4 R1) to find the answer: 14 R1.

Pair task

Ask the pairs to help you calculate 73 ÷ 4 = in the same way.

Write the following sums on the chalkboard for the pairs to complete in their exercise books:

81 ÷ 4 =
56 ÷ 5 =
55 ÷ 6 =
92 ÷ 6 =

Plenary

Whole class teaching

Ask one of the pairs to solve 92 ÷ 6 = on the chalkboard.

Sing the Tricky sixes song with the class.

Lesson title

Week 17: Division

Day 3: Remainders

Flash cards/ Song

Learning outcomes

By the end of the lesson, most pupils will be able to:

Say answers to questions from the 5 and 6 times tables.

Solve division word problems involving remainders.

Preparation

Before the lesson:

Make a set of 1—10 flash cards for each group.

Read How? Multiplication bingo, as shown below.

Make sure the Tricky sixes song, from this week's weekly page, is still on the chalkboard.

How? Multiplication bingo

Tell the pairs to look at the multiples of 6 and 5 on the chalkboard.

Ask the pairs to write 10 of the multiples in their exercise books.

Call out questions from the 5 and 6 times table.

If the pupils have the correct answer in their exercise book, tell them to cross it out.

Tell them to shout, 'Bingo' when all of their numbers are crossed out.

15 minutes	How	10 minutes	25 minutes	10 minutes	Song

Daily practice

Pair task

Choose some pupils to write the multiples of 6, up to 10 x 6, on the chalkboard.

Repeat, with multiples of 5.

Teach How? Multiplication bingo, as shown left.

Introduction

Whole class teaching

Remind the class that they have been using repeated subtraction for division calculations.

Ask the pupils to use repeated subtraction, as shown in How? Repeated subtraction on Week 17, Day 2 (yesterday) to help you solve the following:
72 ÷ 5 =
87 ÷ 4 =

Explain that these sums will have remainders (numbers left over).

Main activity

Group task

Write the following word problems on the chalkboard:

'Amina has 88 pens. She shares them between her five friends. How many will each friend get? How many are left?'

'Musa has 74 apples. He has six bags. He needs to put an equal amount of apples in each bag. Can he do this? Will any apples be left over?'

'There are 59 pupils in Primary 4. They need to be split equally into two classes. How many pupils should there be in each class? Is there a problem?'

Read and explain each problem carefully.

Ask the groups to say the calculation needed for each problem.

Ask the pupils to work together in their groups to solve the problems.

Choose some groups to say the answers and ask the class if they agree.

Ask, 'What is the problem in question 3?' (There is a remainder that cannot be divided.)

Plenary

Whole class teaching

Sing the Tricky sixes song with the class.

Ask the class questions from the 5 and 6 times tables.

Lesson title

Week 17: Division

Day 4: Division of bigger numbers

Learning outcomes

By the end of the lesson, most pupils will be able to:

Use the 6 times table to solve division calculations.

Use repeated subtraction to divide bigger numbers.

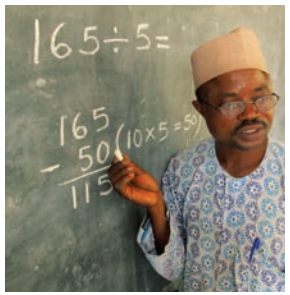
Preparation

Before the lesson:

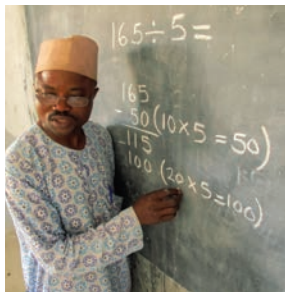
Read How? Quick division, as shown in Week 17, Day 1.

Read How? Repeated subtraction with bigger numbers, as shown below.

How? Repeated subtraction with bigger numbers



Ask a pupil to say a multiple of 5 (10 x 5 = 50). Subtract 50 from 165 (115).



Tell pupils a bigger multiple of 5 can be used, eg: 20 x 5 = 100.

Subtract 100 from 115 (15). Ask pupils for a multiple near to 15 (3 x 5 = 15).

Subtract 15 from 15 (0).

Add the multiples (10 + 20 + 3) and write in the answer: 165 ÷ 5 = 33.

15 minutes	10 minutes	How	25 minutes	10 minutes	Song

Daily practice

Whole class teaching

Remind the class that we can use times tables to work out simple division sums.

Ask, 'Which times table will help me solve 54 ÷ 6?' (6 x 9 = 54, so the answer is the 9 times table).

Teach How? Quick division, as shown in Week 17, Day 1 (earlier in the week).

Introduction

Whole class teaching

Write '165 ÷ 5 =' on the chalkboard.

Explain that we can use repeated subtraction to solve calculations with big numbers but we need to find bigger chunks to take away.

Teach How? Repeated subtraction with bigger numbers, as shown left.

Repeat with 96 ÷ 3 =

Main activity

Group task

Write the following division calculations on the chalkboard:
186 ÷ 6 =
82 ÷ 2 =
145 ÷ 5 =
148 ÷ 4 =

Ask each group to work on a different calculation in their exercise books.

If there is time, ask them to choose other calculations to work on.

Ask each group to explain their calculation on the chalkboard.

Ask the class to say if they are correct, and if not to explain why.

Ask the class if there are any different multiples they could use to solve the calculations more quickly.

Plenary

Whole class teaching

Ask each group division questions from the 6 times table, eg: 48 ÷ 6, 24 ÷ 6.

Sing the Tricky sixes song.

Lesson title

Week 17: Division

Day 5: Division word problems

Flash cards

Learning outcomes

By the end of the lesson, most pupils will be able to:

Say answers from the 2, 3, 4, 5 and 6 times tables.

Solve division word problems involving bigger numbers.

Preparation

Before the lesson:

Make sets of flash cards of the multiples of 5 and 6 for each group and shuffle each set well.

Read How? Multiplication relay, as shown below.

How? Multiplication relay

Mark a starting line and place the sets of flash cards at intervals.

Tell each group to stand in a line behind a set of cards.

Shout, 'Go!' and tell the pupils to run, in turn, to collect a card.

Tell each group to arrange their cards, in order, into the 5 and 6 times tables.

The first group ready is the winner.

15 minutes	How	10 minutes	25 minutes	10 minutes	Song

Daily practice

Group task

Ask the class to say the 5 and 6 times tables with you.

Find a space for the pupils, inside or outside of the classroom, and play How? Multiplication relay, as shown left.

Introduction

Whole class teaching

Write '143 ÷ 5 =' on the chalkboard.

Ask the class, 'What method can I use to calculate this?'

Tell the pupils to think of big multiples and demonstrate:

```
   H T U
   1 4 3
–  1 0 0   (20 x 5)
     4 3
–    4 0   (8 x 5)
       3
```

Explain we cannot subtract further multiples of 5, so 3 is the remainder.

Add the multiples:
20 + 8 = 28

Write the answer:
143 ÷ 5 = 28 R3.

Main activity

Group task

Write the following word problems on the chalkboard:

'Five girls share N152.00 equally among them. How much does each girl get?'

'A log of wood 220cm long is sawn into pieces 6cm long. How many 6cm pieces are there? What is the remainder?'

'A book contains 186 pages. How many days would it take to read the book if you read two pages a day?'

Read and explain each problem carefully.

Ask the groups to complete the word problems in their exercise books using repeated subtraction.

Choose some groups to explain their calculations on the chalkboard and ask the other groups if they agree.

Ask the class if there are any different multiples they could use to solve the calculations more quickly.

Plenary

Pair task

Sing the Tricky sixes song.

Ask the pupils division questions from the 3, 4, 5 and 6 times tables.

Grade/
Type of lesson plan

Lesson
title

Weekly page
Primary 4, numeracy lesson plans

Week 18:
Statistics

Words/phrases

Write these words on the chalkboard and leave them there for the week.

tally
frequency
pictogram
symbol
most popular
least popular
bar chart
vertical axis
horizontal axis
mode
data
statistics

Songs

Write this song on the chalkboard and leave it there for the week.

Tricky sevens:
Beat the drums,
Clap your hands,
We know these sums:
7 x 1 is 7
7 x 2 is 14
7 x 3 is 21
7 x 4 is 28
7 x 5 is 35
7 x 6 is 42
Tricky sevens! Tricky sevens!
Hang the washing
on the line, 7 x 7 is 49.
Feed the chicks, chick,
chick, chicks! 7 x 8 is 56.
Climb the ancient
mango tree, 7 x 9 is 63
and 7 x 10 is 70
Beat the drums,
Clap your hands,
We know these sums!

Learning expectations

By the end of the week:

All pupils will be able to:
Interpret a simple pictogram.

Most pupils will be able to:
Draw a simple but accurate pictogram.

Some pupils will be able to:
Draw a bar chart with intervals labelled in twos.

Assessment task

Instructions:

1
Ask individual pupils to draw a pictogram representing the following numbers:

Fish	12	
Cat	7	
Goat	15	

2
Ask the pupils to make a bar chart with intervals of two, using the following information from the hockey world cup:

Country	Goals
Ghana	12
Spain	23
Nigeria	18
England	22
Brazil	27
United States	14
South Africa	18
Sweden	6

3
Ask the pupils to find the mode of the hockey goals in this bar chart.

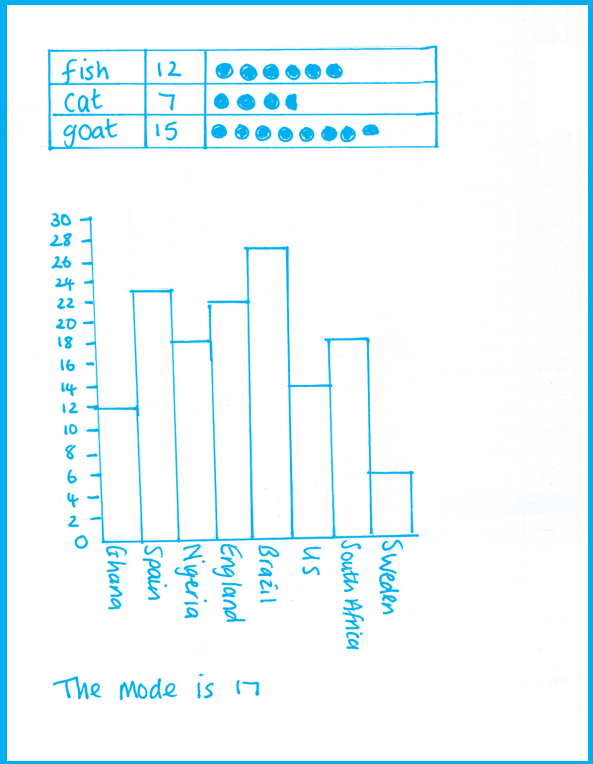
Example of a pupil's work

This pupil can:

Draw a pictogram for the correct number of animals.

Draw a bar chart with intervals of two showing information from the hockey world cup.

Find the mode of the hockey world cup goals from the bar chart.



Lesson title

Week 18: Statistics

Day 1: Tally charts

Songs

Learning outcomes

By the end of the lesson, most pupils will be able to:

Say some answers for the 7 times table.

Make and interpret a simple tally chart.

Preparation

Before the lesson:

Write the Tricky sevens song, from this week's weekly page, on the chalkboard.

Read the Tricky sixes song from the Week 17 weekly page (last week).

Read How? Tally chart, as shown below.

How? Tally chart

On the chalkboard, demonstrate how to count to 20 using a tally.

Write the months of the year vertically on the chalkboard.

Ask the pupils to say their birthday month.

Record the results as a tally next to each month.

Write 'Tally chart of pupils' birthdays' above the results.

15 minutes	Songs	10 minutes	How	25 minutes	10 minutes

Daily practice

Whole class teaching

Sing the Tricky sixes song with the class.

Ask the pupils to help you write the 7 times table on the chalkboard.

Choose some pupils to point to parts that they already know.

Teach the class the Tricky sevens song and make up some actions for it.

Ask the pupils some questions from the 7 times table.

Introduction

Whole class teaching

Tell the class that we can use a tally chart when we are collecting information.

Teach How? Tally chart, as shown left.

Ask the pupils to look at the tally chart you have made and find the frequency for each month.

Explain that 'frequency' means 'how many?' or 'how often'. Explain that the table is called a 'frequency table'.

Ask the pupils, 'What other information does this tally chart show?' (The most common/least common month for birthdays.)

Main activity

Whole class teaching

Choose some pupils to write the following numbers as a tally on the chalkboard: 7, 11, 22, 18 and 34.

Take the class outside and ask the pupils to collect as many pebbles (or leaves) as they can in 2 minutes.

Tell them that each group is going to make a tally chart to show the number of pebbles they collected.

Group task

Write 'Pebbles collected' on the chalkboard and ask the groups to copy it into their exercise books.

Ask each group to write the names of the pupils in their group vertically under this title.

Tell them to write the number of pebbles each pupil collected by their name.

Tell them to write the number as a tally.

Plenary

Group task

Ask each group to say some of the information their tally chart shows, eg: who collected the most and the least.

Lesson title

Week 18: Statistics

Day 2: Pictograms

Flash cards/
Multiplication square

Learning outcomes

By the end of the lesson, most pupils will be able to:

Say the answers to the 7 times table.

Interpret a pictogram.

Preparation

Before the lesson:

Make a set of 1—10 flash cards for each group and shuffle each set.

Display the multiplication square from Week 16 in the classroom.

Read How? Multiplication cards, as shown below.

How? Multiplication cards

Place a set of number flash cards face down in front of each group.

Tell the pupils, in turn, to take a card and say the number.

Ask them to times the number by 7 in their exercise books.

Tell the pupils to check the answer on the multi-plication square.

Continue until all the number cards have been taken.

15 minutes	How	Song	10 minutes	New Method Mathematics 4	25 minutes	New Method Mathematics 4	10 minutes	New Method Mathematics 4

Daily practice

Group task

Sing the Tricky sevens song from Week 18, Day 1 (yesterday).

Teach How? Multiplication cards, as shown left.

Introduction

Whole class teaching

Choose some pupils to write tallies for the following numbers on the chalkboard: 7, 10, 13, 23.

Ask the pupils to open New Method Mathematics 4, page 240.

Remind the pupils that we can also use pictograms to present information.

Tell them to look at 'How we came to school' and discuss the questions with them.

Main activity

Whole class teaching

Look at 'Boys and girls in our school, Year 4' in New Method Mathematics 4, page 241.

Explain that one symbol represents 5 pupils and ask, 'Why is this a good way to represent information?'

Explain that having a symbol to represent 5 means that we have fewer symbols to draw.

Read and discuss questions 1—6 in New Method Mathematics 4, page 241.

Individual task

Ask the pupils to complete the answers to the questions in their exercise books.

Plenary

Whole class teaching

Explain that a symbol can be used to represent any number.

Tell the pupils to look at 'Fruits sold by a stallholder' in New Method Mathematics 4, page 241.

Read and discuss the answers to the questions.

Lesson title

Week 18: Statistics

Day 3: Late for school

Frequency table

Learning outcomes

By the end of the lesson, most pupils will be able to:

Give division facts corresponding to the 6 and 7 times tables.

Draw a simple pictogram.

Preparation

Before the lesson:

Draw the frequency table, shown opposite, on the chalkboard.

Read How? Pictograms, as shown below.

How? Pictograms

Discuss the frequency table and explain that you are going to make it into a 'pictogram'.

Explain that a circle will represent 2 pupils.

On the chalkboard, write the days of the week in a vertical list.

Choose some pupils to draw circles for the pupils who were late each day.

Remind them that some numbers (odd numbers) will need half a circle.

15 minutes	Songs/ Game	10 minutes	25 minutes	How	Frequency table	10 minutes

Daily practice

Whole class teaching

Sing the Tricky sixes and Tricky sevens songs with the pupils.

Explain to the class that they are going to play a game called 'call back'.

Start with the 6 times table.

Explain that you are going to say an answer from the 6 times table.

Tell the pupils to shout out the number that would go with 6 to get the answer, eg: for 54 the pupils shout '9'.

Introduction

Whole class teaching

Remind the class that pictograms use symbols to represent numbers.

Draw a square on the chalkboard and say, 'This represents 2 sheep.'

Choose some pupils to draw squares to represent 6 sheep and 10 sheep.

Ask the class, 'How can I represent 7 sheep?' (Draw 3 squares and half a square.)

Choose some pupils to draw squares to represent 11 sheep and 15 sheep.

Main activity

Whole class teaching

Teach How? Pictograms, as shown left, using the frequency table on the chalkboard.

Group task

Rub out the pictogram on the chalkboard.

Ask the groups to draw a pictogram in their exercise books using the frequency table of pupils who came to school late, as shown below.

Frequency table

Day	Pupils
Monday	16
Tuesday	13
Wednesday	8
Thursday	3
Friday	2

Plenary

Whole class teaching

Ask the class to use their pictograms to answer the following questions:

'How many pupils were late on Tuesday?'

'Which day had the most number of late pupils?'

'How many pupils were late altogether that week?'

Lesson title

Week 18: Statistics

Day 4: A bar chart

Bar chart/
Flash cards

Learning outcomes

By the end of the lesson, most pupils will be able to:

Say answers from the 7 times table.

Interpret a simple bar chart.

Preparation

Before the lesson:

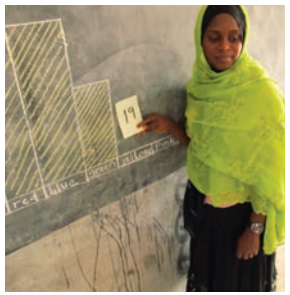
Copy the bar chart of favourite colours on to the chalkboard, as shown right.

Read How? Bar chart, as shown below.

Have ready the word/phrase flash cards.

How? Bar chart

Explain that you need to add more information to the bar chart.



Tell the class that 19 pupils like yellow.

Choose a pupil to draw a bar to represent 19.

Ask a pupil to draw a bar to show that 18 pupils like pink.

Ask a pupil to draw a bar to show the fact that 10 pupils like orange.

15 minutes	Songs/ Game	10 minutes	Bar chart	25 minutes	How	Bar chart	10 minutes	Flash cards

Daily practice

Whole class teaching

Sing the Tricky sixes and Tricky sevens songs with the pupils.

Play the call back game from Week 18, Day 3 (yesterday) with the 7 times table.

Ask the pupils to write the 7 times table in their exercise books.

Introduction

Whole class teaching

Tell the class that we can also present information in a bar chart.

Discuss the bar chart on the chalkboard.

Explain that the bars show the number of pupils who prefer each colour.

Tell the pupils that the line with the colour names is called the 'horizontal axis' and the line with the numbers is called the 'vertical axis'.

Ask the class, 'What do you notice about the numbers?' (They go up in twos.)

Choose some pupils to point to 6, 8, 7 and 11 on the vertical axis.

Main activity

Whole class teaching

Teach How? Bar chart, as shown left. Ask the class, 'What do you notice about green and orange?' (Both are liked by 10 pupils.)

Explain that 'mode' is the number that appears the most often in a set of numbers.

The number 10 appears the most in this bar chart, and so it is the 'mode of the data' (information).

Write these questions on the chalkboard:

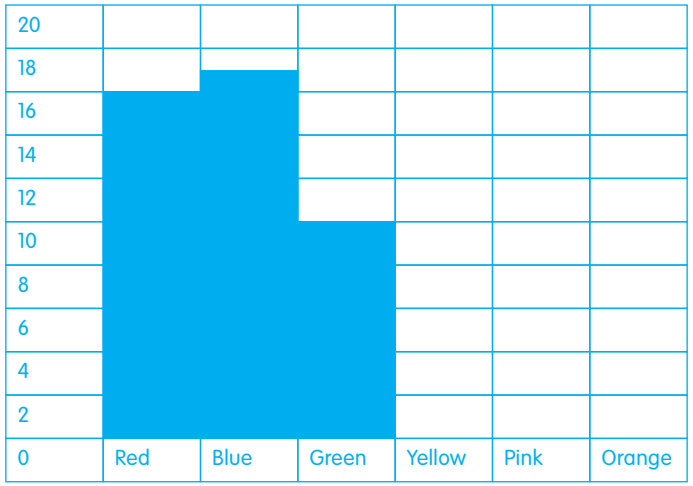
'What is the most popular colour?'

'What is the least popular colour?'

'How many more pupils like pink than green?'

Read and discuss the questions and ask the groups to complete them in their exercise books.

Bar chart



Plenary

Whole class teaching

Flash the word/phrase cards and read and explain them to the class.

Lesson title

Week 18: Statistics

Day 5: Absent from school

Frequency table/Rulers/ Flash cards

Learning outcomes

By the end of the lesson, most pupils will be able to:

Answer questions from the 6 and 7 times tables.

Draw a simple bar chart.

Preparation

Before the lesson:

Write frequency table of pupils absent from school, as shown opposite, on the chalkboard.

Read How? Bar chart 2, as shown below.

Have ready rulers for each group, and the word/phrase flash cards.

How? Bar chart 2

Draw a horizontal axis and write the days of the week (Monday to Friday) along it.

Draw a vertical axis and write the numbers 0—10 in twos.

Make sure that each number space is the same – check with the ruler.

Ask a pupil to draw a bar to show that 9 pupils were late on Monday.

Ask other pupils to draw the bars for the rest of the week.

15 minutes	Songs	10 minutes	New Method Mathematics 4	25 minutes	How	Frequency table	Rulers	10 minutes	Flash cards

Daily practice

Whole class teaching

Sing the Tricky sixes and Tricky sevens songs with the pupils.

Play How? Multiplication bingo from Week 17, Day 3 (last week), using the 6 and 7 times tables.

Introduction

Pair task

Remind the pupils that mode is the number that appears the most often in a set of numbers.

Ask the pairs to find the mode of each set of data in Lesson 2, New Method Mathematics 4, page 243, numbers 1—5.

Main activity

Whole class teaching

Discuss the frequency table of pupils absent from school, shown below, with the pupils.

Ask, 'What number is the mode?' (8)

Teach How? Bar chart 2, as shown left.

Frequency table

Day	Number
Monday	9
Tuesday	8
Wednesday	5
Thursday	6
Friday	8

Group task

Rub the bars off the chart, leaving the horizontal and vertical axis on the chalkboard.

Ask the groups to use the frequency table on the chalkboad to draw a bar chart in their exercise books.

Give each group a ruler and tell them to use the rulers to keep their lines straight.

Ask the groups to make sure that the number spaces are the same and try to draw the bars accurately.

Go and help each group in turn.

Plenary

Whole class teaching

Flash the word/phrase cards and choose some pupils to read and explain them.

Grade/
Type of lesson plan

Lesson
title

Weekly page

Primary 4, numeracy lesson plans

Week 19:

Statistics and time

Words/phrases

Write these words on the chalkboard and leave them there for the week.

seconds
minutes
hours
weeks
months
year
tally chart
bar chart
analogue clock
digital clock
24-hour clock
am
pm

Learning expectations

By the end of the week:

All pupils will be able to:
Tell the time using an analogue clock.

Most pupils will be able to:
Tell the time using a digital clock.

Some pupils will be able to:
Change analogue times to digital times.

Assessment task

Instructions:

1
Ask individual pupils to draw a clock and set the time for half past 8.

2
Ask individual pupils to show these times on an analogue clock:
03:00
19:30
22:45

3
Ask individual pupils to draw clocks showing the following times:
4 o'clock in the afternoon
half past 5 in the morning
quarter to 10 at night

4
Ask the pupils to change the times to digital times.

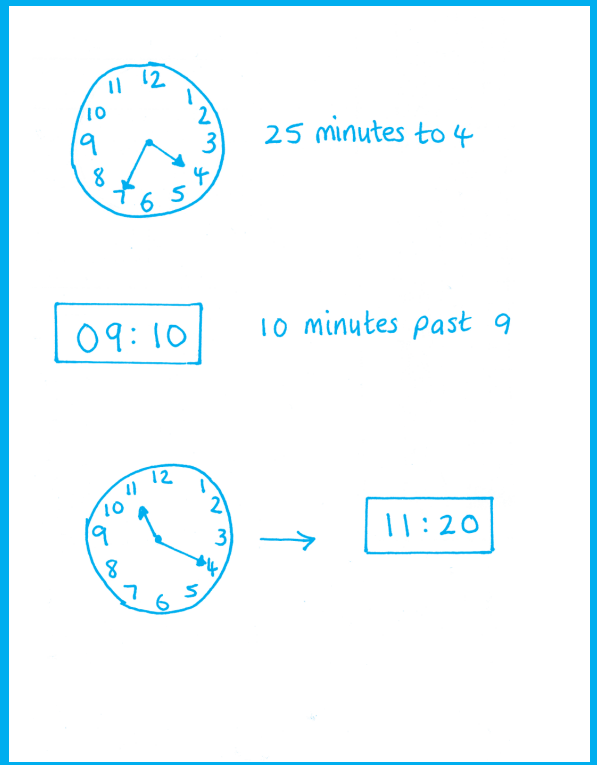
Example of a pupil's work

This pupil can:

Record the time on an analogue clock.

Record the time on a digital clock.

Change the time from analogue to digital.



Lesson title

Week 19: Statistics and time

Day 1: Three minute tally chart

Stopwatch

Learning outcomes

By the end of the lesson, most pupils will be able to:

Use number bonds to complete subtraction sums quickly.

Make a tally chart to record information about time.

Preparation

Before the lesson:

Have ready a stopwatch (or the timer on a mobile phone).

Read How? Time tally, as shown below.

How? Time tally

Ask six pupils to come out. Give each pupil a space on the chalkboard.

Set the stopwatch for 3 minutes.

Tell the pupils to write their first names as many times as they can.

Count the names and write the results in a frequency table.

Choose some pupils to help you write the results as a tally chart.

15 minutes	10 minutes	25 minutes	How	Stopwatch	Frequency table	10 minutes	Stopwatch

Daily practice

Whole class teaching

Ask the class to help you to write the number bonds for 12 and 13 on the chalkboard.

Write the following sums on the chalkboard:

12 – 9 =
12 – 7 =
12 – 6 =
12 – 8 =
12 – 5 =
13 – 7 =
13 – 9 =
13 – 8 =
13 – 5 =
13 – 6 =

Remind the pupils how to use the number bonds to complete these sums quickly in their exercise books.

Introduction

Whole class teaching

Ask the pupils to say some of the units used to measure time.

Write their ideas on the chalkboard.

Ask the following questions:

'What is the smallest unit of time?' (seconds)

'How many seconds are there in a minute?'

'How many minutes are there in an hour?'

'How many hours are there in a whole day and night?'

'How many days are there in a year?'

'How many weeks are there in a year?'

Main activity

Whole class teaching

Ask the pupils to estimate how many jumps they can do in 1 minute.

Write some of their estimates on the chalkboard.

Use the stopwatch to time the pupils as they jump for 1 minute and ask them to count their jumps.

Ask some pupils, 'How many jumps did you do? Did you do more or less than your estimate?'

Ask some pupils, 'How many times do you think you can write your name in 3 minutes?'

Teach How? Time tally, as shown left.

Group task

Ask the groups to say two things that the tally chart shows, eg: who wrote their name the most number of times.

Rub the tally chart off the chalkboard.

Ask the groups to draw the tally chart in their exercise books using the frequency table to help them.

Plenary

Whole class teaching

Explain that you want to find out if the pupils know how long a minute is.

Set the stopwatch or timer for 1 minute but do not let the class see it.

Tell the pupils to put up their hands when they think a minute has passed.

Ask them to say some units of time and put them in order from the smallest to the biggest.

Lesson title

Week 19: Statistics and time

Day 2: Times taken to run 60m

Flash cards/Measuring tape/ Rulers

Learning outcomes

By the end of the lesson, most pupils will be able to:

Use place value to add numbers quickly.

Draw bars on a bar chart to represent times.

Preparation

Before the lesson:

Write the following sums on large flash cards: 180 + 19 =, 140 + 28 =, 130 + 27 =, 120 + 48 =, 600 + 150 =, 600 + 270 =, 400 + 340 =

Find a measuring tape or a metre stick and a ruler for each group.

Read How? Times taken to run 60m, as shown below.

How? Times taken to run 60m

Mark out 60 metres with the measuring tape, to use as a running track.

Time each pupil as they run 60 metres and tell them their time.

Go back inside and write the pupils' names and times on the chalkboard.

Draw a bar chart and write the pupils' names on the horizontal axis, evenly spaced.

Evenly space the seconds in twos on the vertical axis.

15 minutes	Game/ Flash cards	10 minutes	25 minutes	How	Bar chart	10 minutes	Bar chart

Daily practice

Group task

Remind the class that they can use place value to add quickly.

Tell them they are going to play the speedy addition game.

Hold up a sum flash card and ask the groups to discuss the answer.

Tell them to put up their hands when they have an answer and ask the first group with their hands up to answer.

Give points if the answer is correct.

Repeat until you have shown all the flash cards.

The group with the most points wins.

Introduction

Whole class teaching

Ask the pupils, 'How many seconds are there in 1 minute?'

Demonstrate changing 3 minutes into seconds on the chalkboard:

3 x 60 =
First multiply by 6:
3 x 6 = 18

Then move the numbers in the answer one place value to the left:
3 x 60 = 180

Demonstrate changing 4 minutes and 25 seconds into seconds:
4 x 60 = 240
240 + 25 = 265 seconds

Ask the pupils to change 2 minutes and 13 seconds into seconds in their exercise books.

Main activity

Whole class teaching

Tell the pupils that they are going to find out how quickly some pupils can run 60 metres.

Ask some pupils to say some estimates in seconds.

Ask, 'How can we record these results?' (In a tally chart, frequency table or bar chart.)

Choose three girls and three boys to be the runners and take the class outside.

Teach How? Times taken to run 60m, as shown left.

Group task

Ask a pupil to help you shade in the first bar on the bar chart.

Remind them that they are counting in twos. Explain that some numbers will be in between the twos, so you will need to position them carefully.

Ask the groups to copy and complete the bar chart in their exercise books.

Give the groups the rulers to keep their lines straight.

Ask the groups to make sure the number spaces are the same and try to draw the bars accurately.

Go and help each group in turn.

Plenary

Whole class teaching

Ask some pupils to draw their bars on the bar chart on the chalkboard.

Ask the pupils, 'Who had the fastest time?'

Lesson title

Week 19: Statistics and time

Day 3: Telling the time

Flash cards/Card clocks/ Clock

Learning outcomes

By the end of the lesson, most pupils will be able to:

Subtract single-digit numbers from two-digit numbers quickly.

Tell the time using an analogue clock.

Preparation

Before the lesson:

Make a set of 1—10 flash cards for each group.

Make card clocks with moveable hands for each group, leaving blank boxes for the numbers and have ready a real clock.

Read How? Telling the time, as shown below.

How? Telling the time

Ask the groups to write the numbers on their card clocks.

Tell them to write 'past' on one half and 'to' on the other half of the clock face.

Ask the groups to make 8 o'clock and half past 7 with their clocks.

Ask them to make times with minutes past the hour.

Ask them to make times with minutes to the hour.

15 minutes	Game/ Flash cards	10 minutes	How	25 minutes	Clock/ Card clocks	10 minutes

Daily practice

Group task

Explain to the pupils that they are going to play the final countdown game.

Give each group a set of 1—10 flash cards, and ask them to shuffle them and put them in the middle of the table.

Tell the pupils to choose a number card, take that number away from 99 and write down the answer.

Ask them to choose another card, then subtract that number from their answer.

Tell them to repeat until they can't subtract any more numbers.

The group with the lowest number is the winner.

Introduction

Group task

Teach How? Telling the time, as shown left.

Main activity

Group task

Hold up the clock.

Move the hands to make times, and ask the pupils to say the time.

Continue until most of the pupils have had a turn.

Ask, 'If it is 5 past 4 now, what time will it be in 10 minutes?'

Tell the groups to move the hands on their card clocks to find the answer.

Ask, 'If it is 5 to 7 now, what time will it be in 10 minutes?'

Write these times on the chalkboard and ask the groups to write the time 10 minutes after each time in their exercise books:

10 past 9 =
20 to 8 =
25 to 11 =
6 o'clock =
5 to 9 =
10 to 12 =

half past 8 =
quarter to 6 =
quarter past 12 =
half past 6 =

Tell the groups to use the card clocks to help them work out the times.

Plenary

Whole class teaching

Ask the class the following questions:

'How many days are there in a week?'

'How many days are there in a year?'

'How many months are there in a year?'

Ask the class to say the names of the months with you, in order.

Lesson title

Week 19: Statistics and time

Day 4: 24-hour clock

Analogue clock/
Digital clock

Learning outcomes

By the end of the lesson, most pupils will be able to:

Use renaming to subtract two-digit numbers.

Convert analogue times to 24-hour digital times.

Preparation

Before the lesson:

Have ready an analogue clock and a digital clock, eg: on a mobile phone.

Read How? Digital clock, as shown below.

How? Digital clock

Show the time for midnight on the digital clock and the analogue clock.

Show the hours from 1am to midday on both clocks.

Write both times on the chalkboard.

Choose pupils to write the times from 1pm to midnight.

Ask the pupils to say the digital and analogue times with you.

15 minutes	10 minutes	25 minutes	How	10 minutes

Daily practice

Whole class teaching

Write '76 – 28 =' on the chalkboard.

Set the sum out vertically, expand the numbers and rename them:

```
  T U
  7 6
– 2 8
```

Step 1:

```
  70 + 6
– 20 + 8
```

Step 2:

```
  60 + 16
– 20 + 8
  40 + 8
```

40 + 8 = 48
76 – 28 = 48

Write this sum on the chalkboard for pupils to complete: 82 – 36 =

Introduction

Whole class teaching

Ask the class to say how many hours there are in a day.

Remind the class that we say 'am' for times from midnight to midday and 'pm' for times from midday to midnight.

Ask some pupils to say what they do at 11am and 11pm.

Repeat, with 8am and 8pm, and 6am and 6pm.

Remind the class that an analogue clock breaks the day into two halves.

It measures 12 hours for 'am' times and 12 hours for 'pm' times.

Main activity

Pair task

Explain that digital time does not break up the 24 hours of the day into two halves.

It does not use 'am' or 'pm'. Instead, it counts each of the 24 hours of the day.

Teach How? Digital clock, as shown left.

Ask a pupil to write 2am as digital time (02:00).

Ask a pupil to write 2pm as digital time.

Explain that it is 14:00 because it is two hours after 12:00.

Repeat with 3pm (three hours after 12 so it is 15:00).

Write the following times on the chalkboard for the pairs to write as digital times in their exercise books:
6pm, 8pm, 2pm, 5am, 7am, 7pm, 12am, 1am.

Plenary

Whole class teaching

Write the following word problems on the chalkboard:

'Musa starts work at 08:00 and finishes at 16:00. How long does he work for?'

'Farida leaves home at 14:00 and returns at midnight. How long is she away from home?'

Read and explain the problems to the class, then ask the pairs to work them out.

Choose some pairs to say the answers to the class.

Lesson title

Week 19: Statistics and time

Day 5: Digital time

Clock cards/Analogue clock/ Digital clock

Learning outcomes

By the end of the lesson, most pupils will be able to:

Solve simple subtraction word problems with renaming.

Convert analogue times to digital times.

Preparation

Before the lesson:

Make a set of analogue and digital clock cards for each group, as shown below in How? Clock matching game and shuffle each set well.

Have ready an analogue clock and a digital clock.

How? Clock matching game

Show the 4 o'clock card and the matching analogue and digital clock time cards.

Give the groups a set of analogue and digital time cards.

Ask the groups to match the analogue times with the digital times.

Daily practice

Pair task

Write the following word problems on the chalkboard:

'Sabo had 44 apples in a box. He sold 27. How many are left?'

'There are 93 books on a shelf. The teacher takes 58. How many are left?'

Read and explain the problems and ask the pairs to say the calculations needed.

Tell the pairs to complete the problems in their exercise books.

Introduction

Whole class teaching

Ask, 'How many minutes are there in an hour?'

Explain that on analogue clocks we break each hour into two halves.

We say the first 30 minutes are 'past' the hour and the next 30 minutes are 'to' the hour.

Explain that on a digital clock, we count all the 60 minutes. So 20 to 8 o'clock in the morning is 07:40 because 40 minutes have passed since 7am.

Choose some pupils to help you convert the following times to digital on the chalkboard:
10 past 6 in the evening,
20 to 9 in the morning,
half past 4pm, quarter to 11 at night.

Main activity

Group task

Play How? Clock matching game, as shown left.

Write the following times on the chalkboard:
10 past 6am
25 past 7am
quarter past 9am
10 to 7am
20 past 6pm
half past 9pm

Ask the groups to say the times as 24-hour digital times.

Remind them to change the hour to the 24-hour time for the pm times.

Ask the groups to write the 24-hour digital times in their exercise books.

Plenary

Whole class teaching

Make times on the analogue clock and choose some pupils to say them.

Ask them to write the times as digital times on the chalkboard.

Grade/
Type of lesson plan

Lesson
title

Weekly page

Primary 4, numeracy lesson plans

Week 20:

Time problems

Words/phrases

Write these words on the chalkboard and leave them there for the week.

calendar
leap year
date
number line
slow
fast
hour boundary
day boundary
timetable
journey times

Rhymes

Write this rhyme on the chalkboard and leave it there for the week.

Days in the months:
30 days have September,
April, June and November.
All the rest have 31
Except February alone,
Which has 28 days clear
And 29 in each leap year.

Learning expectations

By the end of the week:

All pupils will be able to:
Use a calendar to say what day a date falls on.

Most pupils will be able to:
Use a number line to calculate time problems.

Some pupils will be able to:
Use a timetable to calculate how long a journey takes.

Assessment task

Instructions:

1
Ask individual pupils to use the November calendar on the chalkboard and tell you what day of the week 22nd November was.

2
Ask individual pupils to tell you the time difference between 9.45 and 10.25, using a number line.

3
Ask individual pupils to use the Nigerian train timetable and tell you how long the journey from Lagos to Kano will take.

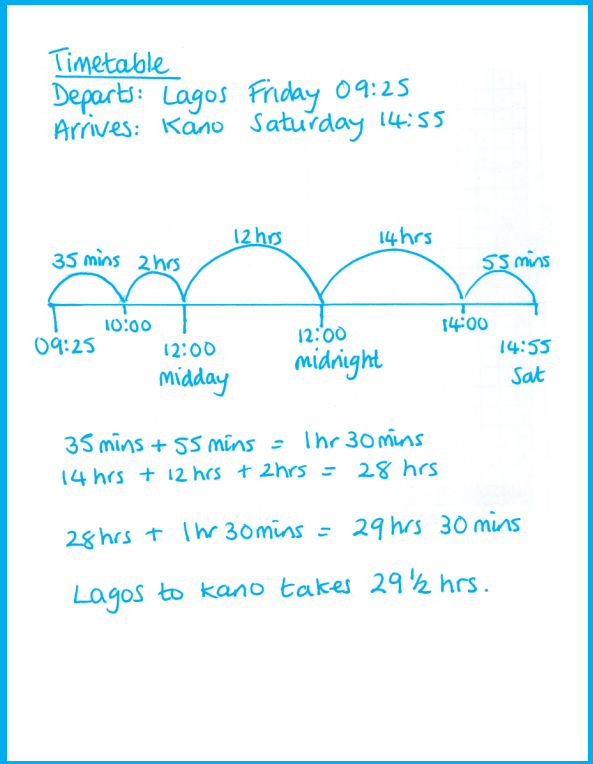
4
Ask individual pupils to calculate the time a journey takes from Lagos to Kano.

Example of a pupil's work

This pupil can:

Use a train timetable to calculate the time a journey will take.

Use a number line to calculate time differences.



Lesson title

Week 20: Time problems

Day 1: A calendar

Card clocks/ Rhyme

Learning outcomes

By the end of the lesson, most pupils will be able to:

Say the time 10 minutes before a given time.

Work out the length of time between dates, using a calendar.

Preparation

Before the lesson:

Have ready the card clocks from Week 19 (last week) for each group.

Write the Days in the months rhyme on the chalkboard, as shown on this week's weekly page.

Read How? Calendar, as shown below.

How? Calendar

Ask some pupils to help you make a November 2014 calendar on the chalkboard.

Ask some pupils to find what day the 27th was on. Repeat with other dates.

Ask, 'How many Mondays are there?'

Ask, 'Can you work out which day December 2nd falls on?' (Wednesday).

Ask, 'Can you work out which day was October 29th?'

15 minutes	Card clocks	10 minutes	Rhyme	25 minutes	How	10 minutes	Rhyme

Daily practice

Group task

Give a card clock to each group.

Ask the groups to make the following times on the clocks:
10 to 7
5 to 6
half past 1
quarter to 8
20 past 2
25 to 7
10 past 4
5 past 1
2 o'clock

After they make each time ask the groups, 'What time was it 10 minutes earlier?'

Introduction

Whole class teaching

Choose some pupils to help you write the months of the year on the chalkboard.

Ask the class:

'How many days are there in a year?'

'How many months are there in a year?'

Remind them that some months have different numbers of days.

Ask them to say the Days in the months rhyme with you and explain it.

Ask pupils to help you to write the number of days in each month on the chalkboard.

Main activity

Whole class teaching

Teach How? Calendar, as shown left.

Ask, 'If it is November 24th now, what date will it be in 2 weeks?'

Choose some pupils to explain how to solve the problem, helping them to count the days into the next month and the previous month.

Group task

Write on the chalkboard:
'It is my birthday on October 24th. I am having a party on the Saturday after my birthday. When is my party? How many days is it after my birthday?'

Ask the groups to discuss the answer and choose a group to explain their answer.

Give each group a different date, eg: November 10th, 3rd, 18th, 2nd.

Ask them to work out what the date and day is 10 days later.

Tell the groups to say their answers and ask the class if they agree.

Plenary

Whole class teaching

Tell the pupils to say the Days in the months rhyme with you.

Ask them to write the number of days in each month in their exercise books.

Lesson title

Week 20: Time problems

Day 2: Time number lines

Card clocks

Learning outcomes

By the end of the lesson, most pupils will be able to:

Work out the correct time if a clock is fast or slow.

Use a number line to calculate time problems.

Preparation

Before the lesson:

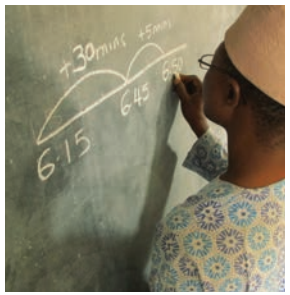
Have ready the card clocks from Week 20, Day 1 (yesterday).

Read How? Time number line, as shown below.

How? Time number line

Ask the pupils, 'If it is 05:15 now, what will the time be in 15 minutes?'

Explain how to solve the problem with a number line.



Ask, 'If it is 06:15 now, what will the time be in 35 minutes?'

Repeat with, 'If it is 06:25 now, what will the time be in 45 minutes?'

Explain how to expand the minutes to cross the hour boundary.

15 minutes	Card clocks	10 minutes	How	25 minutes		10 minutes

Daily practice

Group task

Explain that sometimes clocks can go wrong and become too slow or too fast.

Ask the groups to make 25 past 2 on their card clocks.

Tell them that the clocks are 10 minutes slow and ask them to show the real time (25 to 3).

Tell them to return the time to 25 past 2.

Tell the groups that the clocks are 10 minutes fast and ask them to show the real time (quarter past 2).

Repeat with different times.

Ask the groups to try to work out the correct times without using the clocks.

Introduction

Whole class teaching

Teach How? Time number line, as shown left.

Main activity

Whole class teaching

Write the following word problems on the chalkboard, then read and explain them:

'Musa leaves home at 07:45. It takes him 20 minutes to walk to school. When does he get to school?'

'Break lasts 45 minutes. It starts at 11:20. When does it finish?'

'Taibat reads for 50 minutes. She starts at 10:30. When does she finish?'

'The clock says 02:15. It is 50 minutes slow. What is the real time?'

Group task

Ask the groups to complete the problems in their exercise books, using a number line.

Tell the pupils they can expand the minutes in any way to make them easier to count on.

Plenary

Whole class teaching

Ask one or two groups to draw the number line they used for one of the word problems on the chalkboard.

Ask them to explain their calculations and ask the rest of the class if they agree.

Lesson title

Week 20: Time problems

Day 3: How much time has passed?

Learning outcomes

By the end of the lesson, most pupils will be able to:

Add minutes on a digital clock.

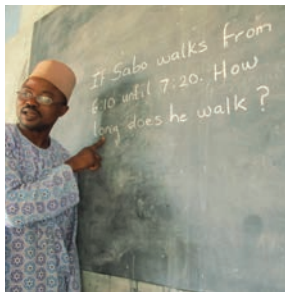
Calculate time that has passed using a number line.

Preparation

Before the lesson:

Read How? Time passed number lines, as shown below.

How? Time passed number lines



Ask, 'If Sabo walks from 6:10 until 7:20, how long does he walk for?'

Draw a number line and count the jumps.

Explain that 70 minutes = 1 hour and 10 minutes.

Draw a number line from 3:05 to 5:15 and ask, 'How much time has passed?'

Add up hours and minutes together to find the answer.

15 minutes	10 minutes	25 minutes	How	10 minutes

Daily practice

Whole class teaching

Ask the class to write the following as digital times on the chalkboard:
10 past 8 in the morning
5 to 9pm
25 past 4 in the afternoon
quarter to 12am

Write the following digital times on the chalkboard: 11:45, 04:05, 02:55, 12:40, 09:50.

Tell the pupils that these times are 10 minutes slow and ask them to write the correct times in their exercise books.

Remind them to add 10 minutes to each time and take care crossing the hour boundary.

Introduction

Whole class teaching

Ask the pupils, 'How many minutes are there in an hour?'

Ask some pupils to help you change 250 minutes to hours on the chalkboard:
250 ÷ 60 =

	H	T	U	
	2	5	0	
–	1	2	0	(60 x 2 = 120)
	1	3	0	
–	1	2	0	(60 x 2 = 120)
=		1	0	

Add the hours and the remaining minutes: 4 hours and 10 minutes.

Ask the pupils to write 180 minutes and 210 minutes as hours and minutes in their exercise books.

Main activity

Whole class teaching

Teach How? Time passed number lines, as shown left.

Write the following word problems on the chalkboard:

'Musa went shopping at 09:30. He arrived home at 10:45. How long was he out?'

'A lesson starts at 08:15 and finishes at 10:10. How long does the lesson last?'

'Jamila arrived at the party at 14:03. She left at 16:10. How long did she stay at the party?'

Read and explain the problems.

Individual task

Ask the pupils to complete the word problems in their exercise books.

Tell them to use a number line.

Go round the class and help pupils.

Plenary

Whole class teaching

Choose a pupil to explain, on the chalkboard, how they solved the first word problem.

Ask the class to say if they are correct and if not, to explain why.

Week 20: Time problems

Day 4: A train timetable

Learning outcomes

By the end of the lesson, most pupils will be able to:

Subtract minutes on a digital clock.

Use a timetable to calculate journey times.

Preparation

Before the lesson:

Copy the Nigerian train timetable from the introduction, shown right, on to a large piece of card.

Read How? Journey times, as shown below.

How? Journey times

Draw a number line starting at 18:00 on Wednesday and finishing at 14:00 on Thursday.

Calculate the time that passes, and explain that this crosses the 24-hour boundary.

Add up the hours.

Demonstrate finding the time of the train from Kano to Lagos on the train timetable.

Calculate how long the journey takes using a number line.

15 minutes	10 minutes	Train timetable	25 minutes	How	Train timetable	10 minutes

Daily practice

Pair task

Tell the class that your digital clock says 11:05 but it is 15 minutes fast.

Use a number line to count back to find the answer (10:50).

Write the following times on the chalkboard: 10:15, 12:03, 08:13.

Explain that these times are 20 minutes fast.

Ask the pairs to calculate the real times in their exercise books, using a number line to help them.

Introduction

Pair task

Show the class the time-table below:

Nigerian train timetable:

Lagos – Ilorin (Tuesdays, Fridays and Saturdays)
Departs: Iddo 09:00
Arrives: Ilorin 18:34

Lagos – Kano (Every Friday)
Departs: Iddo 12:00
Arrives: Kano 17:01 (the next day)

Kano – Lagos (Every Monday)
Departs: Kano 09:00
Arrives: Lagos 14:24 (the next day)

Offa – Kano (Every Tuesday)
Departs: Offa 22:00
Arrives: Kano 18:05 (the next day)

Ask the pairs questions about the train timetable, eg:

'When can I travel from Lagos to Kano?'

'When can I travel from Lagos to Ilorin?'

'What time is the train from Kano to Lagos?'

Choose some pairs to point to the answers in the train timetable.

Main activity

Whole class teaching

Ask 'How many hours are there in a day?'

Explain to the pupils that they are going to work out times that cross the 24-hour (day) boundary.

Teach How? Journey times, as shown left.

Write the following word problems on the chalkboard and discuss:

'How long is the journey from Lagos to Ilorin?'

'How long is the journey from Offa to Kano?'

'How long is the journey from Lagos to Kano?'

Ask the groups to calculate the answers using a number line and the train timetable.

Plenary

Whole class teaching

Choose one group to explain, on the chalkboard, how they solved the first word problem.

Ask the rest of the class to say if they are correct and if not, to explain why.

Lesson title

Week 20: Time problems

Day 5: Multiplication time problems

Flash cards/ Rhyme

Learning outcomes

By the end of the lesson, most pupils will be able to:

Say the numbers of days in each month.

Calculate multiplication time problems.

Preparation

Before the lesson:

Make a set of month flash cards for each group.

Write the Days in the months rhyme from Week 20, Day 1 (earlier this week) on the chalkboard.

Read How? Months, as shown below.

How? Months

Ask the groups to shuffle the month flash cards.

Ask them to arrange them in the correct order on their desks.

Ask the groups to choose the months that have 31 days.

Ask them to choose the months that have 30 days.

Ask them to hold up the first month of the year, the seventh month, and so on.

15 minutes	How	Rhyme	10 minutes	25 minutes	10 minutes	Rhyme

Daily practice

Whole class teaching

Ask each group to read the Days in the months rhyme with you.

Teach How? Months, as shown left.

Introduction

Whole class teaching

Write the following on the chalkboard and ask the pupils to help you fill in the missing numbers:

- ☐ seconds in a minute.
- ☐ minutes in an hour.
- ☐ hours in a day.
- ☐ days in a week.
- ☐ weeks in a year.
- ☐ months in a year.
- ☐ days in a year.

Ask the pupils how they could calculate the number of days in six weeks, ie: 6 x 7 = 42.

Main activity

Whole class teaching

Write this word problem on the chalkboard:
'A hen lays four eggs every week. How many eggs does she lay in a year?'

Ask a pupil to write the calculation needed:
52 x 4 =

Remind the class how to use the grid method:

x	50	2
4	200	8

200 + 8 = 208 eggs

Individual task

Write these word problems on the chalkboard, then read and explain them:

'How many hours are there in six days?'

'How many minutes are there in five hours?'

'Sani saves N20 every day. How much does he save in a week?'

'If Asabe reads six books every month, how many does she read in a year?'

Ask the pupils to complete the problems in their exercise books, using the grid method for the larger numbers.

Plenary

Whole class teaching

Ask the pupils to say the Days in the months rhyme.

Tell the pupils the correct time.

Ask some pupils to say what the time will be 30 minutes later and what time it was 10 minutes earlier.

Credits

Many different stakeholders have contributed to the development and production of these lesson plans.

Much of the work was done by the Kwara State School Improvement Team.

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