**Pearson Functional Skills Mathematics Entry Level 2**

**Scheme of Work overview**

**Subject content Level GLH**

**Using numbers and the number system – whole numbers,**

**fractions and decimals**

1. E2.1 Count reliably up to 100 items E2 1

2. E2.2 Read, write, order and compare numbers up to 200 E2 1

3. E2.3 Recognise and sequence odd and even numbers up to 100 E2 1

4. E2.4 Recognise and interpret the symbols +, −, ×, ÷ and = E2 1

appropriately

5. E2.5 Add and subtract two-digit numbers E2 3

6. E2.6 Multiply whole numbers in the range 0 × 0 to 12 × 12 E2 4

(times tables)

7. E2.7 Know the number of hours in a day and weeks in a year; E2 1

be able to name and sequence

8. E2.8 Divide two-digit whole numbers by single-digit whole E2 4

numbers and express remainders

9. E2.9 Approximate by rounding to the nearest 10, and use this E2 2

rounded answer to check results

10. E2.10 Recognise simple fractions (halves, quarters and tenths) E2 4

of whole numbers and shapes

11. E2.11 Read, write and use decimals to one decimal place E2 2

**Using common measures, shape and space**

12. E2.12 Calculate money with pence up to one pound and in E2 3

whole pounds of multiple items and write with the correct

symbols (£ or p)

13. E2.13 Read and record time in common date formats, and E2 2

read time displayed on analogue clocks in hours, half hours and

quarter hours, and understand hours from a 24-hour digital clock

14. E2.14 Use metric measures of length, including millimetres, E2 3

centimetres, metres and kilometres

15. E2.15 Use measures of weight, including grams and kilograms E2 3

**Subject content Level GLH**

16. E2.16 Use measures of capacity, including millilitres and litres E2 3

17. E2.17 Read and compare positive temperatures E2 2

18. E2.18 Read and use simple scales to the nearest labelled E2 2

division

19. E2.19 Recognise and name 2-D and 3-D shapes, including E2 1

pentagons, hexagons, cylinders, cuboids, pyramids and spheres

20. E2.20 Describe the properties of common 2-D and 3-D shapes, E2 2

including numbers of sides, corners, edges, faces, angles and base

21. E2.21 Use appropriate positional vocabulary to describe E2 1

position and direction, including between, inside, outside, middle,

below, on top, forwards and backwards

**Handling information and data**

22. E2.22 Extract information from lists, tables, diagrams and bar E2 3

charts

23. E2.23 Make numerical comparisons from bar charts E2 3

24. E2.24 Sort and classify objects using two criteria E2 1

25. E2.25 Take information from one format and represent the E2 3

information in another format, including use of bar charts

**Revision** E2 2

**Assessment**  E2 2

Specification references

**Using numbers and the number system – whole numbers, fractions and decimals**

**1** Count reliably up to 100 items

**2** Read, write, order and compare numbers up to 200

**3** Recognise and sequence odd and even numbers up to 100

Prior knowledge

* Use whole numbers to count up to 20 items, including zero
* Read, write, order and compare numbers up to 20

Keywords

digit, units, tens, hundreds, order, difference, compare, most, least, fewest, greatest, smallest, odd, even, sequence

Objectives

The learner should be able to:

* count reliably up to 100 items
* understand that if items are rearranged the number stays the same
* know how to count on and back from any number below 100
* count in twos and tens up to 100
* count on in tens up to 100, starting from any two-digit number
* recognise the numerals 0–200
* read numbers up to 200, including zero
* write numbers up to 200, including zero
* recognise numbers written in different fonts and styles
* order and compare numbers up to 200, including zero
* understand that the position of a digit signifies its value
* know what each digit in a two-digit number represents, including the use of a zero as a placeholder
* know what each digit in a three-digit number represents, including the use of a zero as a placeholder
* recognise odd and even numbers up to 100
* understand the relative position in a sequence of numbers, e.g. first, second, third.

Possible success criteria

* Count items, re-arrange them and count them again.
* Count on from 0 starting with a different number, up to 200.
* Match numbers in figures to numbers in words.
* Read numbers in everyday documents and contexts, e.g. signs, notices, adverts, posters.
* Fill in missing numbers in a sequence and on a number line (whole, odd and even numbers).
* Rearrange numbers in order.
* Complete number lines counting in twos and tens.

Opportunities for solving mathematical problems and decision making

Entry Level 2 learners are expected to be able to:

* use given mathematical information, including numbers, symbols, simple diagrams and charts
* recognise, understand and use simple mathematical terms appropriate to Entry Level 2
* use the methods given above to produce, check and present results that make sense
* present appropriate explanations using numbers, measures, simple diagrams, simple charts and symbols appropriate to Entry Level 2.

The context for simple problems at this level should be familiar to all learners and easily described.

Examples of opportunities

Learners are required to extract information given in relevant real-world contexts, e.g.

* Find the smallest number in a context list of numbers below 200.
* Find the greatest number in a context list of number below 200.
* Find an address by reading door numbers.
* Recognise when house numbers go up in odd or even numbers.
* Read speed limits on traffic signs.
* Use page numbers to locate information.

Learners are required to select and perform appropriate calculations in order to find the correct answer to a problem.

Learners will need to identify and extract key information to decide on the process to use.

Learners will need to use facts and terminology accurately.

E.g.

* Count the items in a delivery.

Learners are required to obtain and present results and check their own working using a given alternative method.

Learners are required to present results within the parameters specified in the question.

E.g.

* Order the number of each item in the delivery.

Learners are required to show working in order to gain marks. This working rationalises the answer they present.

Learners are expected to interpret their results and provide a decision.

E.g.

* Compare the number of two stated items in the delivery.

Common misconceptions

* Learners may lack understanding that the position of a numeral gives it a particular value.
* Learners may reverse the digits in a number, e.g. 02 for 20.
* Learners may misread ‘teen’ numbers, e.g. reading 19 as ‘one-ty nine’ rather than ‘nineteen’.
* Learners may find it difficult to count back and find a number that is ‘one less than’.
* Learners may not understand that numbers can be expressed in different ways, e.g. 16, sixteen, sixteenth.
* Learners may struggle with mathematical vocabulary.

Specification references

**Using numbers and the number system – whole numbers, fractions and decimals**

**4** Recognise and interpret the symbols +, − and = appropriately

**5** Add and subtract two-digit numbers

**9** Approximate by rounding to the nearest 10, and use this rounded answer to check results

Prior knowledge

* Add numbers which total up to 20, and subtract numbers from numbers up to 20
* Recognise and interpret the symbols +, − and = appropriately

Keywords

digit, units, tens, add, plus, sum of, total, equals, is equal to, is the same as, difference, take away, subtract, less than, approximate, rounding, rounded, place value

Objectives

The learner should be able to:

* recognise the numerals 0–99
* add and subtract single and two-digit whole numbers
* understand that there are different strategies to help with mental addition and subtraction
* understand that subtraction is the inverse of addition
* know how to align numbers for column addition and subtraction
* understand the operations of addition and subtraction and related vocabulary
* understand a whole number can only be subtracted from itself or from a larger one
* understand that subtracting zero leaves a number unchanged
* knows the symbols +, − and =
* understand that + represents the operation of addition
* understand that − represents the operation of subtraction
* understand that = represents equality and related vocabulary
* understand that numbers can be rounded to different degrees of accuracy, e.g. nearest 10
* understand place value for units and tens.

Possible success criteria

* Be aware of different words used for addition and subtraction.
* Use different strategies for mental addition and subtraction.
* Use different strategies for adding numbers, e.g. breaking down and recombining, looking for pairs which make 10, starting with the largest number and counting on in tens or ones, identifying near doubles.
* Match cards with subtraction facts to related addition calculations, e.g. 12 − 9 = 3, 3 + 9 = 12.
* Break numbers down and use the knowledge of pairs which total 10 to learn pairs with totals to 20, e.g. 13 + 7 = 10 + 3 + 7 =20.
* Apply strategies to solving problems with whole numbers.
* Round numbers to the nearest 10 to make approximate calculations.

Opportunities for solving mathematical problems and decision making

Entry Level 2 learners are expected to be able to:

* use given mathematical information, including numbers, symbols, simple diagrams and charts
* recognise, understand and use simple mathematical terms appropriate to Entry Level 2
* use the methods given above to produce, check and present results that make sense
* present appropriate explanations using numbers, measures, simple diagrams, simple charts and symbols appropriate to Entry Level 2.

The context for simple problems at this level should be familiar to all learners and easily described.

Examples of opportunities

Learners are required to extract information given in relevant real-world contexts, e.g.

* Obtain the total number of items (94 packs of cards) and the number to be added to or subtracted from the total (37 packs of cards are sold).

Learners are required to select and perform appropriate calculations in order to find the correct answer to a problem.

Learners will need to identify and extract key information to decide on the process to use.

Learners will need to use facts and terminology accurately.

E.g.

* Identify the correct process (94 − 37 = total number of packs remaining).

Learners are required to obtain and present results and check their own working using a given alternative method.

Learners are required to present results within the parameters specified in the question.

E.g.

* Find the answer to the addition/subtraction calculation and check it (94 − 37 = 57; Check – Round numbers to the nearest 10 to make approximate calculations: 90 − 40 = 50).

Learners are required to show working in order to gain marks. This working rationalises the answer they present.

Learners are expected to interpret their results and provide a decision.

E.g.

* Confirm the answer within the context of the question. (There are 40 packs of cards left.)

Common misconceptions

* Learners may not understand the place value of the digits in a calculation.
* Learners may begin adding with the left-hand column first.
* Learners may not realise they will have to add a ‘carried’ number.
* Learners may find it difficult to add when a zero is involved. They may not record a zero in the answer.
* Learners may be unaware that addition is associative, e.g. 5 + 1 = 6 and 1 + 5 = 6. If they understand this concept, they will find it much easier to recall the addition facts.
* Learners may believe that they have to add in the order in which the question was asked.
* Learners may be unsure of number order and therefore make mistakes. They may count their starting number, e.g. when finding the number pair 7 + ? = 11, they say ‘7, 8, 9, 10, 11’ and therefore believe the missing number to be 5.
* Learners who lack understanding of place value will continue to make mistakes with column subtraction. Such errors are often dismissed as careless mistakes, when in fact the learner has a weakness in their understanding.
* Learners who lack understanding of exchanging will think subtractions involving zeros cannot be done.
* Misconceptions may occur when inaccurate language is used, e.g. with the calculation 20 – 12, when talking about 20 − 10 learners may refer to this as 2 – 1.
* Learners may begin subtracting with the left-hand column first.
* With tens and units and other formal vertical subtraction calculations, learners may take the smaller unit number from the larger, regardless of whether it is part of the larger or smaller number, e.g. 15 − 7 = 12.
* Learners may not understand the commutative rule and so may believe it is possible to change any addition or subtraction question around, e.g. 8 + 5 = 13 so 8 − 13 = 5.
* Learners may not understand the concept of ‘finding a difference’. They can count on or back but are unsure which method to choose.
* Learners may not understand vocabulary relating to subtraction.

Sensible approximation of an answer by a learner will help them to resolve problems caused by misconceptions.

Specification references

**Using numbers and the number system – whole numbers, fractions and decimals**

**4** Recognise and interpret the symbols × and = appropriately

**6** Multiply whole numbers in the range 0 × 0 to 12 × 12 (times tables)

**9** Approximate by rounding to the nearest 10, and use this rounded answer to check results

Prior knowledge

* Add numbers which total up to 20, and subtract numbers from numbers up to 20
* Recognise and interpret the symbols +, − and = appropriately

Keywords

digit, units, tens, multiple, multiplied by, times, lots of, doubles, approximate, rounding, rounded, place value

Objectives

The learner should be able to:

* multiply using single and two-digit whole numbers
* understand and use the vocabulary of multiplication
* understand the operation of multiplication as repeated addition, e.g. 4 × 7 = 7 + 7 + 7 + 7
* understand there are different strategies for multiplying
* know times tables in the range 0 × 0 to 12 × 12
* understand multiplication is commutative (e.g. 2 × 3 = 3 × 2) although the functional meaning is different (e.g. taking 2 tablets three times a day is different to taking 3 tablets twice a day)
* understand the relationship between halving and doubling
* know doubles of numbers
* understand × represents the operation of multiplication
* understand = represents equality and related vocabulary
* understand numbers can be rounded to different degrees of accuracy, e.g. nearest 10
* understand place value for units and tens.

Possible success criteria

* Use multiplication vocabulary.
* Write repeated addition sums as multiplication and vice versa.
* Use different strategies for multiplying and mental multiplication.
* Extend sequences using different multiples in the range 0 × 0 to 12 × 12.
* Identify patterns for multiples and establish the ‘rules’.
* Match pairs of numbers which are halves/doubles.
* Round numbers to the nearest 10 to make approximate calculations.

Opportunities for solving mathematical problems and decision making

Entry Level 2 learners are expected to be able to:

* use given mathematical information, including numbers, symbols, simple diagrams and charts
* recognise, understand and use simple mathematical terms appropriate to Entry Level 2
* use the methods given above to produce, check and present results that make sense
* present appropriate explanations using numbers, measures, simple diagrams, simple charts and symbols appropriate to Entry Level 2.

The context for simple problems at this level should be familiar to all learners and easily described.

Examples of opportunities

Learners are required to extract information given in relevant real-world contexts, e.g.

* Find the number of items in two groups that require multiplying (number of boxes and number of bottles in each box).

Learners are required to select and perform appropriate calculations in order to find the correct answer to a problem.

Learners will need to identify and extract key information to decide on the process to use.

Learners will need to use facts and terminology accurately.

E.g.

* Calculate the total number of items in batches (4 boxes with 12 bottles in each box).

Learners are required to obtain and present results and check their own working using a given alternative method.

Learners are required to present results within the parameters specified in the question.

E.g.

* Find the correct total and check their working by reverse calculation.

(4 x 12 = 48 Check: 48 ÷ 12 = 4)

Learners are required to show working in order to gain marks. This working rationalises the answer they present.

Learners are expected to interpret their results and provide a decision.

E.g.

* Confirm if there is a sufficient number of required bottles.

Common misconceptions

* Learners may make place value errors in written multiplication calculations.
* Learners may see multiplication tables as a test of memory, not linked to times tables facts.
* Learners may not understand that ×10 and then ×10 again is the same as ×100.
* Learners may have limited understanding of multiplication facts and patterns.
* Learners may be confused because spoken numbers (e.g. sixty, seventy, eighty etc.) follow a regular pattern linked to the single-digit numbers. However, ten, twenty and thirty do not relate directly to their corresponding single-digit number.

Sensible approximation of an answer by a learner will help them to resolve problems caused by misconceptions.Specification references

**Using numbers and the number system – whole numbers, fractions and decimals**

**4** Recognise and interpret the symbols ÷ and = appropriately

**8** Divide two-digit whole numbers by single-digit whole numbers and express remainders

**9** Approximate by rounding to the nearest 10, and use this rounded answer to check results

Prior knowledge

* Add numbers which total up to 20, and subtract numbers from numbers up to 20
* Recognise and interpret the symbols +, − and = appropriately.

Keywords

digit, units, tens, division, divided by, share, group, approximate, rounding, rounded, place value

Objectives

The learner should be able to:

* understand division is repeated subtraction
* understand and use the vocabulary of division
* understand there are different strategies for division
* understand division is the inverse of multiplication
* understand that division is not commutative, e.g. 6 ÷ 3 is not the same as 3 ÷ 6
* know and use halving as the inverse of doubling
* understand the concept of a remainder, and understand that remainders need to be interpreted in a functional context
* understand ÷ represents the operation of division
* understand = represents equality and related vocabulary
* understand numbers can be rounded to different degrees of accuracy, e.g. nearest 10
* understand place value for units and tens.

Possible success criteria

* Use division vocabulary.
* Write repeated subtraction sums as division and vice versa.
* Use different strategies for division and mental division.
* Match pairs of numbers which are halves/doubles.
* Round numbers to the nearest 10 to make approximate calculations.
* Interpret remainders in a functional context correctly.

Opportunities for solving mathematical problems and decision making

Entry Level 2 learners are expected to be able to:

* use given mathematical information, including numbers, symbols, simple diagrams and charts
* recognise, understand and use simple mathematical terms appropriate to Entry Level 2
* use the methods given above to produce, check and present results that make sense
* present appropriate explanations using numbers, measures, simple diagrams, simple charts and symbols appropriate to Entry Level 2.

The context for simple problems at this level should be familiar to all learners and easily described.

Examples of opportunities

Learners are required to extract information given in relevant real-world contexts, e.g.

* Identify the total number (75 biscuits required) and the number by which the total needs to be divided (4 biscuits per pack).

Learners are required to select and perform appropriate calculations in order to find the correct answer to a problem.

Learners will need to identify and extract key information to decide on the process to use.

Learners will need to use facts and terminology accurately.

E.g.

* I75 ÷ 4 = number of packs required.

Learners are required to obtain and present results and check their own working using a given alternative method.

Learners are required to present results within the parameters specified in the question.

E.g.

* I75 ÷ 4 = 18.75 packs required; Check – 18.75 × 4 =75.

Learners are required to show working in order to gain marks. This working rationalises the answer they present.

Learners are expected to interpret their results and provide a decision.

E.g.

* Confirm the answer within the context of the question. (The number of packs required needs to be a whole number, so 19 packs are required.)

Common misconceptions

* Learners may lack understanding that division is grouping/sharing, i.e. they may lack knowledge of multiplication tables and not fully understand the concept of grouping or ‘chunking’.
* Learners may not understand the concept of ‘inverse’.
* Learners may misunderstand the concept of making a number 10 times smaller; instead, they may prefer to ‘knock off a zero’ and use the same method when a number ends in a different digit.
* Learners may not understand that ÷10 and then ÷10 again is the same as ÷100.
* Learners may confuse the words ‘halving’ and ‘doubling’ and lack understanding that the two operations are linked as they are often taught separately.
* When dealing with remainders, learners may have little understanding of how to represent a remainder as a fraction or a decimal.
* Learners may not understand what the remainder actually represents and ignore the context of the question – should it be rounded up or down?

Sensible approximation of an answer by a learner will help them to resolve problems caused by misconceptions.

Specification references

**Using numbers and the number system – whole numbers, fractions and decimals**

**7** Know the number of hours in a day and weeks in a year; be able to name and sequence

**Using common measures, shape and space**

**13** Read and record time in common date formats and read time displayed on analogue clocks in hours, half hours and quarter hours, and understand hours from a 24-hour digital clock

Prior knowledge

* Read 12-hour digital and analogue clocks in hours
* Know the number of days in a week, months and seasons in a year; be able to name and sequence

Keywords

year, month, week, day, hour, date, analogue clock, digital clock, calendar, timetable, o’clock, half past, quarter to, quarter past

Objectives

The learner should be able to:

* know the relationship between units of time, e.g., 24 hours = 1 day, 7 days = 1 week, 52 weeks = 1 year
* know the days of the week and their order
* know the months of the year and their order
* understand and use common date formats
* understand time in the 12-hour and 24-hour clock
* know that midnight is 00.00 or 0000 and 12.00 or 1200 is midday
* understand and use timetables.

Possible success criteria

* Use vocabulary, e.g. different times of day, weekday, weekend.
* Match the months in words to their abbreviations.
* Match dates written in different formats, e.g. 9/8/19, 09/08/19, 9th August 2019,

9 Aug 19.

* Read ‘sell by’ and ‘use by’ dates on food labels and medicine labels.
* Identify the uses of different time, e.g. seconds (on a microwave, results of sporting events), minutes, hours (journey times, work times).
* Match 12- and 24-hour clock times.
* Read the time on different analogue clocks using o’clock, half past, quarter to and quarter past.
* Read the time on different 24-hour digital clocks using o’clock, fifteen, thirty and forty-five.
* Match times in words to different clocks.
* Use a TV listing to find out the start and finish times of programmes on a given day.
* Use bus and train timetables to find different dates, departure and arrival times.
* Complete a time sheet/time planner.
* Use watches, clocks and calendars to read and record times of different activities.

Opportunities for solving mathematical problems and decision making

Entry Level 2 learners are expected to be able to:

* use given mathematical information, including numbers, symbols, simple diagrams and charts
* recognise, understand and use simple mathematical terms appropriate to Entry Level 2
* use the methods given above to produce, check and present results that make sense
* present appropriate explanations using numbers, measures, simple diagrams, simple charts and symbols appropriate to Entry Level 2.

The context for simple problems at this level should be familiar to all learners and easily described.

Examples of opportunities

Learners are required to extract information given in relevant real-world contexts, e.g.

* Find dates and times from given information, e.g. train timetables, holiday brochures, travel information, cooking times in recipes, party planning.

Learners are required to select and perform appropriate calculations in order to find the correct answer to a problem.

Learners will need to identify and extract key information to decide on the process to use.

Learners will need to use facts and terminology accurately.

E.g.

* Record start and finish times from given information.

Learners are required to obtain and present results and check their own working using a given alternative method.

Learners are required to present results within the parameters specified in the question.

E.g.

* Complete a time planner for an event using the times recorded.

Learners are required to show working in order to gain marks. This working rationalises the answer they present.

Learners are expected to interpret their results and provide a decision.

E.g.

* Answer questions related to the completed time planner, e.g. arrival time, length of journey time, time a dish needs to be put in oven, time food is served at a party.

Common misconceptions

* Learners may find it difficult to order days of the week, months and seasons.

Specification references

**Using numbers and the number system – whole numbers, fractions and decimals**

**10** Recognise simple fractions (halves, quarters and tenths) of whole numbers and shapes

Prior knowledge

* Use whole numbers to count up to 20 items including zero
* Read, write, order and compare numbers up to 20
* Add numbers which total up to 20, and subtract numbers from numbers up to 20
* Recognise and interpret the symbols +, − and = appropriately

Keywords

halves, quarters, tenths, whole numbers, shapes

Objectives

The learner should be able to:

* know the words half, quarter, tenth and the symbols ½, ¼, 1/10
* understand two halves make one whole
* understand four quarters make one whole
* understand that the bottom number (denominator) indicates the number of equal parts in the whole
* understand that a unit fraction is one part of a whole divided into equal parts
* understand that a non-unit fraction is several equal parts of a whole, indicated by the top number (numerator)
* understand the connection between half of and share (or divide) into two equal parts
* understand the connection between quarter of and share (or divide) into four equal parts
* understand the connection between tenth of and share (or divide) into ten equal parts.

Possible success criteria

* Match shaded fractions of shapes to fractions.
* Match fractions to words and symbols.
* Read fractions used in everyday material, e.g. newspapers, adverts, catalogues.
* Understand fractions used in sale signs and special offers.
* Estimate equal portions of food to share.
* Give examples of use of halves and quarters, e.g. sports (half time), measures (half pint, quarter of a pizza), time (half an hour, quarter of an hour), everyday (half-price sale).

Opportunities for solving mathematical problems and decision making

Entry Level 2 learners are expected to be able to:

* use given mathematical information, including numbers, symbols, simple diagrams and charts
* recognise, understand and use simple mathematical terms appropriate to Entry Level 2
* use the methods given above to produce, check and present results that make sense
* present appropriate explanations using numbers, measures, simple diagrams, simple charts and symbols appropriate to Entry Level 2.

The context for simple problems at this level should be familiar to all learners and easily described.

Examples of opportunities

Learners are required to extract information given in relevant real-world contexts, e.g.

* Obtain the total number of items (30 answers in total in a test) and the fraction required (half the questions must be correct to pass the test).

Learners are required to select and perform appropriate calculations in order to find the correct answer to a problem.

Learners will need to identify and extract key information to decide on the process to use.

Learners will need to use facts and terminology accurately.

E.g.

* 30 ÷ 2 = total number of correct answers required to pass the test.

Learners are required to obtain and present results and check their own working using a given alternative method.

Learners are required to present results within the parameters specified in the question.

E.g.

* 30 ÷ 2 = 15

Learners are required to show working in order to gain marks. This working rationalises the answer they present.

Learners are expected to interpret their results and provide a decision.

E.g.

* Confirm the answer within the context of the question. (Learner scored 17 marks;

17 is greater than 15, so the learner has passed the test.)

Common misconceptions

* Learners may consider a fraction as a part of a whole ‘one’ (e.g. a strip or a circle) and do not understand that it can be applied to a group of objects, a number or a measurement greater than 1.

Specification references

**Using numbers and the number system – whole numbers, fractions and decimals**

**11** Read, write and use decimals to one decimal place

Prior knowledge

* Use whole numbers to count up to 20 items including zero
* Read, write, order and compare numbers up to 20
* Add numbers which total up to 20, and subtract numbers from numbers up to 20
* Recognise and interpret the symbols +, − and = appropriately

Keywords

digit, units, tens, hundred, order, difference, compare, most, least, fewest, greatest, smallest, odd, even

Objectives

The learner should be able to:

* understand that the decimal point separates the whole and parts of a number
* understand the use of zero as a placeholder
* understand the use of a leading zero, e.g. 0.5 m = 50 cm
* use a calculator to solve problems in context and check calculations using whole numbers and decimals to 1dp.

Possible success criteria

* Use a metre rule to show how decimal parts of metres (1 dp) are written.
* Use a zero as a placeholder.
* Use a leading zero.
* Know how to key in and interpret the displayed digits on a calculator.
* Know and use strategies to check answers obtained with a calculator.

Opportunities for solving mathematical problems and decision making

Entry Level 2 learners are expected to be able to:

* use given mathematical information, including numbers, symbols, simple diagrams and charts
* recognise, understand and use simple mathematical terms appropriate to Entry Level 2
* use the methods given above to produce, check and present results that make sense
* present appropriate explanations using numbers, measures, simple diagrams, simple charts and symbols appropriate to Entry Level 2.

The context for simple problems at this level should be familiar to all learners and easily described.

Examples of opportunities

Learners are required to extract information given in relevant real-world contexts, e.g.

* Find the person who weighs the most given the weights of three persons

(65.4 kg, 52.5 kg, 65.9 kg).

Learners are required to select and perform appropriate calculations in order to find the correct answer to a problem.

Learners will need to identify and extract key information to decide on the process to use.

Learners will need to use facts and terminology accurately.

E.g.

* Select the numbers with the highest whole number (65.4 and 65.9).

Learners are required to obtain and present results and check their own working using a given alternative method.

Learners are required to present results within the parameters specified in the question.

E.g.

* Select the higher number after the decimal place (65.9).

Learners are required to show working in order to gain marks. This working rationalises the answer they present.

Learners are expected to interpret their results and provide a decision.

E.g.

* Confirm the answer within the context of the question. (State the name of the person who weighs 65.9 kg.)

Common misconceptions

* Learners may lack understanding of the place value of decimal fractions, i.e. they may not understand that digits after the decimal point represent parts of a whole.
* Learners may be unable to relate fractions to decimals.

Specification references

**Using common measures, shape and space**

**12** Calculate money with pence up to one pound and in whole pounds of multiple items

and write with the correct symbol (£ or p)

Prior knowledge

* Recognise coins and notes and write them in numbers with the correct symbols (£ & p), where these involve numbers up to 20

Keywords

pounds, pence, coin, note

Objectives

The learner should be able to:

* make amounts of money up to £1 in different ways using 1p, 2p, 5p, 10p, 20p, and 50p
* calculate the cost of more than one item and the change from a transaction, in pence or in whole pounds
* understand the same strategies used with numbers can be applied in practical situations using money
* know and use appropriately the symbols for money notation £ and p.

Possible success criteria

* Exchange coins for equivalent value using a number of smaller coins up to £1.
* Find the total of a selection of mixed coins.
* Pay for items by ‘adding on’ coins.
* Make up different amounts using a selection of coins.
* Count out the exact amount when paying for something, e.g. a chocolate bar.
* Pay the correct fare for a bus or train journey.
* Calculate the cost of two items and the change from a given amount.
* Use a range of mental strategies, e.g. addition, subtraction, multiplication.
* Be able to enter sums of money in a calculator.
* Round sums of money to the nearest 10p and make approximate calculations.
* Write the correct symbol (£ or p).

Opportunities for solving mathematical problems and decision making

Entry Level 2 learners are expected to be able to:

* use given mathematical information, including numbers, symbols, simple diagrams and charts
* recognise, understand and use simple mathematical terms appropriate to Entry Level 2
* use the methods given above to produce, check and present results that make sense
* present appropriate explanations using numbers, measures, simple diagrams, simple charts and symbols appropriate to Entry Level 2.

The context for simple problems at this level should be familiar to all learners and easily described.

Examples of opportunities

Learners are required to extract information given in relevant real-world contexts, e.g.

* Select items from a price list (items listed in pence up to £1).

Learners are required to select and perform appropriate calculations in order to find the correct answer to a problem.

Learners will need to identify and extract key information to decide on the process to use.

Learners will need to use facts and terminology accurately.

E.g.

* Find the total of two selected items from the price list.

Learners are required to obtain and present results and check their own working using a given alternative method.

Learners are required to present results within the parameters specified in the question.

E.g.

* State the total amount with the correct symbol.
* Use rounding (to the nearest 10p) to work out the approximate cost of the items selected.

Learners are required to show working in order to gain marks. This working rationalises the answer they present.

Learners are expected to interpret their results and provide a decision.

E.g.

* Confirm if the correct change has been given.

Common misconceptions

* Learners may not understand that the position of a numeral gives it a particular value.
* Learners may be confused by the use of different units of money, e.g. £ or p.

Specification references

**Using common measures, shape and space**

**14** Use metric measures of length, including millimetres, centimetres, metres and kilometres

**18** Read and use simple scales to the nearest labelled division

Prior knowledge

* Describe and make comparisons in words between measures of items including size, length, width, height, weight and capacity

Keywords

size, length, width, height, large, millimetres, centimetres, metres, kilometres

Objectives

The learner should be able to:

* understand and use vocabulary related to measures of length, width and height
* know millimetres, centimetres, metres and kilometres are metric units of length and be able to relate the measurements to familiar things
* recognise and write millimetres, centimetres, metres and kilometres in full and abbreviated, e.g. mm, cm, m, km
* understand mm, cm, m and km divisions on simple scales
* understand labelled divisions on different scales
* read scales to the nearest labelled division
* know how to use a ruler to draw and measure lines to the nearest cm.

Possible success criteria

* Give the appropriate unit for measuring various items, e.g. nail, book, furniture, door, driveway, distance to London.
* Know the equivalents of different units of measurements, e.g. 10 mm = 1 cm, 100 cm = 1 m, 1000 m = 1 km.
* Select and use different measuring instruments.
* Measure and record lengths of items to the nearest mm, cm or m.
* Order lengths of different sizes.
* Use a ruler marked in millimetres and labelled in centimetres to draw and measure lines of different lengths.

Opportunities for solving mathematical problems and decision making

Entry Level 2 learners are expected to be able to:

* use given mathematical information, including numbers, symbols, simple diagrams and charts
* recognise, understand and use simple mathematical terms appropriate to Entry Level 2
* use the methods given above to produce, check and present results that make sense
* present appropriate explanations using numbers, measures, simple diagrams, simple charts and symbols appropriate to Entry Level 2.

The context for simple problems at this level should be familiar to all learners and easily described.

Examples of opportunities

Learners are required to extract information given in relevant real-world contexts, e.g.

* A line needs to be painted halfway along a football pitch. The pitch is 100 m long.

Learners are required to select and perform appropriate calculations in order to find the correct answer to a problem.

Learners will need to identify and extract key information to decide on the process to use.

Learners will need to use facts and terminology accurately.

E.g.

* Divide the length by 2 (100 ÷ 2 = where the line needs to be painted).

Learners are required to obtain and present results and check their own working using a given alternative method.

Learners are required to present results within the parameters specified in the question.

E.g.

* Calculate the measurement (100 m ÷ 2 = 50 m).

Learners are required to show working in order to gain marks. This working rationalises the answer they present.

Learners are expected to interpret their results and provide a decision.

E.g.

* Confirm the answer within the context of the question. (The line needs to be painted at 50 m).

Common misconceptions

* Learners may lack understanding of the vocabulary for length, width and height.
* Learners may be confused by different units of measurement.

Specification references

**Using common measures, shape and space**

**15** Use measures of weight, including grams and kilograms

**16** Use measures of capacity, including millilitres and litres

**18** Read and use simple scales to the nearest labelled division

Prior knowledge

* Describe and make comparisons in words between measures of items, including size, length, width, height, weight and capacity

Keywords

weight, capacity, grams and kilograms, millilitres and litres

Objectives

The learner should be able to:

* understand and use vocabulary related to weight
* know that a kilogram is a metric unit of weight and relate the measurement to familiar quantities
* recognise and write grams and kilograms in full and abbreviated to g, kilo and kg
* understand g and kg divisions on a simple scale
* understand labelled divisions on different scales
* read scales to the nearest labelled division
* know how to use scales and measure grams and kilograms
* understand and use vocabulary related to capacity
* understand ml and l divisions on a simple scale
* understand labelled divisions on different scales
* read scales to the nearest labelled division
* know how to use a measuring jug and measure millilitres and litres.

Possible success criteria

* Read the weight on different packaging.
* Know the equivalents of different units of measurement, e.g. 100 g = 1 kg.
* Select and use different weighing instruments.
* Measure and record the weight of items to the nearest g or kg.
* Order weights of different sizes.
* Read the capacity on different containers of liquid.
* Know the equivalents of different units of measurement, e.g. 1000 ml = 1 l.
* Select and use different instruments for measuring liquids.
* Measure and record the capacity of liquids to the nearest ml or l.
* Order different sizes of liquid quantities.

Opportunities for solving mathematical problems and decision making

Entry Level 2 learners are expected to be able to:

* use given mathematical information, including numbers, symbols, simple diagrams and charts
* recognise, understand and use simple mathematical terms appropriate to Entry Level 2
* use the methods given above to produce, check and present results that make sense
* present appropriate explanations using numbers, measures, simple diagrams, simple charts and symbols appropriate to Entry Level 2.

The context for simple problems at this level should be familiar to all learners and easily described.

Examples of opportunities

Learners are required to extract information given in relevant real-world contexts, e.g.

* Identify the quantities of ingredients for a recipe and select the appropriate measuring instrument(s).
* Identify the capacity of three bottles of shampoo and compare with the 100 ml maximum capacity allowed on a flight (85 ml, 125 ml, 50 ml).

Learners are required to select and perform appropriate calculations in order to find the correct answer to a problem.

Learners will need to identify and extract key information to decide on the process to use.

Learners will need to use facts and terminology accurately.

E.g.

* Measure accurately dry and liquid ingredients for a recipe, using labelled divisions on a scale.
* Select the bottles with capacity less than 100 ml (50 ml, 85 ml).

Learners are required to obtain and present results and check their own working using a given alternative method.

Learners are required to present results within the parameters specified in the question.

E.g.

* Select the correct labelled divisions.
* Select the bottle with the capacity nearest to 100 ml.

Learners are required to show working in order to gain marks. This working rationalises the answer they present.

Learners are expected to interpret their results and provide a decision.

E.g.

* Confirm if the weight/capacity of one ingredient is heavier/lighter or more/less than that of another ingredient.
* State the biggest bottle allowed on a flight (85 ml).

Common misconceptions

* Learners may lack understanding of the vocabulary for weight and capacity.
* Learners may be confused by different units of measurement.

Specification references

**Using common measures, shape and space**

**17** Read and compare positive temperatures

**18** Read and use simple scales to the nearest labelled division

Prior knowledge

* Describe and make comparisons in words between measures of items including size, length, width, height, weight and capacity.

Keywords

thermometer, scales, Celsius

Objectives

The learner should be able to:

* understand and use vocabulary related to temperature in degrees Celsius
* know units of temperature
* recognise and write degrees Celsius and the abbreviation °C
* compare positive temperatures in different contexts
* understand labelled divisions on different scales
* read scales to the nearest labelled division
* know how to use a thermometer to measure to the nearest °C.

Possible success criteria

* Select and use different thermometers for different purposes, e.g. body temperature, weather, cooking.
* Read scales on different thermometers.
* Find and compare temperatures in different cities around the world.

Opportunities for solving mathematical problems and decision making

Entry Level 2 learners are expected to be able to:

* use given mathematical information, including numbers, symbols, simple diagrams and charts
* recognise, understand and use simple mathematical terms appropriate to Entry Level 2
* use the methods given above to produce, check and present results that make sense
* present appropriate explanations using numbers, measures, simple diagrams, simple charts and symbols appropriate to Entry Level 2.

The context for simple problems at this level should be familiar to all learners and easily described.

Examples of opportunities

Learners are required to extract information given in relevant real-world contexts, e.g.

* Use a newspaper or online website to find today’s temperatures in different, stated cities around the word.

Learners are required to select and perform appropriate calculations in order to find the correct answer to a problem.

Learners will need to identify and extract key information to decide on the process to use.

Learners will need to use facts and terminology accurately.

E.g.

* Find and record today’s temperatures in different cities around the word.

Learners are required to obtain and present results and check their own working using a given alternative method.

Learners are required to present results within the parameters specified in the question.

E.g.

* Produce an ordered list of the cities’ temperatures.

Learners are required to show working in order to gain marks. This working rationalises the answer they present.

Learners are expected to interpret their results and provide a decision.

E.g.

* Identify the city with the hottest temperature and the city with the coldest temperature.

Common misconceptions

* Learners may lack understanding of the vocabulary for temperature.

Specification references

**Using common measures, shape and space**

**19** Recognise and name 2-D and 3-D shapes, including pentagons, hexagons, cylinders, cuboids, pyramids and spheres

**20** Describe the properties of common 2-D and 3-D shapes, including numbers of sides, corners, edges, faces, angles and base

Prior knowledge

* Identify and recognise common 2-D and 3-D shapes, including circle, cube, rectangle (including square) and triangle

Keywords

2-D, 3-D, faces, pentagons, hexagons, cylinders, cuboids, pyramids, spheres, sides, corners, edges, faces, angles, base, equal

Objectives

The learner should be able to:

* understand the use of vocabulary related to shape, e.g. side length, angle
* recognise common 2-D shapes, e.g. pentagons, hexagons, cylinders, cuboids, pyramids and spheres
* know the names of common 2-D shapes, e.g. pentagons, hexagons
* know the names of common 3-D shapes, e.g. cylinders, cuboids, pyramids, spheres
* understand that shape is independent of size and orientation
* know the properties of common 2-D shapes, such as number of sides and corners
* know the properties of common 3-D shapes, such as shape of faces, number of faces, edges and corners
* identify angles in 2-D shapes, e.g. how many angles, which shape has the greatest number of angles
* know angles are measured in degrees

Possible success criteria

* Complete a table of common 2-D shapes, giving the number of sides and the number of corners.
* Complete a table of common 3-D shapes, giving the number of faces, edges and corners.
* Describe the faces of common 3-D shapes.
* Identify angles on everyday items, e.g. table, door.
* Sort 2-D shapes according to the number of sides, number of angles, number of equal sides and number of equal angles.

Opportunities for solving mathematical problems and decision making

Entry Level 2 learners are expected to be able to:

* use given mathematical information, including numbers, symbols, simple diagrams and charts
* recognise, understand and use simple mathematical terms appropriate to Entry Level 2
* use the methods given above to produce, check and present results that make sense
* present appropriate explanations using numbers, measures, simple diagrams, simple charts and symbols appropriate to Entry Level 2.

The context for simple problems at this level should be familiar to all learners and easily described.

Examples of opportunities

Learners are required to extract information given in relevant real-world contexts, e.g.

* Obtain information regarding a 2-D shape. (Draw a patio on a garden plan. The patio must be bigger than the shed on the plan and it must be rectangular.)

Learners are required to select and perform appropriate calculations in order to find the correct answer to a problem.

Learners will need to identify and extract key information to decide on the process to use.

Learners will need to use facts and terminology accurately.

E.g.

* Work out the size and shape the patio needs to be.

Learners are required to obtain and present results and check their own working using a given alternative method.

Learners are required to present results within the parameters specified in the question.

E.g.

* Draw the required shape and size on the garden plan (a rectangle which is bigger than the shed shown).

Learners are required to show working in order to gain marks. This working rationalises the answer they present.

Learners are expected to interpret their results and provide a decision.

E.g.

* Draw the rectangle and label it neatly.

Common misconceptions

* Learners may be confused by the change of vocabulary between 2-D and 3-D, e.g. when sides become faces.

Specification references

**Using common measures, shape and space**

**21** Use appropriate positional vocabulary to describe position and direction, including between, inside, outside, middle, below, on top, forwards and backwards

Prior knowledge

* Use everyday positional vocabulary to describe position and direction, including left, right, in front, behind, under and above

Keywords

left, right, in front, behind, under, above, between, inside, outside, near to, middle, below, on top, forwards and backwards

Objectives

The learner should be able to:

* understand everyday positional vocabulary to describe position and direction.

Possible success criteria

* Describe position using positional vocabulary.
* Provide directions using positional vocabulary.
* Follow spoken instructions or directions using positional vocabulary.
* Follow written instructions or directions using positional vocabulary.

Opportunities for solving mathematical problems and decision making

Entry Level 2 learners are expected to be able to:

* use given mathematical information, including numbers, symbols, simple diagrams and charts
* recognise, understand and use simple mathematical terms appropriate to Entry Level 2
* use the methods given above to produce, check and present results that make sense
* present appropriate explanations using numbers, measures, simple diagrams, simple charts and symbols appropriate to Entry Level 2.

The context for simple problems at this level should be familiar to all learners and easily described.

Examples of opportunities

Learners are required to extract information given in relevant real-world contexts, e.g.

* Obtain directions to the shop using positional vocabulary.
* Obtain instructions about where to find equipment in a cupboard using positional vocabulary.

Learners are required to select and perform appropriate calculations in order to find the correct answer to a problem.

Learners will need to identify and extract key information to decide on the process to use.

Learners will need to use facts and terminology accurately.

E.g.

* Follow directions to the shop using positional vocabulary.
* Follows instruction to find an item of equipment in a cupboard using positional vocabulary.

Learners are required to obtain and present results and check their own working using a given alternative method.

Learners are required to present results within the parameters specified in the question.

E.g.

* Mark the route to the shop on a simple diagram.
* Identify the position of the item on a simple diagram of the cupboard.

Learners are required to show working in order to gain marks. This working rationalises the answer they present.

Learners are expected to interpret their results and provide a decision.

E.g.

* Make a decision regarding the position of the shop.
* Make a decision regarding the position of the item of equipment in the cupboard.

Common misconceptions

* Learners may lack understanding of positional vocabulary.
* Learners may confuse left and right.

Specification references

**Handling information and data**

**22** Extract information from lists, tables, diagrams and bar charts

**23** Make numerical comparisons from bar charts

Prior knowledge

* Read numerical information from lists
* Read and draw simple charts and diagrams including a tally chart and bar chart

Keywords

lists, tables, diagrams, bar charts, title, label, key, scale, row, column, list, numerical, alphabetical

Objectives

The learner should be able to:

* obtain information from lists
* understand that lists can be ordered in different ways (e.g. alphabetically, numerically) and not all lists are ordered in a logical way
* understand a list can contain words, numbers or both
* understand that tables are arranged in rows and columns
* understand that a title, label and key provide information
* use a scale to extract numerical values
* understand that the height of a bar in a bar chart indicates the numerical value in that category and therefore values are compared based on the height of the bars.

Possible success criteria

* Obtain a variety of information from a range of simple lists, e.g. contact details, quantities, fixtures.
* Obtain information from tables in price lists, catalogues, brochures and websites.
* Obtain information from simple diagrams, e.g. floor plans, dimensions.
* Obtain information from straightforward charts in newspapers, magazines etc.
* Use key elements in a diagram and bar chart to obtain information.
* Obtain numerical information from given charts.
* Make numerical comparisons, using scales on bar charts.

Opportunities for solving mathematical problems and decision making

Entry Level 2 learners are expected to be able to:

* use given mathematical information, including numbers, symbols, simple diagrams and charts
* recognise, understand and use simple mathematical terms appropriate to Entry Level 2
* use the methods given above to produce, check and present results that make sense
* present appropriate explanations using numbers, measures, simple diagrams, simple charts and symbols appropriate to Entry Level 2.

The context for simple problems at this level should be familiar to all learners and easily described.

Examples of opportunities

Learners are required to extract information given in relevant real-world contexts, e.g.

* Extract numerical information from given simple charts (preferred meeting time, favourite type of holiday, average daily hours of sunshine, rainfall, temperature).
* Extract numerical information from simple bar charts (the day on which the most ice creams were sold, how many people travel to work by bus).

Learners are required to select and perform appropriate calculations in order to find the correct answer to a problem.

Learners will need to identify and extract key information to decide on the process to use.

Learners will need to use facts and terminology accurately.

E.g.

* Make a numerical comparison based on the information in the chart.
* Make a numerical comparison based on the information in the bar chart.

Learners are required to obtain and present results and check their own working using a given alternative method.

Learners are required to present results within the parameters specified in the question. E.g.

* Identify facts from the chart or diagram.

Learners are required to show working in order to gain marks. This working rationalises the answer they present.

Learners are expected to interpret their results and provide a decision.

E.g.

* Make a decision relating to the results of a chart (identify preferred day for meetings, identify the most popular type of holiday).
* Make a decision relating to a simple bar chart (identify the day on which the most ice creams were sold, identify how many people travel to work by bus).

Common misconceptions

* Learners may lack understanding of the vocabulary used for handling information and data.
* Learners may find it confusing when lists are not ordered logically.
* Learners may find it difficult to interpret a scale to extract and interpret information.
* Learners may find it difficult to choose a scale to use for a bar chart.

Specification references

**Handling information and data**

**24** Sort and classify objects using two criteria

**25** Take information from one format and represent the information in another format, including use of bar charts

Prior knowledge

* Sort and classify objects using a single criterion
* Read and draw simple charts and diagrams, including tally charts, bar charts

Keywords

criteria, data, sort, group, title, axis, scale, key, tally chart, frequency table, timetable, room plan

Objectives

The learner should be able to:

* understand the concept of a criterion, e.g. a feature such as colour, shape, gender, height
* know how to present data in tables, charts and diagrams
* know how to use a simple scale to represent data, e.g. 1 cm = 1 m
* understand the different elements in tables, charts and diagrams, e.g. title, axis, scale, key
* label tables, charts and diagrams.

Possible success criteria

* Know the different criteria used to classify different objects.
* Choose categories for collection of different types of data.
* Sort objects using two criteria.
* Classify a range of objects based on a given criterion.
* Represent results of a survey.
* Translate data in a tally chart into a frequency table.
* Produce a timetable or plan.
* Produce a simple room plan showing the location of main features.
* Display collected data relevant to work, training or leisure interests in a suitable format.

Opportunities for solving mathematical problems and decision making

Entry Level 2 learners are expected to be able to:

* use given mathematical information, including numbers, symbols, simple diagrams and charts
* recognise, understand and use simple mathematical terms appropriate to Entry Level 2
* use the methods given above to produce, check and present results that make sense
* present appropriate explanations using numbers, measures, simple diagrams, simple charts and symbols appropriate to Entry Level 2.

The context for simple problems at this level should be familiar to all learners and easily described.

Examples of opportunities

Learners are required to extract information given in relevant real-world contexts, e.g.

* Sort clothes for a jumble sale by two criteria, e.g. by size and type.
* Obtain information from a tally chart or table, e.g. number of cakes sold in a bakery each day.

Learners are required to select and perform appropriate calculations in order to find the correct answer to a problem.

Learners will need to identify and extract key information to decide on the process to use.

Learners will need to use facts and terminology accurately.

E.g.

* Record the number of items of clothing of each type and size for the jumble sale.
* Choose how to present the data relating to the number of cakes sold (chart, diagram).

Learners are required to obtain and present results and check their own working using a given alternative method.

Learners are required to present results within the parameters specified in the question.

E.g.

* Draw a bar chart to show the number of items of clothing of each type and size.
* Draw a bar chart to show the number of cakes sold in the bakery each day.

Learners are required to show working in order to gain marks. This working rationalises the answer they present.

Learners are expected to interpret their results and provide a decision.

E.g.

* What type and size of clothing is least in number?
* On what day were the most cakes sold?

Common misconceptions

* Learners may lack understanding of the vocabulary relating to sorting and classifying.