

KEY SKILLS

Application of number Level 3

The key skills are the skills which are most commonly needed to succeed in a range of activities – at work, in education and training and in everyday life. In developing the key skill of application of number, you will learn to use and adapt your number skills confidently and effectively in a range of settings and contexts.

Progression

The key skills qualifications are designed to enable you to progress at your own pace. Each level of the key skill incorporates and builds on the previous ones. The key skills qualifications not only recognise your current capabilities, they also require you to identify how you can further improve your skills to meet new demands at higher levels.

Part A

YOU NEED TO KNOW HOW TO

This section tells you about the techniques and knowledge associated with each key skill. It tells you what you need to learn and practise to feel confident about applying number skills in your studies, work or other aspects of your life.

Part B

YOU MUST

This section builds on Part A and describes the application of skills. It describes the skills you must show. All your work for this section will be assessed. You must have evidence that you can do all the things listed in the bullet points.

To achieve application of number at level 3, you must be able to apply your number skills to suit different purposes. You will show that you can:

- plan an activity and obtain information from a relevant source
- use this information to carry out multi-stage calculations
- interpret the results of your calculations, present your findings and justify your methods.

Part A

YOU NEED TO KNOW HOW TO:

Plan an activity and interpret information

- plan an activity by breaking it down into a series of tasks
- get relevant information from different sources, including at least one data set of a size appropriate to a planned activity and use this to meet the purpose of the activity
- group data into classes of width appropriate to the data
- use estimation to help you plan, multiplying and dividing numbers of any size rounded to one significant figure
- make accurate and reliable observations over time and use suitable equipment to measure in a variety of appropriate units
- read and understand tables, charts, graphs and diagrams
- read and understand ways of writing very large and very small numbers (eg £1.5 billion, 2.4×10^{-3})
- understand and use compound measures (eg speed in kilometres per hour (kph), pressures in pounds per square inch (psi), concentrations in parts per million (ppm))
- choose appropriate methods to get the results you need and justify your choice.

Carry out calculations

- show your methods clearly and work to appropriate levels of accuracy
- carry out multi-stage calculations with numbers of any size (eg find the results of growth at 8% over three years, find the volume of water in a swimming pool)
- use powers and roots (eg work out interest on £5,000 at 5% over three years)
- work out missing angles and sides in right-angled triangles from known sides and angles
- work out proportional change (eg add VAT at 17.5% by multiplying by 1.175)
- work out actual measurements from scale drawings (eg room or site plan, map, workshop drawing) and scale quantities up and down
- compare distributions, using measures of average and range, and estimate mean, median and range of grouped data
- rearrange and use formulae, equations and expressions (eg formulae in spreadsheets, finance, and area and volume calculations)
- use checking procedures to identify errors in methods and results.

Interpret results and present your findings

- select and use appropriate methods to illustrate findings, show trends and make comparisons
- examine critically, and justify, your choice of methods
- construct and label tables, charts, graphs and diagrams using accepted conventions
- draw appropriate conclusions based on your findings, including how possible sources of error might have affected your results
- describe what your results tell you and whether they meet the purpose of your activity.

Application of number: level 3

Part B

YOU MUST:

Plan and carry out one or more activities that each includes tasks for all three of N3.1, N3.2 (a or b or c or d) and N3.3.

Overall, through one or more activities you must:

- use two different types of sources, including a large data set ie over 50 items of data (N3.1)
- carry out calculations to do with a, b, c and d (N3.2)
- present findings in two different ways using charts, graphs or diagrams (N3.3).

N3.1

Plan an activity and get relevant information from relevant sources.

Evidence must show you can:

- 3.1.1** plan how to get and use the information needed to meet the purpose of your activity
- 3.1.2** obtain the relevant information
- 3.1.3** choose appropriate methods to get the results you need and justify your choice.

N3.2

Use this information to carry out multi-stage calculations to do with:

- a amounts or sizes
- b scales or proportion
- c handling statistics
- d using formulae.

- 3.2.1** carry out calculations to appropriate levels of accuracy, clearly showing your methods
- 3.2.2** check methods and results to help ensure that errors are found and corrected.

N3.3

Interpret the results of your calculations, present your findings and justify your methods.

- 3.3.1** select appropriate methods of presentation and justify your choice
- 3.3.2** present your findings effectively
- 3.3.3** describe what your results tell you and whether they meet your purpose.

Application of number: level 3

EXAMPLES AND GUIDANCE

The following gives further guidance and examples of the techniques and knowledge in Part A.

PLAN AN ACTIVITY AND INTERPRET INFORMATION:

- obtain relevant information from different sources, group data, use estimation to help you plan
- make accurate observations, use suitable measuring equipment
- choose appropriate methods to get the results and justify your choice.

CARRY OUT CALCULATIONS:

- show methods clearly, carry out multi-stage calculations for instance to find the results of growth at a particular rate over a number of years, find the volume of water in a swimming pool
- use powers and roots to work out interest on a sum of money at a particular rate over a number of years
- rearrange and use formulae, equations, expressions.

INTERPRET RESULTS AND PRESENT FINDINGS:

- select methods to illustrate findings, justify your methods, construct and label tables, charts, diagrams
- draw conclusions, describe what your results tell you.

For further examples and guidance on the key skills standards please refer to *The key skills qualifications standards and guidance* (order ref: QCA/04/1272).

Help with producing evidence

If producing certain types of evidence is difficult for you because of a disability or for another reason, please discuss this with your tutor or supervisor. It may be possible for you to produce evidence using alternative methods. Depending on the skill and level these may include use of a scribe (amanuensis); Braille, voice activated software and British Sign Language. Detailed guidance is available in the document *Basic and Key Skills: Guidance for candidates with Particular Requirements* published by the Joint Council for Qualifications. This is available from your key skills awarding body. Please ask your tutor or supervisor for further guidance.

This standard is for use in programmes starting from September 2004.

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