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| **Minor Award Name** | **Quantitative Problem Solving** |
| **Minor Award Code** | M2N09 |
| **Level** | 2 |

**Some suggested resources to support delivery:**

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| **Theme/Topic** | **Type** | **Relevance** | **Author/Source** | **Web Link** |
| Quantitative elements in a range of everyday circumstance   * Money | e-book | Money Math Workbook  While much of this book is more suitable to level 3 or level 4, and it is in American notation, there are nice ideas that can be adapted for level 2 also. In particular:   * Saving (how much you would save over time using different amounts per week and month) * How would you spend a certain amount of money if you won it? * Cost of eating out or going away for a night * Cost of paying for items in instalments * Fuel consumption | NWT Literacy Council, Canada | <http://www.nald.ca/library/learning/nwt/mathskills/moneymath/moneymath.pdf> |
| Quantitative elements in a range of everyday circumstance   * Money | Website/Games | Teaching Money  A nice selection of interactive games working with coins in the euro denomination.   * Converting between Euros and Cents * Counting coins * Different ways to make up amounts to pay for items * Calculating change * Purchase fast-food items and watch the receipt filling up * What can you buy with the money you have? * What coin is missing to make the total? * Exchange a coin for smaller coins * Matching the coins with the value   There is also a worksheet generator on this webpage. You can generate flashcards and worksheets around adding money. | Primary Games Limited | <http://www.teachingmoney.co.uk/eurosite/euroindex.html> |
| Quantitative elements in a range of everyday circumstances   * Money | Worksheets | Worksheets relating to coins.   * Coin recognition * Coin ordering * Coin equivalence * Counting coins * Correct Change * Shopping * Bank Lodgement | Special Education Support Services,  Department of Education and Skills | <http://www.sess.ie/resources/curricular/special-education-support-services-resources-maths> |
| Quantitative elements in a range of everyday circumstances   * Time * Money | e-book | Time 4 Learning  Nice exercises on reading time and also using money.   * The cost of eating out * Cost of going to the cinema * Reading timetables * Reading and writing time * Comparing prices * Shopping list | NALA | <https://www.nala.ie/resources/time-4-learning-numeracy-workbook> |
| Quantitative elements in a range of everyday circumstances   * Kitchen | e-book | Kitchen Math Workbook  This workbook is written in $ so worksheets will need to be adapted   * Food budget (addition and subtraction) * The shopping list (multiplication, division, addition) * Estimating your groceries (multiplication, division, addition) * Using coupons (subtraction, multiplication) * Food planning for an event * How much for one? * Which is the better deal * Bulk buying * Adding calories | NWT Literacy Council, Canada | <http://www.nwtliteracy.ca/resources/adultlit/everyday_math/kitchen_math_wrkbk.pdf> |
| Quantitative elements in a range of everyday circumstances   * Home Math | e-book | Home Math Workbook   * Home decorating * Time * Water Conservation * Cost of Shopping Bags * Understanding your Bills | NWT Literacy Council, Canada | <http://www.nwtliteracy.ca/resources/adultlit/everyday_math/home_math_wrkbk.pdf> |
| Quantitative elements in a range of everyday circumstances   * Online Resources | Resource List | Functional Skill Level 1  A very comprehensive list of online resources with hyperlinks directly to each resource. Contains resources around the following topics:   * Whole numbers * Place Value * Negative numbers * Adding, subtracting, multiplying and dividing whole numbers * Fractions, decimals, percentages * Ratio problem solving * Formulae * Money, time, length, weight, capacity, temperature * Order of operations * Graphs and charts * Units of measure * Area and perimeters * Shapes and angles | ORC, Skills and Employability | <http://www.ocr.org.uk/Images/77321-level-1-functional-skills-mathematics-underpinning-skills-support-material-for-learners.pdf> |
| Quantitative elements in a range of everyday circumstances   * Problem Solving Tasks | e-book | Funtional Maths Problem Solving Tasks Level 1  A wide variety of everyday based problem solving tasks. Based in pounds sterling so may need to update to euro:   * Correct the exam – students correct the wrong solutions * Compliment Slips – reading tables and calculating totals * Longleat – cost of entry * Hair appointments – time * Calendars – multiplication and addition * Buying a camera – reading tables * Trip to Amsterdam – reading timetable, working out time, calculating cost * Driving Lesson – working out the cost * Tokoyo – reading table (temperatures) * Summer Holidays – working out staff holidays given a calendar * Shortbread – how much of each ingredient & cost * Travel to Work – bus timetable and ticket price * Sunday – ferry timetable * Garden Fence – length and cost * Coffee Break – estimating weights and volume, calculating cost * Cushion – length and area * Saving Energy – electricity costs * Artificial Grass – length, area, cost | ORC, Skills and Employability | <http://www.ocr.org.uk/Images/73734-smp-problem-solving-tasks-for-functional-skills-maths.pdf> |
| Quantitative elements in a range of everyday circumstances   * Weights and Costing | Worksheet/Activity | Christmas Recipe Activities  A problem solving activity based around Christmas Recipes involving working with weights and money | SkillsWorkshop | <http://www.skillsworkshop.org/resources/christmas-recipe-activities> |
| Quantitative elements in a range of everyday circumstances   * Subtraction | Worksheet/Activity | What Year Did You?  A group problem solving activity based around years and using subtraction | SkillsWorkshop | <http://www.skillsworkshop.org/resources/what-year-did-you-esol-and-numeracy> |
| Quantitative elements in a range of everyday circumstances   * Estimating and Calculating | Worksheet/Activity | Market Stall  A problem solving activity based around Estimating and Calculating Actual Profit | SkillsWorkshop | <http://www.skillsworkshop.org/resources/market-stall> |
| Quantitative elements in a range of everyday circumstances   * Division | Worksheet/Activity | Interpreting Remainders  A problem solving activity based on everyday problems requiring division | SkillsWorkshop | <http://www.skillsworkshop.org/resources/division-interpreting-remainders> |
| Quantitative elements in a range of everyday circumstances   * Division | Presentation | Division of Whole Numbers  A fully animated Powerpoint presentation that can be used as part of a lesson or for independent study. A series of steps of increasing complexity start by illustrating the basic process of a simple division of whole numbers to end with the interpretation of remainders in everyday situations. | SkillsWorkshop | <http://www.skillsworkshop.org/resources/division-whole-numbers> |
| Quantitative elements in a range of everyday circumstances   * DIY | Worksheet/Activity | The Room  An activity based around home improvements and scale drawings | Skills Workshop | <http://www.skillsworkshop.org/resources/room-functional-maths-challenge> |
| Quantitative elements in a range of everyday circumstances   * Recipies | Worksheet/Activity or | Getting the Quantities Right  An activity based around changing recipe quantities | SkillsWorkshop | <http://www.skillsworkshop.org/resources/getting-quantities-right> |
| Quantitative elements in a range of everyday circumstances   * Costing | Worksheet/Activity | Costing-up a Nursery  Activity based around costing a baby’s nursery. Uses skills such as researching, estimating, calculating, scale drawings. | SkillsWorkshop | <http://www.skillsworkshop.org/resources/costing-nursery> |
| Quantitative elements in a range of everyday circumstances   * Planting | Worksheet/Activity | Plant Prices  An activity based around multiplying and dividing by 10 and 100 | SkillsWorkshop | <http://www.skillsworkshop.org/resources/plant-prices-batches-10-or-100> |
| Quantitative elements in a range of everyday circumstances   * Multiplication and Division | Worksheet/Activity | Charity Shop Maths  An activity based around multiplication and division | SkillsWorkshop | <http://www.skillsworkshop.org/resources/charity-shop-maths> |
| Quantitative elements in a range of everyday circumstances   * Costing | Worksheet/Activity | Easter Eggs - Value for Money?  An activity based around rounding, costing calculating value for money | SkillsWorkshop | <http://www.skillsworkshop.org/resources/easter-eggs-value-money> |
| Quantitative elements in a range of everyday circumstances   * Waitress & Motorist | Worksheet/Activity | Themed Multiplication Problems  Real life problems using multiplication based around a waitress and a motorist | SkillsWorkshop | <http://www.skillsworkshop.org/resources/themed-multiplication-problems> |
| Quantitative elements in a range of everyday circumstances   * Budgeting | Worksheet/Activity | Lottery Win  How to spend 100,000. Addition of large numbers. | SkillsWorkshop | <http://www.skillsworkshop.org/resources/lottery-win> |
| Quantitative elements in a range of everyday circumstances   * Christmas | Worksheet/Activity/Assessment | Christmas Whole Number  A Christmas themed assessment based on all arithmetic operations | SkillsWorkshop | <http://www.skillsworkshop.org/resources/christmas-whole-number-numeracy-assessment> |
| Quantitative elements in a range of everyday circumstances   * Recipes | Worksheet/Activity | Egg Fried Rice for Two  Doubling and halving recipes | SkillsWorkshop | <http://www.skillsworkshop.org/resources/egg-fried-rice-two> |
| Quantitative elements in a range of everyday circumstances   * Healthy Eating | Worksheet/Activity | Burger King  Statistics investigation that involves extracting information from tables; reading, comparing and calculating with measures; and much discussion about healthy (unhealthy?) eating! | SkillsWorkshop | <http://www.skillsworkshop.org/resources/burger-king> |
| Quantitative elements in a range of everyday circumstances   * Football | Worksheet/Activity | Premier League Numeracy  An activity based on the premier league that covers a range of number elements inc. fractions, tables, percentages and formulae. A small research question is also included that requires learner to find the latest league table. | SkillsWorkshop | <http://www.skillsworkshop.org/resources/premier-league-numeracy> |
| Quantitative elements in a range of everyday circumstances   * Planning a Journey | Worksheet/Activity | Planning a Journey  Use web sites to find travel / car hire information and accommodation and then work out the cost of your weekend away. | SkillsWorkshop | <http://www.skillsworkshop.org/resources/planning-journey> |
| Quantitative elements in a range of everyday circumstances   * Bank Balance | Game/Activity | Bank Balance Game  A great way to work with money and larger numbers (with the option of covering negative numbers). Can be differentiated for learners by altering the starting balance. Includes game cards (balance, income and expenditure cards), a balance sheet and full instructions. | SkillsWorkshop | <http://www.skillsworkshop.org/resources/bank-balance-game> |
| Problem Solving Techniques & Practice | e-booklet | Problem Solving - Cookie Dough  Instructional support on interpreting and linking representations, modeling situations, solving non-routine problems and justifying arguments of multiplication and division.  This document gives the tutor guidance on how to support a learner through the problem solving process for multiplication and division. It also includes a table of words that match the mathematical operation symbols, a problem solving checklist for the learner, and a problem solving plan. | NYC, Department of Education | <http://www.achieve.org/files/NYCDOEG3MathCookieDough_Final.SW_.pdf> |
| Problem Solving Techniques | Website/Resources | A comprehensive collection of problem solving techniques - the full toolkit:   * Trial and Improvement * Working Systematically * Pattern Spotting * Working Backwards * Logical Reasoning * Visualising * Conjecturing, generalising and proving | nrich | <http://nrich.maths.org/11082> |
| Problem Solving Techniques | Website | Interactive games that encourage the learner to model problem as part of the problem solving process.  There are modelling games for Addition/Subtraction, Multiplication/Division, Fractions, and Ratios. There is a modelling tool and practice on problem solving with the four operations. | mathplayground | [www.mathplayground.com](http://www.mathplayground.com) |
| Problem Solving Techniques | App | Apps to download the games above that are available on mathplayground.com | Thinking Blocks | Visit the App Store |
| Mathematical Terms and Symbols | Activity | Choosing the Correct Operation to Perform – Part 2  An activity to encourage the students to think about which operation they would use in solving the problem. Problems are presented with the numbers removed so that the student focuses on the operation only. | Maths4Life | <http://eilp.abingdon-witney.ac.uk/mod/folder/view.php?id=17516> |
| Mathematical Terms and Symbols | Activity/Learning Aid | Foldable:  A visual created by the learners themselves to help with word problems. Learners gather a list of words to match each operation and can add to their resource at any time. Remember to also match the colour on the inside with the colour on the outside for each operation to help even further with learning. |  | <https://tothesquareinch.wordpress.com/2012/01/10/operation-key-words-foldable/> |
| Mathematical Terms and Symbols | Activity/Worksheet | Arithmetic Revision - A set of 10 questions. The learner chooses which operation they need to use. | SkillsWorkshop | <http://www.skillsworkshop.org/resources/arithmetic-revision-entry-level-3> |
| Mathematical Terms and Symbols | Activity/Worksheet | The Four Operations - a set of worksheets asking the learners to match vocabulary to the operation, and to fill in the blank with the correct operation | SkillsWorkshop | <http://www.skillsworkshop.org/resources/four-operations-mathematical-vocabulary> |
| Mathematical Terms and Symbols | Activity | Wordle Activities - word and number cloud activities | SkillsWorkshop | <http://www.skillsworkshop.org/sites/skillsworkshop.org/files/resources/gennum/e1e2e3wordlenumeracy.pdf> |
| Mathematical Terms and Symbols | Activity/Learning Aid | Place Value Slider - Watch digits move left/right when multiply/divide by 10 | SkillsWorkshop | <http://www.skillsworkshop.org/resources/place-value-slider> |

**Useful Organisations:**

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| **Name** | **Contact Information** |
| National Adult Literacy Agency | www.nala.ie |
| Skills Workshop | [www.skillsworkshop.org](http://www.skillsworkshop.org) |
| BBC Skillwise | <http://www.bbc.co.uk/skillswise/maths> |
| Nrich | www.nrich.maths.org |
| National Council for Curriculum and Assessment (NCCA) | [www.ncca.ie](http://www.ncca.ie) |
| Quality and Qualifications Ireland (QQI) | <http://www.qqi.ie/> |
| Further Education Support Service (FESS) | [www.fess.ie](http://www.fess.ie) |

**Other Resources:**

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| **Kahn Academy** | |
| A free online learning resource. Learn at your own pace in a well supported environment. Teachers can also set up a class and monitor progress. | [www.khanacademy.org](http://www.khanacademy.org) |