

The World of Weather

Name _____ Date _____



We are going to take a trip around the world and look at the weather in some very different cities. Use the Temperature Chart to answer the questions.

Starter

Which three landmarks are shown at the bottom of the chart?

Which cities/countries are they in?

Q1. In the month of January, which city is the coldest?

Q2. In the month of January, which cities have the hottest temperature?

Q3. Which cities have the hottest monthly temperature across the year?



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Q4. John wants some winter warmth. Which cities might he choose to visit?

Q5. Which cities should John definitely avoid?

Q6. In July what is the difference in “High” temperature between the following cities?

- i) Florence and Toronto
- ii) Athens and Oslo
- iii) Tokyo and Istanbul

Q7. In December what is the difference in “Low” temperature between the following cities?

- i) Moscow and Nairobi
- ii) New York and Sydney
- iii) Ulaanbattar and London

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Q8. Using the low temperature in December, place the following cities in ascending order (coldest to warmest) –

- i) Amsterdam, Hong Kong, Istanbul and Tokyo

- ii) Cairo, Moscow, Nairobi and Sydney

- iii) Florence, London, New York and Toronto

- iv) Moscow, New York, Oslo, Toronto and Ulaanbattar

Q9. Jasmine is travelling to Tokyo in February. Based on the temperatures what sort of clothes should she take with her?

Q10. Her plane is diverted to Moscow. Will she still have suitable clothes to wear?

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Challenge Questions

Q11. What is the mean “high” temperature for Hong Kong?

What is the range for these temperatures?

Q12. What is the mean “low” temperature for Ulaanbattar?

What is the range for these temperatures?

PUZZLED?



Using the first letter for all the cities spell out a phrase.

Functional Skills Mathematics mapping – coverage and range statements

This resource is ideal for underpinning many Functional Maths coverage and range statements – particularly at Entry Level 3 and Level 1 (see ticked statements below).

However, in Functional Maths exams **it is the process skills that are assessed; these are key to successful Functional Maths teaching and learning and must always be developed and stressed during teaching** (see next page).

Coverage and range statements provide an indication of the type of mathematical content candidates are expected to apply in functional contexts. Relevant content can also be drawn from equivalent National Curriculum levels and the Adult Numeracy standards.

✓ *Indicates the main coverage and range skills covered in this resource, although these will vary with the student group and how the resource is used by the teacher.*

Entry Level 2

- | | |
|---|---|
| <ul style="list-style-type: none"> a) understand and use whole numbers with up to two significant figures ✓ b) understand and use addition/subtraction in practical situations ✓ c) use doubling and halving in practical situations d) recognise and use familiar measures, including time and money | <ul style="list-style-type: none"> e) recognise sequences of numbers, including odd and even numbers f) use simple scales and measure to the nearest labelled division g) know properties of simple 2D and 3D shapes h) extract information from simple lists |
|---|---|

Entry Level 3

- | | |
|--|--|
| <ul style="list-style-type: none"> a) add and subtract using three-digit numbers b) solve practical problems involving multiplication and division by 2, 3, 4, 5, 10 c) round to the nearest 10 or 100 d) understand and use simple fractions e) understand, estimate, measure and compare length, capacity, weight and temperature ✓ f) understand decimals to two decimal places in practical contexts | <ul style="list-style-type: none"> g) recognise and describe number patterns h) complete simple calculations involving money and measures ✓ i) recognise and name simple 2D and 3D shapes and their properties j) use metric units in everyday situations k) extract, use and compare information from lists, tables, simple charts and simple graphs ✓ |
|--|--|

Level 1

- | | |
|---|---|
| <ul style="list-style-type: none"> a) Understand and use whole numbers and understand negative nos. in practical contexts ✓ b) Add, subtract, multiply and divide whole numbers using a range of strategies c) Understand and use equivalences between common fractions, decimals and percentages d) Add and subtract decimals up to two decimal places e) Solve simple problems involving ratio, where one number is a multiple of the other f) Use simple formulae expressed in words for one- or two-step operations | <ul style="list-style-type: none"> g) Solve problems requiring calculation, with common measures, including money, time, length, weight, capacity and temperature h) Convert units of measure in the same system i) Work out areas and perimeters in practical situations j) Construct geometric diagrams, models and shapes k) Extract and interpret information from tables, diagrams, charts and graphs ✓ l) Collect and record discrete data and organise and represent information in different ways m) Find mean and range ✓ n) Use data to assess the likelihood of an outcome |
|---|---|

References: Ofqual (2009), *Functional Skills criteria for Mathematics: Entry 1, Entry 2, Entry 3, level 1 and level 2*.
<http://www.ofqual.gov.uk/files/2009-11-functional-skills-criteria-for-mathematics.pdf>

FUNCTIONAL MATHEMATICS PROCESS SKILLS

Process Skills (all levels)

Entry 3 skills standards

Level 1 skill standards

Representing

Selecting the mathematics and information to model a situation

- Recognise that a situation has aspects that can be represented using mathematics
- Make an initial model of a situation using suitable forms of representation
- Decide on the methods, operations and tools, including ICT, to use in a situation
- Select the mathematical information to use

- Understand practical problems in familiar contexts and situations
- Begin to develop own strategies for solving simple problems
- Select mathematics to obtain answers to simple given practical problems that are clear and routine

- Understand practical problems in familiar and unfamiliar contexts and situations, some of which are non-routine
- Identify and obtain necessary information to tackle the problem
- Select mathematics in an organised way to find solutions

Analysing

Processing and using mathematics

- Use appropriate mathematical procedures
- Examine patterns and relationships
- Change values and assumptions or adjust relationships to see the effects on answers in models
- Find results and solutions

- Apply mathematics to obtain answers to simple given practical problems that are clear and routine
- Use simple checking procedures

- Apply mathematics in an organised way to find solutions to straight-forward practical problems for different purposes
- Use appropriate checking procedures at each stage

Interpreting

Interpreting and communicating the results of the analysis

- Interpret results and solutions
- Draw conclusions in light of situations
- Consider the appropriateness and accuracy of results and conclusions
- Choose appropriate language and forms of presentation to communicate results and solutions

- Interpret and communicate solutions to practical problems in familiar contexts and situations

- Interpret and communicate solutions to practical problems, drawing simple conclusions and giving explanations



Skillsworkshop tips

To develop this skill, encourage learners to:

Represent

- Highlight information they need and/or cross out unneeded information. ✓
- Arrange or reorganise given or selected information as needed e.g. in a table or list.
- Show all their working out. ✓
Note that calculators are permitted at all levels of Functional Maths assessment but learners should get into the habit of recording all their working out – whether or not a calculator is used.

Analyse

- Check all their calculations or procedures and show proof that they have done so. ✓
- Investigate other options / situations (e.g. research related topics or items on the web). ✓
- Create new questions about given information and try them out on others. ✓
- Mark each other's work. ✓

Interpret

- Draw conclusions
- Discuss and justify their choice of method and their answer. ✓
- Explain their answers and conclusions to others – verbally ✓ and in writing.

✓ = tip that works particularly well with this resource

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Answers and curriculum mapping

This resource also covers many **adult numeracy curriculum** elements: <http://www.excellencegateway.org.uk/sflcurriculum>

N1/E2.3 Add and subtract two-digit whole numbers

N1/E2.7 Use and +, -, x, ÷ and = in practical situations for solving problems

N1/E2.8 Use a calculator to check calculations using whole numbers

MSS1/E2.8 Read and compare positive temperatures in everyday situations such as weather charts

N1/E3.9 Use and interpret +, -, x, ÷ and = in practical situations for solving problems

N2/E3.4 Use a calculator to calculate using whole numbers and decimals to solve problems in context, and to check calculations

MSS1/E3.9 Read, measure and compare temperature using common units and instruments

HD1/E3.1 Extract numerical information from lists, tables, diagrams and simple charts

N1/L1.1 Read, write, order and compare numbers, including large numbers

N1/L1.2 Recognise negative numbers in practical contexts (e.g. temperatures)

MSS1/L1.6 Add and subtract common units of measure within the same system

HD1/L1.1 Extract and interpret information (e.g. in tables, diagrams, charts and line graphs)

HD1/L1.3 Find the arithmetical average (mean) for a set of data

HD1/L1.4 Find the range for a set of data

N1/L2.1 Read, write, order and compare positive and negative numbers of any size in a practical context

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Answers and curriculum mapping

Starter

Which 3 landmarks are shown at the bottom of the chart?

Statue of Liberty

The Pyramids

Sydney Opera House

Which cities/countries are they in?

New York, U.S.A. Cairo, Egypt Sydney, Australia

Q1. In the month of January, which city is the coldest?

Ulaanbattar -27°C to -16°C

Q2. In the month of January, which cities have the hottest temperature?

Nairobi and Sydney 26°C

Q3. Which cities have the hottest monthly temperature across the year?

Cairo (June and July) Hong Kong (July and August) 34°C

Q4. John wants some winter warmth. Which cities might he choose to visit?

Hong Kong, Nairobi, Sydney (Allow Athens, Cairo)

Q5. Which cities should John definitely avoid?

Moscow, New York, Oslo, Toronto, Ulaanbattar (Allow Amsterdam)

Q6. In July what is the difference in "High" temperature between the following cities?

iv) Florence and Toronto $31-27 = 4^{\circ}\text{C}$

v) Athens and Oslo $33-22 = 11^{\circ}\text{C}$

vi) Tokyo and Istanbul $29-28 = 1^{\circ}\text{C}$

Q7. In December what is the difference in "Low" temperature between the following cities?

iv) Moscow and Nairobi $12 - -7 = 19^{\circ}\text{C}$

v) New York and Sydney $19 - -2 = 20^{\circ}\text{C}$

vi) Ulaanbattar and London $3 - -24 = 27^{\circ}\text{C}$

Q8. Using the low temperature in December, place the following cities in ascending order (coldest to warmest) –

v) Amsterdam, Hong Kong, Istanbul and Tokyo
Amsterdam (1°C), Tokyo (4°C), Istanbul (5°C), Hong Kong (10°C)

vi) Cairo, Moscow, Nairobi and Sydney

Moscow (-7°C), Cairo (11°C), Nairobi (12°C), Sydney (18°C)

vii) Florence, London, New York and Toronto

Toronto (-7°C), New York (-2°C), Florence (2°C), London (3°C)

viii) Moscow, New York, Oslo, Toronto and Ulaanbattar

Ulaanbattar (-24°C), Moscow (-7°C), Toronto (-7°C), Oslo (-5°C), New York (-2°C)

Q9. Jasmine is travelling to Tokyo in February. Based on the temperatures what sort of clothes should she take with her?

The average low is 2°C and the average high 10°C , so she needs something quite warm, e.g. Outdoor coat, jumper

Q10. Her plane is diverted to Moscow. Will she still have suitable clothes to wear?

The average low is -10°C and the average high -5°C , so probably not.

Challenge Questions

Q11. What is the mean "High" temperature for Hong Kong?

$(24 + 25 + 27 + 30 + 32 + 33 + 34 + 34 + 33 + 31 + 28 + 25) / 12 = 356/12 = 29.7^{\circ}\text{C}$

What is the range for these temperatures?

$34 - 24 = 10^{\circ}\text{C}$

Q12. What is the mean "Low" temperature for Ulaanbattar?

$(-27 + -24 + -15 + -6 + 3 + 8 + 11 + 9 + 2 + -6 + -16 + -24) / 12 = -85/12 = -7.1^{\circ}\text{C}$

What is the range for these temperatures? $11 - -27 = 38^{\circ}\text{C}$

PUZZLED?

Using the first letter for all the cities spell out a phrase.

FUNCTIONAL MATHS