Numeracy versus Maths
Myth  There’s only a right and wrong answer to maths

• It’s about the process....
• No need for a brick wall....
• Its about problem solving.....
Hello
Hello?
Is it me you're looking for? bye
It's not immediately obvious how to access the new options since the app does not include them in the small selection menu you can access by pressing and holding on a word in iOS.

- **Bold:** Add an asterisk (*) before and after the specific words or phrases you want to embolden e.g. *hello*

- **Italics:** Add an underscore (_) before and after your chosen words or phrases e.g. _hello_

- **Strikethrough:** Add a tilde (~) before and after the words or phrases you want to strike a line through e.g. ~hello~
Thinking Thermometer

**Remembering:** recalling information, recognising, listing, describing, retrieving, naming, finding.

**Understanding:** explaining ideas or concepts, interpreting, explaining, summarising, classifying.

**Solving:** using information in another familiar situation. Implementing, carrying out, using.

**Reasoning:** breaking information into parts to explore understanding and relationships. Comparing, organising.

**Creating:** generating new ideas or ways of viewing things. Designing, constructing, planning.

**Judging:** justifying a decision or course of action. Checking, hypothesising, experimenting, judging.

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<table>
<thead>
<tr>
<th>Judging</th>
</tr>
</thead>
<tbody>
<tr>
<td>For a shape with a given perimeter, is it possible to predict the largest possible area? What is the best way to find the area of this shape?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Creating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can you make a shape with the same area as this?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can you explain why you decided to divide the shape in that way?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Solving</th>
</tr>
</thead>
<tbody>
<tr>
<td>How would you find the area of this composite shape?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why does this formula give you the area of a square?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Remembering</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do you find the area of a square?</td>
</tr>
<tr>
<td>Probing questions</td>
</tr>
<tr>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>What is wrong ...</td>
</tr>
<tr>
<td>Convince me that ..</td>
</tr>
<tr>
<td>What is the same ... what is different</td>
</tr>
<tr>
<td>True/never/sometimes</td>
</tr>
<tr>
<td>Show me ( pupils have to create their own example of )</td>
</tr>
<tr>
<td>Problems involving ordering, adding, subtracting negative numbers</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Show me an addition / subtraction problem involving negative numbers: -7</td>
</tr>
<tr>
<td>True / Never / Sometimes:</td>
</tr>
<tr>
<td>• Addition makes numbers bigger</td>
</tr>
<tr>
<td>• Subtraction makes numbers smaller</td>
</tr>
<tr>
<td>Convince me that:</td>
</tr>
<tr>
<td>• -6 &lt; -4</td>
</tr>
<tr>
<td>• 4 - 7 = -3</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>673 x 24 = 16152</td>
</tr>
<tr>
<td>3199 ÷ 7 = 457</td>
</tr>
</tbody>
</table>
Construct, express in symbolic form, and use simple formulae involving one or two operations

Substitute integers into simple formulae

Simplify \( P = x + x + y + y \)

Write \( P = 2(x + y) \) as \( P = 2x + 2y \)

Recognise that in the expression \( 2 + 5a \) the multiplication is to be performed first

Understand that the letter stands for an unknown number or variable number and not a label, e.g. ‘5a’ cannot mean ‘5 apples’

Understand the difference between expressions such as:
- \( 2n \) and \( n + 2 \)
- \( 3(c + 5) \) and \( 3c + 5 \)
- \( n^2 \) and \( 2n \)
- \( 2n^2 \) and \( (2n)^2 \)

Show me a formula involving \( a \) and \( b \) such that when you substitute \( a = 2 \) and \( b = 7 \) into the formula you get 18.

Show me a formula involving \( a \) and \( b \) such that when you substitute \( a = -2 \) and \( b = 3 \) into the formula you get 18.

What is wrong:
- \( 4(b+2) = 4b+2 \)
- \( 3(p - 4) = 3p - 7 \)
- \( -2(5 - b) = -10 -2b \)
- \( 12 - (n - 3) = 9 - n \)

Convince me that:
- \( 3(x+4) = 3x + 12 \)
- \( 4(y -3) = 4y - 12 \)
- \( -3 (6 - m) = -18 + 3m \)
- \( 15 - (g - 2) = 17 - g \)
Welcome page
Click on the Maths icon
KS3 menu
KS3 menu

Year 7 Scheme of Work

Year 8 Scheme of Work

Expectations

Learning and Support Materials

Revision Materials

Extension Material
# Year 7 Scheme of Work

**YEAR 7 SCHEME OF WORK (2018/19) UPDATED AUGUST 2018**

JUMP to Year 7 Scheme of Work Curriculum Links with the Key Stage 3 Programmes of Study

Link to CIMT resources

<table>
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<tr>
<th>AUTUMN</th>
<th>Term</th>
<th>A 03/09</th>
<th>B 10/09</th>
<th>A 17/09</th>
<th>B 24/09</th>
<th>A 01/10</th>
<th>B 0</th>
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<tr>
<td>Autumn 1</td>
<td></td>
<td><strong>INSET DAY 5/9/18</strong></td>
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<td><strong>7N.1 FACTORS (MEP 8A CH.2)</strong> 4 LESSONS</td>
<td></td>
<td><strong>7N.2 NEGATIVE NUMBERS (MEP 7B CH.15)</strong> 2 LESSONS</td>
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</table>

**Term**: B 29/10  A 5/11  B 12/11  A 19/11  B 26/11  A 0
Year 7 Scheme of Work Curriculum Links with the Key Stage 3 Programmes of Study

7N.1
order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers

Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, prime factorisation, including using product notation and the unique factorisation property

Use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals

Recognise and use relationships between operations including inverse operations

Use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish their decimal approximations

7N.2
understand and use place value for decimals, measures and integers of any size

order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers

Use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, negative

Use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals

Recognise and use relationships between operations including inverse operations

Appreciate the infinite nature of the sets of integers, real and irrational numbers

7N.3
understand and use place value for decimals, measures and integers of any size

Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers

Use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, negative

Use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals

Recognise and use relationships between operations including inverse operations
Expectations clearly laid out in detail

**Every Lesson**
- Be on time – e.g., after break, start making your way to the Maths block as soon as the warning bell rings.
- Do not skip to the loo in lessons but in certain cases as an exception Maths block toilets can only be used by students with their planners signed.
- Take out your diary at the start of every lesson with this week’s page open / have your name up if necessary. Always write your homework in there.

**Equipment to bring to every lesson:**
- Sharp pencil, pen and spare pen, ruler, rubber, whiteboard pen and calculator
- Two highlighters – pink and blue

If you do not have all the above items then it can impact on your learning and as such expect to have your Behaviour of Learning card signed.

**In all exercise books**
- Date each piece of work and use a title when it is a new topic or sub-topic.
- Number your pages and underline your headings using a ruler.
- Write neatly and clearly in blue or black ink.
- Use a sharp pencil for graphs and diagrams.

**A4 progress book**
- Draw a border or have a vertical stripe along each section of work to denote if it is:
  - Additional extension work ‐ angel work / independent work – blue or homework – red/pink
- (Your teacher will let you know in more detail – but sometimes this additional work / notes from online sessions can be elsewhere to show your progress in each topic.)
- Prior to the objectives ahead of the lesson from the Gold on Fronter.
- Print the page ahead of the lesson and the end of a section highlight the objectives using a traffic light system to show the confidence in answering exam style questions on that topic. Then see section on I work.
- Make sure that you make a contents page.

**Hegarty maths homework**
- Bring your progress book to every Maths lesson whether homework is due or not.
- Notes must be taken from the videos unless your teacher makes any of them optional. These notes must be available for your teacher to see when the homework is due.
- The questions should be written out or printed and stuck in flat – not folded over - sticking them in or writing them out is part of the homework task.
- Every step of working should be written by hand and if you are using a calculator then write down what you are putting into it.
- You need to message your teacher for each task set as a homework so that there is feedback between you. Your comment and your teacher’s comment should be print a written out by hand – clearly labelled.

Fill in the boxes with the feedback as soon as you have watched the video film. Do not mark before you have watched the video.
KS3 menu
## GCSE Revision

1-9 GCSE revision videos, exam style questions and solutions.

For any exam questions which are taken from Edexcel papers: Pearson Education accepts no responsibility whatsoever for the accuracy of the A*-E 2016 Specification.

For GCSE Maths I am using the Casio Scientific Calculator: Casio FX-85GTPLUS Scientific

If YouTube is blocked at your school you can access the videos using this link: All GCSE Vid

### Grade 1/2

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<td>Powers and Square Roots</td>
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<tr>
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<td>Revision</td>
<td>Factors, Multiples and Primes</td>
<td>Solutions</td>
</tr>
<tr>
<td>Fractions of an Amount</td>
<td>Revision</td>
<td>Fractions of an Amount</td>
<td>Solutions</td>
</tr>
<tr>
<td>Fractions, Decimals and Percentages</td>
<td>Revision</td>
<td>Fractions, Decimals and Percentages</td>
<td>Solutions</td>
</tr>
</tbody>
</table>
KS3 Extension Materials

Secondary

• 3D Shapes
• Algebra
 • Algebra and Functions A2
 • Angles, Polygons and Geometrical Proof - Stage 3
 • Angles, Polygons and Geometrical Proof - Stage 4
 • Centres of Mass
 • Collisions
 • Complex Numbers Further
 • Construction
 • Coordinate Geometry and Graphs
 • Creating and Manipulating Linear and Quadratic Expressions - Stage 3
 • Creating and Manipulating Linear and Quadratic Expressions - Stage 4
 • Differential Equations
 • Differential Equations Further
 • Differentiation and Integration A2
 • Integration Further
nrich page
UKMT
sodokus
the set game
ks4 problems.zip
illac/purple gcse problem solving
[maths.com e.book]
https://mathschallenge.net/archive
1. FMSP GCSE-Problem-Solving-Booklet.pdf
1. AQA-90-Problem-solving-questions.pdf
FINAL Problem Solving Foundation.docx
FINAL Problem Solving Higher.docx
FINAL Problem Solving Higher.docx
FINAL Problem Solving Foundation.docx
Higher Problem Solving Questions.docx
Foundation Problem Solving Questions.docx
Student Guide

**NRICH problems are here for you to get your teeth into.**

- We aim to provide you with engaging mathematical activities.
- We hope to provoke you into mathematical thinking.
- We’d love you to explore, question, notice and discuss.

[Resources for ages 5-11](#)  [Resources for ages 11-18](#)

**Immerse yourself in the mathematics...**

We invite students to submit solutions to Live Problems.
To find out how we select solutions for publication, read [I've Submitted a Solution: What Next?](#). To receive regular updates, [register](#) for our newsletter.

If you have problems with the site, [Technical help](#) is available here.
Link to Angel timetable

Maths Online Sessions Tuesday and Thursday evenings

This week's teacher-led online sessions are:

Tuesday 25th September at 7:15pm - Years 9, 10 & 11 indices and surds with a volume question at the start
Thursday 27th September at 6:15pm - Year 7

Click on the angel for your log in please use

First name and Surname Year x (fill in year) followed by

Tip - make sure that you have the latest version of Java.

CLICK HERE IF YOU ARE HAVING PROBLEMS DOWNLOADING THE SOFTWARE
AND CHAT TO AN AGENT FROM BLACKBOARD COLLABORATE
<table>
<thead>
<tr>
<th>Monday lunchtime Angel</th>
<th>Amelie Eynon 11X0 HMO Can do M W Th Fr Lunchees</th>
<th>Eva Shangoli 10X0 EAC M</th>
<th>Zeenat Haji 9X1 JLP no longer can make mondays</th>
<th>Oluwatosin Ajagba 9Y0 MTWTHF</th>
<th>Sarah Smith 9YA MTH F</th>
<th><strong>Hana Kasai-Harte</strong> 8D, 8RX3, 8XO</th>
<th>Jessica Balaam-Smith Year 12 JLP</th>
<th>Jenny Joseph Year 12 JLP</th>
<th>Lakmi Fernando Year 12 JLP</th>
<th>Ella Burner Year 12 JLP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mentor</td>
<td>Anna Curran 10YM EAC M or T</td>
<td>Arzoo-E-Zehra Zaidi 9Xa DBU ABA</td>
<td>Jessica Ebhule 8XAM</td>
<td>Olivia Deighton 8Y0 EAC</td>
<td>Abigail Thorn Year 7</td>
<td>??</td>
<td>Natasha Mugisha 10X0</td>
<td>Ezinne Okebesiwa 11X0</td>
<td>Georgia Williamson 9XA ABA DBU</td>
<td></td>
</tr>
<tr>
<td>Monday std angel</td>
<td>Hana BP 10Y1 MTW</td>
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</tr>
<tr>
<td>Tuesday</td>
<td>Sophia William Ellie Barlow10 Sila Ugurlu 10Y1 Victoria Adegbemila</td>
<td>Natasha Mugisha Leyla MAI Year 8 Lauren Porter Imani Mills</td>
<td>Anna Hughes</td>
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</tbody>
</table>
8. 

\[ f(x) = \frac{(x-4)^2}{2x^{1/2}}, \quad x > 0. \]

(i) Find the values of the constants \( A, B \) and \( C \) such that

\[ f(x) = Ax^{3/2} + Bx^{1/2} + Cx^{-1/2}. \]

(ii) Show that

\[ \frac{1}{2} - 4 + 8x^{1/2} \]

(iii) Find the coordinates of the stationary point of the curve \( y = f(x) \).
**42 - Multiplying positive & negative numbers**

Learn how to tackle various questions involving multiplying positive and negative integers.

- [X] Video watched 0.00x
- [ ] Your score New lesson HegartyMaths avg 93%

**Example (a) Evaluate**

(i) \((+4) \times (+2) = +8\)
(ii) \((+4) \times (-5) = -20\)
(iii) \((-7) \times (+8) = -56\)
(iv) \((-6) \times (-4) = 24\)
(v) \((-5) \times (+8) = -40\)
(vi) \((-1) \times (-9) = 9\)
(vii) \((-8) \times 0 = 0\)

*When multiplying if the signs are the same you get a positive answer.*

*When multiplying if the signs are different you get a negative.*
Work out

\(-5 \times -6\)