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| **Topic/Skill** | **Definition/Tips** | **Example**  **Topic: Sequences** |
| 1. Linear Sequence | A number pattern with a **common difference**. | 2, 5, 8, 11… is a linear sequence |
| 2. Term | **Each value** in a sequence is called a term. | In the sequence 2, 5, 8, 11…, 8 is the third term of the sequence. |
| 3. Term-to-term rule | A rule which allows you to **find the next term** in a sequence if you **know the previous term**. | First term is 2. Term-to-term rule is ‘add 3’  Sequence is: 2, 5, 8, 11… |
| 4. nth term | A rule which allows you to **calculate the term** that is in the **nth position** of the sequence.  Also known as the ‘position-to-term’ rule.  **n** refers to the **position** of a term in a sequence. | nth term is  The 100th term is |
| 5. Finding the nth term of a linear sequence | 1. Find the **difference**.  2. **Multiply that by**  3. Substitute to **find out what number you need to add or subtract to get the first number in the sequence**. | Find the nth term of: 3, 7, 11, 15…  1. Difference is +4  2. Start with  3. , so we need to subtract 1 to get 3.  nth term = |
| 6. Fibonacci type sequences | A sequence where the next number is found by **adding up the previous two terms** | The Fibonacci sequence is:  An example of a Fibonacci-type sequence is: |
| 7. Geometric Sequence | A sequence of numbers where each term is found by **multiplying the previous one** by a number called the **common ratio, r**. | An example of a geometric sequence is:  The common ratio is 5  Another example of a geometric sequence is:  The common ratio is |
| 8. Quadratic Sequence | A sequence of numbers where the **second difference is constant**.  A quadratic sequence will have a term. | quadratic sequence: 2, 6, 12, 20, 30, 42 |
| 11. Triangular numbers | The sequence which comes from a pattern of dots that form a triangle. |  |

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| **Topic/Skill** | **Definition/Tips** | **Example**  **Topic: Inequalities** |
| 1. Inequality | An inequality says that two values are **not equal**.  means that a is not equal to b. |  |
| 2. Inequality symbols | means **x is greater than 2**  means **x is less than 3**  means **x is greater than or equal to 1**  means **x is less than or equal to 6** | State the integers that satisfy  -1, 0, 1, 2, 3, 4 |
| 3. Inequalities on a Number Line | Inequalities can be shown on a number line.  **Open circles** are used for numbers that are **less than or greater than**  **Closed circles** are used for numbers that are **less than or equal or greater than or equal** |  |

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| **Topic/Skill** | **Definition/Tips** | **Example**  **Topic: Equations and Formulae** |
| 1. Solve | To find the **answer**/value of something  **Use inverse operations** on both sides of the equation (balancing method) until you find the value for the letter. | Solve  Add 3 on both sides  Divide by 2 on both sides |
| 2. Inverse | **Opposite** | The inverse of addition is subtraction.  The inverse of multiplication is division. |
| 3. Rearranging Formulae | **Use inverse operations** on both sides of the formula (balancing method) until you find the expression for the letter. | Make x the subject of  Multiply both sides by z  Add 1 to both sides  Divide by 2 on both sides  We now have x as the subject. |
| 4. Writing Formulae | **Substitute letters for words** in the question. | Bob charges £3 per window and a £5 call out charge.  Where N=number of windows and C=cost |
| 5. Substitution | **Replace letters with numbers**.  Be careful of . You need to square first, then multiply by 5. | Find:  1.  2.  3. |

**Knowledge Organiser**