

Year 8 Revision List (Summer Assessment)

You will be given two assessments, both out of 60 marks. The first will be non-calculator and the second will be with a calculator. Everyone in the year group will sit the same paper. On this revision list, the topics listed with an E are designed to extend pupil's knowledge.

Good websites to prepare are:

www.corbettmaths.com and www.bbc.co.uk/bitesize

1. Ratio, Proportion & Scale Diagrams

- **Ratio Calculations:** Simplify ratios; compare ratios to fractions; solve ratio problems given the whole, a part, or the difference between parts.
- **Proportion & Real-World Graphs:** Use direct proportion via unitary and multiplier methods; interpret currency conversion and direct proportion graphs.
- **Scale & Similarity:** Interpret maps and scale diagrams; convert metric lengths; calculate area and volume changes in similar shapes **(E)**.
- **Advanced Ratio (E):** Express ratios in the form 1:n and n:1.

2. Algebraic Manipulation & Polynomials

- **Expressions & Brackets:** Form expressions; identify formulas, identities, and equations; expand single brackets and collect like terms.
- **Directed Numbers in Algebra:** Perform the four operations with directed numbers; substitute directed numbers into expressions.
- **Advanced Algebra (E):** Expand double brackets of the form $(x \pm a)(x \pm b)$; factorise quadratic expressions; multiply/divide algebraic fractions.

3. Coordinate Geometry & Linear Graphs

- **Graphing & Lines:** Plot coordinates in all four quadrants; plot lines parallel to the axes; use tables of values to plot straight lines.
- **Linear Equations & Slopes:** Recognize $y=x$, and lines of the form $y=mx$, $y=x+c$, and $y=mx+c$; understand positive and negative gradients.
- **Gradients & Direct Proportion (E):** Link the equation $y=mx$ directly to direct proportion.

4. Fractions, Decimals & Percentages

- **Fraction Arithmetic:** Convert mixed numbers and improper fractions; multiply and divide fractions by integers and other fractions; understand reciprocals.
- **Decimal Operations & Rounding:** Multiply and divide decimals by integers; round to the nearest integer or a given decimal place.
- **Percentage Change:** Use decimal multipliers; find percentage increase/decrease; express one number as a percentage of another.
- **Reverse Percentages:** Find the original value given a final amount and a percentage change.

5. Equations & Inequalities

- **Solving Equations:** Solve 1-step, 2-step, fractional, and bracketed equations, including complex equations with unknowns on both sides.

- **Inequalities:** Represent inequalities on a number line; form and solve simple inequalities, or those with unknowns on both sides **(E)**.

6. Indices & Standard Form

- **Laws of Indices:** Simplify expressions using the addition and subtraction laws for indices; understand index notation.
- **Standard Form:** Convert numbers greater than 1 or between 0 and 1 into standard form; use standard form on a calculator.
- **Advanced Indices (E):** Apply power of a power rules; work with negative and fractional indices.

7. Area, Volume & Circles

- **2D & 3D Shapes:** Name prisms; find the area of rectangles, squares, parallelograms, triangles, trapezia, and compound/rectilinear shapes.
- **Volume & Mass-Density:** Calculate the volume of cuboids; convert units of mass/capacity; solve density, mass, and volume problems.
- **Circles:** Learn circle vocabulary; use Pi as a ratio; find the area, circumference, perimeter, and sectors of compound circular shapes.

8. Time & Rates of Change

- **Time & Speed:** Convert time units (seconds to years); calculate with fractions of time; interpret timetables and calendars.
- **Speed, Distance & Time:** Solve speed problems (calculator and non-calculator); draw and interpret distance-time graphs.

9. Angles & Transformations

- **Angle Properties:** Use basic angle notation; calculate alternate, corresponding, co-interior, and interior/exterior angles of polygons.
- **Symmetry & Reflections:** Identify line/rotational symmetry; reflect shapes across horizontal, vertical, and diagonal lines.
- **Advanced Geometry (E):** Reflect shapes given the line equation; describe a reflection; prove simple geometric facts.

10. Statistics & Probability

- **Data & Tables:** Classify data types; identify outliers; organize data using ungrouped and grouped discrete or continuous frequency tables.
- **Summaries & Averages:** Calculate averages and range; choose the best average; find the mean and mode from a grouped table **(E)**.
- **Charts & Bivariate Data:** Draw pie charts, line graphs, bar charts, and time-series graphs; plot scatter graphs, identify correlation, and use lines of best fit.
- **Probability Diagrams:** List outcomes; compute single-event probabilities using sample spaces, two-way tables, and frequency trees.

11. Sequences

- **Sequences:** Describe, continue, and generate sequences from words, simple algebraic rules, or complex algebraic rules **(E)**; find the nth term of a linear sequence.