Year 9 Discoverers

Sparx Maths

BUDEHAVEN MATHS

One and all

Articulate Represent Connect

Weeks 1 & 2

Unit 1: Straight line graphs

Learning Objectives:

- ❑ (R) Reading and plotting coordinates (M618)
- ❑ (R) Plotting horizontal and vertical lines (M797)
- ❑ (R) Plotting straight line graphs (M932)
- ❑ Finding equations of straight line graphs (M544)
- ❑ Interpreting equations of straight line graphs (M888)
- ❑ Plotting real-life straight line graphs (M843)
- ❑ Interpreting real-life graphs (M771)
- ❑ Finding equations of real-life straight line graphs (M205)
- ❑ Graphs of direct and inverse proportion (M448)

Weeks 3 & 4

Unit 2: Forming and solving equations

Learning Objectives:

- ❑ Reading and drawing linear inequalities on number lines(M384)
- ❑ Solving single inequalities(M118)
- ❑ Solving linear equations involving brackets(M902)
- ❑ Solving equations with the unknown on both sides (M554)
- ❑ Constructing and solving equations(M957)
- ❑ Changing the subject of a formula (M184)

Weeks 5 & 6

Unit 3: Testing Conjectures

Learning Objectives:

- ❑ Finding prime numbers (M322)
- ❑ Expanding double brackets (M960)
- ❑ (H) Expanding triple brackets (U606)

Week 7

Consolidation

- ❑ Complete tasks from any of the units of work above

Weeks 1, 2 & 3

Unit 4: Three dimensional shapes

Learning Objectives:

- ❑ (R) Shape properties (M276)
- ❑ Properties of 3D shapes (M767)
- ❑ Plans and elevations (U743)
- ❑ Nets of 3D shapes (M518)
- ❑ Finding the surface area from a net (M884)
- ❑ Finding the surface area of cubes and cuboids (M534)
- ❑ Finding the surface area of prisms (M661)
- ❑ Finding the volume of cubes and cuboids (M765)
- ❑ Finding the volume of prisms (M722)
- ❑ Converting units of volume (M465)
- ❑ Finding the arc length of sectors (U221)
- ❑ Finding the area of sectors (U373)
- ❑ Finding the surface area of cylinders (U464)
- ❑ Finding the volume of cylinders (U915)

Week 4, 5 & 6

Unit 5: Constructions and congruence

Learning Objectives:

- ❑ (R) Using a pair of compasses (M196)
- ❑ Constructing bisectors of angles (U787)
- ❑ Constructing perpendicular bisectors and lines (U245)
- ❑ Constructing loci (U820)
- ❑ Understanding congruence (U790)
- ❑ Congruent triangles (U866)
- ❑ (R) Constructing triangles (U187)

Week 7

Consolidation

- ❑ Complete tasks from any of the units of work above

Weeks 1 & 2

Unit 6: Numbers

Learning Objectives:

- ❑ (R) Four operations with negative numbers (M106, M288)
- ❑ (R) Finding the HCF and LCM using listing (M698, M227)
- ❑ (R) Finding the HCF and LCM using prime factor decomposition (M365)
- ❑ (R) Using a written method to multiply integers and decimals (M187, M803)
- ❑ (R) Using a written method to divide integers (M354, M262)
- ❑ Using a written method to divide by decimals (M491)
- ❑ (R) Adding and subtracting fractions and mixed numbers (M835, M931)
- ❑ Problem solving with fractions and mixed numbers (U874)
- ❑ (R) Using standard form with positive and negative indices (M719, M678)
- ❑ Four operations with numbers in standard form (U264, U290)

Weeks 3 & 4

Unit 7: Using percentages

Learning Objectives:

- ❑ (R) Converting between fractions, decimals and percentages(U888)
- ❑ (R) Ordering fractions, decimals and percentages(U594)
- ❑ (R) Finding fractions of amounts without a calculator(U881)
- ❑ (R) Finding fractions of amounts with a calculator(U916)
- ❑ (R) Finding percentages of amounts without a calculator(U554)
- ❑ (R) Finding percentages of amounts with a calculator(U349)
- ❑ Percentage change without a calculator(U773)
- ❑ Percentage change with a calculator(U671)
- ❑ Finding original values in percentage calculations(U286)
- ❑ Finding the percentage an amount has been changed by(U278)

Weeks 5 & 6

Unit 8: Maths and money

Learning Objectives:

- ❑ Value for money (M681)
- ❑ Currency conversion (U610)
- ❑ Financial terminology and calculations (M901)
- ❑ Simple interest calculations (U533)
- ❑ Compound interest calculations (U332)
- ❑ Growth and decay (U988)

Weeks 1 & 2

Unit 9: Rotation and translation

Learning Objectives:

- ❑ (R) Reflection(M290)
- ❑ Translation (M139)
- ❑ Rotation (M910)
- ❑ Mixed transformations (M881)

Weeks 3 & 4

Unit 10: Pythagoras' theorem

Learning Objectives:

- ❑ (R) Calculating with powers and roots (M135)
- ❑ Using Pythagoras' theorem in 2D (M677)
- ❑ (H) Using Pythagoras' theorem in 3D (M147)

Week 5 & 6

Unit 11: Enlargement and similarity

Learning Objectives:

- ❑ Enlargement (M178)
- ❑ (H) Enlargement by a negative scale factor (U134)
- ❑ (R) Understanding similarity (M377)
- ❑ Finding unknown sides in similar shapes (M324)
- ❑ (H) Finding the perimeter and area of similar shapes (U630)
- ❑ (H) Understanding sin, cos and tan (U605)
- ❑ (H) Finding unknown sides in right-angled triangles (U283)
- ❑ (H) Finding unknown angles in right-angled triangles (U545)

Weeks 1 & 2

Unit 12: Solving ratio and proportion problems

Learning Objectives:

- ❑ (R) Writing and simplifying ratios (U687)
- ❑ (R) Sharing amounts in a given ratio (U577)
- ❑ Combining ratios (U921)
- ❑ (H) Calculating with ratios and algebra (U676)
- ❑ (H) Changing ratios (U865)
- ❑ (R) Solving direct proportion word problems (U721)
- ❑ Solving inverse proportion word problems (U357)
- ❑ (R) Currency conversion (U610)

Weeks 4 & 5

Unit 13: Rates

Learning Objectives:

- ❑ (R) Substituting into formulae (U585, U144)
- ❑ (R) Solving equations with two or more steps (U325, U505)
- ❑ (R) Changing the subjects of formulae (U556)
- ❑ (R) Reading, converting and calculating with time (U902)
- ❑ (R) Converting units of length, mass and capacity (U388)
- ❑ Calculating with speed (U151)
- ❑ Calculating with rates (U256)
- ❑ Calculating with density (U910)
- ❑ Plotting distance-time graphs (U403)
- ❑ Interpreting distance-time graphs (U914)
- ❑ Calculating speed from distance-time graphs (U462)
- ❑ (H) Plotting distance-time graphs using speeds (U966)

Week 6

Revision and consolidation

- ❑ Complete tasks from any of the units of work above

Weeks 1 & 2

Unit 14: Probability

Learning Objectives:

- ❑ (R) Multiplying fractions (U475)
- ❑ (R) Writing probabilities as fractions, decimals and percentages (U510)
- ❑ Expected results from repeated experiments (U166)
- ❑ Calculating experimental probabilities (U580)
- ❑ Tree diagrams for independent events (U558)
- ❑ (H) Tree diagrams for dependent events (U729)

Weeks 3 & 4

Unit 15: Algebraic representation

Learning Objectives:

- ❑ (R) Substituting into algebraic formulae (U585)
- ❑ (R) Plotting straight line graphs (U741)
- ❑ Plotting graphs of quadratic functions (U989)
- ❑ Interpreting graphs of quadratic functions (U667)
- ❑ (H) Solving quadratic equations graphically (U601)
- ❑ Solving simultaneous equations graphically (U836)
- ❑ Reading and drawing inequalities on number lines (U509)
- ❑ (H) Graphs of linear inequalities (U747)

Weeks 6 & 7

Revision and consolidation

- ❑ Complete tasks from any of the units of work above