Assessment Framework: Mathematics

Because the knowledge structure in maths looks like this:

Because the knowledge structure in Maths looks like this:



We assess the students fluency of number and algebra at the beginning of the year, then assess both declarative and procedural knowledge from a collection of units taught across a half term. Number and algebra are the language of mathematics, and are at the heart of all other topics taught.

All questions used in assessments at key stage 4 are of GCSE level to help students prepare for their GCSEs at the end of year 11. The more they get used to seeing these types of questions, the more fluent they will become with them.

**Short-cycle assessment**:

We are continually assessing students’ progress in and between lessons with

* Extended exit tickets which are either peer assessed or teacher assessed
* Multiple choice questions and hinge questions during lessons to observe the students immediate understanding.
* Teacher circulation and live marking

**Medium-cycle assessment**:

* Through homework, flipped learning tasks and Sparx maths
* Retrieval starter questions to check retained knowledge/knowledge from homework – these emphasise the importance of remembering key information

**Long cycle assessment**:

Students are regularly assessed throughout key stage 4 on the content they have covered in previous years, along with the new content they are learning at key stage 4. **Year 10**

HT1 – Assessment on content learnt in year 9 and start of year 10. Retrieval of previous content with a focus on number and algebra for a strong start to Key Stage 4. Students will receive a GAP analysis of their performance in this assessment with links to sparx for them to complete independent practice to improve their fluency of these topics.

|  |  |  |
| --- | --- | --- |
|  | Foundation | Higher |
| Topics | Ordering integersOrdering positive & negative numbersOrdering decimals4 operations with decimalsRound to decimal places/ significant figuresBIDMASRules of indicesFactorsPrimesPrime decompositionHCF/LCMCollecting like termsSimplifying expressionsExpand single bracketsSubstitutionStem & Leaf DiagramsAverages  | Laws of indicesFractional indicesNegative numbersSimplifying surdsRationalise denominatorsPercentage increase/decreaseReverse percentagesUpper & lower boundsFactorise quadratics (including with coefficient)Solving quadraticsDifference of two squaresSolve linear equations |

HT2 – Assessment focuses on content and procedural knowledge, seeing if students can apply skills in a standard question. Students will receive these papers back and their class teacher will go through the paper with them to identify areas for improvement. Students will receive a GAP analysis of their performance in this assessment with links to sparx for them to complete independent practice to improve their fluency of these topics.

|  |  |  |
| --- | --- | --- |
|  | Foundation | Higher |
| Topics | Integers & place valueDecimalsIndices, powers & rootsFactors, multiples & primesAlgebra introductionExpressions & substitutionTables, charts & graphsPie chartsScatter graphsFDP | Indices, roots & reciprocalsSurdsPercentagesAccuracy & boundsFactorise & solve quadraticsSolve linear equationsSet up equations from worded problemsChange the subjectFunctions |

HT3/4 – Mid Year Assessment.

Students will receive a GAP analysis of their performance in this assessment with links to sparx for them to complete independent practice to improve their fluency of these topics.

|  |  |  |
| --- | --- | --- |
|  | Foundation | Higher |
| Topics | Integers & place valuesDecimalsIndices, powers & rootsFactors, multiples & primesAlgebra basicsExpressions & substitutionTables, charts & graphsPie chartsScatter graphsFDP PercentagesEquationsInequalitiesSequencesProperties of shapesInterior & exterior angles | Indices, roots & reciprocals SurdsPercentagesAccuracy & BoundsFactorise & solve quadraticsSolve linear equationsSet up equationsChange the subjectFunctionsSequencesSimultaneous equationsLinear graphsQuadratics, cubic & other graphsInequalities |

HT5 – This assessment is to help students prepare for what topics they need to focus on in the build up to the end of year mock exam. Students will be assessed on topics they have learnt this year and then provided with feedback so they know which topics to focus on as part of their revision for half term 6. Students will receive these papers back and their class teacher will go through the paper with them to identify areas for improvement.

|  |  |  |
| --- | --- | --- |
|  | Foundation | Higher |
| Topics | Types of number Converting fractions to percentagesPercentages of amountsFractions of amountsSimplifying algebraSolving equationsProduct of primes RoundingSequencesArea PerimeterAngles in parallel linesTwo way tablesAngles in polygonsSubstitutionCalculations with fractions | InequalitiesNth term of sequencesSolving quadraticsEquations of straight linesEquation of perpendicular linesAngles in parallel linesVolume of a sphere/coneTrigonometryArea of compound shapesEquation of circles |

HT6 – End of Year Mock Assessment. Students will sit 2 full GCSE papers at the end of year 10. The majority of students will sit the foundation paper at the end of year 10; this will not limit whether they do higher or foundation in Year 11. Students will have more success on the foundation paper as they have covered more of the content in this paper. This mock will be used, alongside previous assessments and knowledge of the students to determine their tier of entry for year 11. No revision list is provided for the mock exam to help students prepare as they will for their GCSE. Students will receive a GAP analysis of their performance in this assessment with links to sparx for them to complete independent practice to improve their fluency of these topics.

**Year 11**

Throughout year 11 students will be completing retrieval starter tasks which are class specific based on their GAPs from previous assessments and extended exit tickets at the end of each topic. These are recorded on the mark book for staff use and in students' books in their curriculum journey to support their understanding of their own strengths and weaknesses.

HT2- students will sit a full series of mock assessments prior to the Christmas break. Students will sit either 2 or 3 full GCSE papers. This will be a full experience, the same as they will have for their GCSE exams in the summer with exams being in the hall/gym. This will assess all content for the GCSE and give students an accurate representation of what grade they are working at. Students will receive a GAP analysis of their performance in this assessment with links to sparx for them to complete independent practice to improve their fluency of these topics.

HT4- students will sit an assessment which depending on invigilators will also be in the hall/gym, alternatively will be an in-class assessment. If it is an in class assessment, this will be a split GCSE paper completed over more than one lesson. This will target the weakest paper for the cohort (non-calculator or calculator). Students will receive a GAP analysis of their performance in this assessment with links to sparx for them to complete independent practice to improve their fluency of these topics.