Barnsley Academy – Curriculum
Scheme of Work – 2023-24
Maths – YEAR 8

Half Term 1 – Week 1 (WC Monday 4th September)				
		1	2	3
Lesson Focus	*Big Picture – success criteria.*	**INSET / CLIMBING THE MOUNTAIN**	**INSET / CLIMBING THE MOUNTAIN**	**Introduction and expectations** **Writing powers in index form** **Square numbers and square roots**
Prerequisite Knowledge	*What knowledge are they building on (previous units/years)? Informs Do Now/Retrieval.*			• Numerical skills – KPI 7.01
Core Knowledge	*Key terms and agreed definitions, any other key information essential to students, succeeding. In practical subjects this can include skills.*			Square number = The result of an integer multiplied by itself Square root = The factor that multiplies by itself to get the given number Index form = A number written to the power of another number
Expert Model /Guided Practice/Agreed Approach (Procedural Knowledge)	*Name the steps that student need to take – agreed department approach.*			Students should know and copy down all square numbers up to 15x15 and use these to work backwards to find roots Brackets should be used for index form involving fractional or negative bases When more than one variable is included, these should be written in alphabetical order
Independent Practice	*The task and reference back to the Big Picture Slide*			1. Calculating square numbers 2. Finding square roots 3. Writing repeated multiplication of integers in index form 4. Writing repeated multiplication of decimals and fractions in index form
Assessment (Informal/Formal)	*Circulation/live feedback/self-assessment/class assessment/whole class feedback (marking cycle)/quiz.*			Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment
Calculator Usage	*Use of calculator functions*			Using a calculator to find squares and square roots
Resources	*(Hyperlink)*			
Specific SEN(D)/EAL support	*Overview for the lesson – can be repeated strategies*			Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed
Class considerations	*Specific set direction where applicable*	**8X will miss their lessons on Monday due to INSET**	**8Y will miss their lesson on Tuesday due to INSET**	Numeracy focus – Listing square numbers up to 15x15 (working these out, then committing to memory)

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Half Term 1 – Week 2 (WC Monday 11th September)				
		1	2	3
Lesson Focus	*Big Picture – success criteria.*	**Cube numbers and cube roots** **Estimating roots**	**Further powers**	**Contingency time** **KPI 8.01 Powers and roots** **Closing the Gap**
Prerequisite Knowledge	*What knowledge are they building on (previous units/years)? Informs Do Now/Retrieval.*	• Numerical skills – KPI 7.01	• Numerical skills – KPI 7.01	• Numerical skills – KPI 7.01
Core Knowledge	*Key terms and agreed definitions, any other key information essential to students, succeeding. In practical subjects this can include skills.*	Cube number = The result of an integer multiplied by itself and then multiplied by itself again Cube root = The factor that multiplies by itself, and then multiplies by itself again to get the given number	Any number to the power of 0 = 1 Power of 2 = Any index number with a base of 2	N/A
Expert Model /Guided Practice/Agreed Approach (Procedural Knowledge)	*Name the steps that student need to take – agreed department approach.*	Students should know and copy down all cube numbers up to 5x5x5 and including 10x10x10 and use these to work backwards to find roots To estimate roots students should identify the two closest roots (one above and one below) and use their roots to estimate the root of the given value	Identify powers of common bases (2, 3, 5 and 10) by counting in known powers, or listing powers	N/A
Independent Practice	*The task and reference back to the Big Picture Slide*	1. Calculating cube numbers 2. Finding cube roots 3. Estimating square roots 4. Estimating cube roots	1. Evaluating numbers written to the power of 0 2. Identifying numbers in base 2, 3, 5 and 10 3. Writing and simplifying numbers into a given base	1. KPI test to be completed independently
Assessment (Informal/Formal)	*Circulation/live feedback/self-assessment/class assessment/whole class feedback (marking cycle)/quiz.*	Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment	Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment	KPI test
Calculator Usage	*Use of calculator functions*	Using a calculator to find cubes and cube roots	Using a calculator to find powers and roots (beyond squares and square roots / cubes and cube roots)	Using a calculator to find powers and roots
Resources	*(Hyperlink)*			
Specific SEN(D)/EAL support	*Overview for the lesson – can be repeated strategies*	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed
Class considerations	*Specific set direction where applicable*	Numeracy focus – Listing cube numbers up to 5x5x5 and including 10x10x10 (working these out and then committing to memory)	Numeracy focus – Recalling that anything written to the power of 0 is 1	Core or Extend KPI to be completed based on class focus

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Half Term 1 – Week 3 (WC Monday 18th September)				
		1	2	3
Lesson Focus	*Big Picture – success criteria.*	**RECAP of factors and multiples**	**Introduction to prime numbers** **Prime factor decomposition**	**Prime factor decomposition** **Expressing a number from a product of prime factors**
Prerequisite Knowledge	*What knowledge are they building on (previous units/years)? Informs Do Now/Retrieval.*	• Numerical skills – KPI 7.01 • Factors and multiples – KPI 7.04	• Numerical skills – KPI 7.01 • Factors and multiples – KPI 7.04	• Numerical skills – KPI 7.01 • Factors and multiples – KPI 7.04
Core Knowledge	*Key terms and agreed definitions, any other key information essential to students, succeeding. In practical subjects this can include skills.*	Prime number = A number with exactly two factors Factors = A number that divides another number, leaving no remainder Multiples = The product result of one number multiplied by another number Common = The same	Prime number = A number with exactly two factors (itself and 1) Common = The same Product = Multiply	Prime number = A number with exactly two factors (itself and 1) Common = The same Product = Multiply
Expert Model /Guided Practice/Agreed Approach (Procedural Knowledge)	*Name the steps that student need to take – agreed department approach.*	Listing factors and circling the Highest Common Factor Listing multiples and circling the Lowest Common Multiple	Divisibility tests for multiples of 2, 10, 5, 3, 9 and 6 Using a prime factor tree to express a number as a product of prime factors (and simplifying this into index form)	Using a prime factor tree to express a number as a product of prime factors (and simplifying this into index form) Working backwards to find a number when given its prime factorisation Finding prime factorisation of factors or multiples of the number, when given the original number's prime factorisation
Independent Practice	*The task and reference back to the Big Picture Slide*	1. Listing factors 2. Finding the HCF 3. Listing multiples 4. Finding the LCM	1. Identifying prime numbers 2. Stating whether a number is divisible by another number 3. Prime factorisation	1. Prime factorisation 2. Writing a number from the product of prime factors 3. Adjusting the product of prime factors to write factors / multiples of the original number
Assessment (Informal/Formal)	*Circulation/live feedback/self-assessment/class assessment/whole class feedback (marking cycle)/quiz.*	Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment	Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment	Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment
Calculator Usage	*Use of calculator functions*	N/A	N/A	Use of the FACT button
Resources	*(Hyperlink)*			
Specific SEN(D)/EAL support	*Overview for the lesson – can be repeated strategies*	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed
Class considerations	*Specific set direction where applicable*	Numeracy focus – Listing factors of a number Listing multiples of a number	Numeracy focus – Divisibility tests for 2, 5 and 10 Writing a number as a product of prime factors	Numeracy focus – Writing a number as a product of prime factors

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Half Term 1 – Week 4 (WC Monday 25th September)				
		1	2	3
Lesson Focus	*Big Picture – success criteria.*	**Contingency time** **KPI 8.02 Prime factorisation** **Closing the Gap**	**RECAP of rounding to 10, 100, 1000, integers and decimal places**	**Rounding integers to the nearest significant figures**
Prerequisite Knowledge	*What knowledge are they building on (previous units/years)? Informs Do Now/Retrieval.*	• Numerical skills – KPI 7.01 • Factors and multiples – KPI 7.04	• Numerical skills – KPI 7.01	• Numerical skills – KPI 7.01
Core Knowledge	*Key terms and agreed definitions, any other key information essential to students, succeeding. In practical subjects this can include skills.*	N/A	Nearest = Closest	Significant figures are the digits in a number that contribute to the accuracy of it
Expert Model /Guided Practice/Agreed Approach (Procedural Knowledge)	*Name the steps that student need to take – agreed department approach.*	N/A	Underline / highlight the digit that influences the rounding before changing any values	Count significant figures from left to right Underline / highlight the digit that influences the rounding before changing any values
Independent Practice	*The task and reference back to the Big Picture Slide*	1. KPI test to be completed independently	1. Rounding to the nearest 10, 100, 1000 2. Rounding to the nearest integer and decimal place 3. Mixed rounding	1. Rounding integers to 1 significant figure 2. Rounding integers to 2/3 significant figures 3. Rounding integers to a mixture of significant figures
Assessment (Informal/Formal)	*Circulation/live feedback/self-assessment/class assessment/whole class feedback (marking cycle)/quiz.*	KPI test	Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment	Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment
Calculator Usage	*Use of calculator functions*	Use of the FACT button	N/A	N/A
Resources	*(Hyperlink)*			
Specific SEN(D)/EAL support	*Overview for the lesson – can be repeated strategies*	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed
Class considerations	*Specific set direction where applicable*	Core or Extend KPI to be completed based on class focus	Numeracy focus – Identifying the digit that influences the rounding	Numeracy focus – Rounding integers to one significant figure

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Half Term 1 – Week 5 (WC Monday 2nd October)				
		1	2	3
Lesson Focus	*Big Picture – success criteria.*	**Significant and non-significant zeros** **Rounding decimals to the nearest significant figures**	**Problem solving bounds / working backwards rounding questions**	**Contingency time** **KPI 8.03 Rounding** **Closing the Gap**
Prerequisite Knowledge	*What knowledge are they building on (previous units/years)? Informs Do Now/Retrieval.*	• Numerical skills – KPI 7.01	• Numerical skills – KPI 7.01	• Numerical skills – KPI 7.01
Core Knowledge	*Key terms and agreed definitions, any other key information essential to students, succeeding. In practical subjects this can include skills.*	Significant figures are the digits in a number that contribute to the accuracy of it	Place value = The value of a digit depending on its position within a number	N/A
Expert Model /Guided Practice/Agreed Approach (Procedural Knowledge)	*Name the steps that student need to take – agreed department approach.*	Count significant figures from left to right, circle any significant zeros Underline / highlight the digit that influences the rounding before changing any values	Think about what place value the number has been rounded to Half the place value and add / subtract this to find the highest and lowest possible values	N/A
Independent Practice	*The task and reference back to the Big Picture Slide*	1. Rounding decimals to the nearest significant figure (no zero digits) 2. Rounding decimals to the nearest significant figure (including significant and non-significant zero digits)	1. Listing values that round to a given number 2. Identifying the highest and lowest values that round to a given number 3. Answer questions in context involving the highest and lowest values that round to a given number	1. KPI test to be completed independently
Assessment (Informal/Formal)	*Circulation/live feedback/self-assessment/class assessment/whole class feedback (marking cycle)/quiz.*	Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment	Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment	KPI test
Calculator Usage	*Use of calculator functions*	N/A	N/A	N/A
Resources	*(Hyperlink)*			
Specific SEN(D)/EAL support	*Overview for the lesson – can be repeated strategies*	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed
Class considerations	*Specific set direction where applicable*	Numeracy focus – Identifying significant and non-significant zeros	Numeracy focus – Listing values that would round to a given number	Core or Extend KPI to be completed based on class focus

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Half Term 1 – Week 6 (WC Monday 9th October)				
		1	2	3
Lesson Focus	*Big Picture – success criteria.*	**RECAP of equivalent fractions and simplifying fractions** **Writing integers as fractions** **Finding reciprocals of integers and fractions**	**RECAP of converting between mixed numbers and improper fractions** **RECAP of adding and subtracting fractions**	**Multiplying fractions** **Multiplying mixed numbers**
Prerequisite Knowledge	*What knowledge are they building on (previous units/years)? Informs Do Now/Retrieval.*	• Fraction manipulation – KPI 7.10 • Adding and subtracting fractions – KPI 7.11 • Comparing and ordering fractions – KPI 7.12	• Fraction manipulation – KPI 7.10 • Adding and subtracting fractions – KPI 7.11 • Comparing and ordering fractions – KPI 7.12	• Fraction manipulation – KPI 7.10 • Adding and subtracting fractions – KPI 7.11 • Comparing and ordering fractions – KPI 7.12
Core Knowledge	*Key terms and agreed definitions, any other key information essential to students, succeeding. In practical subjects this can include skills.*	Numerator = The top of the fraction Denominator = The bottom of the fraction Reciprocal = The value needed to multiply with a given number to make 1	Improper fraction = A fraction where the numerator is larger than the denominator Proper fraction = A fraction where the numerator is smaller than the denominator	Improper fraction = A fraction where the numerator is larger than the denominator Proper fraction = A fraction where the numerator is smaller than the denominator
Expert Model /Guided Practice/Agreed Approach (Procedural Knowledge)	*Name the steps that student need to take – agreed department approach.*	Divide the numerator and denominator by their HCF to simplify Invert the fraction to find a reciprocal Any integer can be written as a fraction with a denominator of 1	List multiples of the denominator and circle the appropriate value to convert between mixed numbers and improper fractions List multiples to find the LCM and multiply both fractions to make a common denominator before adding or subtracting fractions	To multiply fractions, multiply across the numerators and across the denominators
Independent Practice	*The task and reference back to the Big Picture Slide*	1. Identifying equivalent fractions and filling the gaps in pairs of equivalent fractions 2. Simplifying fractions 3. Finding the reciprocals of fractions 4. Finding the reciprocals of integers	1. Convert between improper fractions and mixed numbers 2. Add / subtract proper fractions with the same denominator 3. Add / subtract proper fractions with different denominators 4. Add / subtract fractions and mixed numbers with different denominators	1. Multiplying proper fractions 2. Multiplying proper fractions and simplifying the answer 3. Multiplying mixed numbers 4. Multiplying integers and fractions
Assessment (Informal/Formal)	*Circulation/live feedback/self-assessment/class assessment/whole class feedback (marking cycle)/quiz.*	Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment	Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment	Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment
Calculator Usage	*Use of calculator functions*	Using a calculator to simplify fractions including knowing how to type a fraction into a calculator	Using a calculator to convert between mixed numbers and improper fractions	N/A
Resources	*(Hyperlink)*			
Specific SEN(D)/EAL support	*Overview for the lesson – can be repeated strategies*	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed
Class considerations	*Specific set direction where applicable*	Numeracy focus – Simplifying fractions by identifying the HCF	Numeracy focus – Convert between mixed numbers and improper fractions Add and subtract fractions with the same denominator	Numeracy focus – Multiply proper fractions

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Half Term 1 – Week 7 (WC Monday 16th October)				
		1	2	3
Lesson Focus	*Big Picture – success criteria.*	**Dividing fractions** **Dividing mixed numbers**	**Fractions – Mixed 4 operations**	**Contingency time** **KPI 8.04 Fractions** **Closing the Gap**
Prerequisite Knowledge	*What knowledge are they building on (previous units/years)? Informs Do Now/Retrieval.*	• Fraction manipulation – KPI 7.10 • Adding and subtracting fractions – KPI 7.11 • Comparing and ordering fractions – KPI 7.12	• Fraction manipulation – KPI 7.10 • Adding and subtracting fractions – KPI 7.11 • Comparing and ordering fractions – KPI 7.12	• Fraction manipulation – KPI 7.10 • Adding and subtracting fractions – KPI 7.11 • Comparing and ordering fractions – KPI 7.12
Core Knowledge	*Key terms and agreed definitions, any other key information essential to students, succeeding. In practical subjects this can include skills.*	Reciprocal = The value needed to multiply with a given number to make 1	RECAP of core knowledge covered in the previous 4 lessons on fraction arithmetic	N/A
Expert Model /Guided Practice/Agreed Approach (Procedural Knowledge)	*Name the steps that student need to take – agreed department approach.*	To divide fractions, multiply by the reciprocal	List multiples to find the LCM and multiply both fractions to make a common denominator before adding or subtracting fractions To multiply fractions, multiply across the numerators and across the denominators To divide fractions, multiply by the reciprocal	N/A
Independent Practice	*The task and reference back to the Big Picture Slide*	1. Dividing proper fractions 2. Dividing proper fractions and simplifying the answer 3. Dividing mixed numbers 4. Dividing integers and fractions	1. Mixed four operations (add, subtract, multiply, divide) with proper fractions 2. Mixed four operations (add, subtract, multiply, divide) with mixed numbers 3. Answer fraction arithmetic questions in context	1. KPI test to be completed independently
Assessment (Informal/Formal)	*Circulation/live feedback/self-assessment/class assessment/whole class feedback (marking cycle)/quiz.*	Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment	Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment	KPI test
Calculator Usage	*Use of calculator functions*	N/A	N/A	Simplifying fractions on a calculator Converting mixed numbers and improper fractions on a calculator
Resources	*(Hyperlink)*			
Specific SEN(D)/EAL support	*Overview for the lesson – can be repeated strategies*	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed
Class considerations	*Specific set direction where applicable*	Numeracy focus – Dividing proper fractions	Numeracy focus – Practice the four operations (add, subtract, multiply, divide) with proper fractions and recognise which method needs to be selected	Core or Extend KPI to be completed based on class focus

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Half Term 1 – Week 8 (WC Monday 23rd October)				
		1	2	3
Lesson Focus	*Big Picture – success criteria.*	**RECAP of expanding and factorising single brackets**	**RECAP** **Closing the Gap**	**RECAP** **Closing the Gap**
Prerequisite Knowledge	*What knowledge are they building on (previous units/years)? Informs Do Now/Retrieval.*	• Expand and factorise – KPI 7.05 • Factors and multiples – KPI 7.04		
Core Knowledge	*Key terms and agreed definitions, any other key information essential to students, succeeding. In practical subjects this can include skills.*	Expand = To multiply each term in the bracket by the integer / expression outside of the bracket Factorise = To put an expression into a bracket by dividing by a common factor		
Expert Model /Guided Practice/Agreed Approach (Procedural Knowledge)	*Name the steps that student need to take – agreed department approach.*	To expand a single bracket, multiply each term by the expression on the outside of the bracket To factorise a single bracket, find the common factor of the expression and divide each term by the common factor to put the expression into a bracket		
Independent Practice	*The task and reference back to the Big Picture Slide*	1. Expanding single brackets (multiplying by an integer) 2. Expanding single brackets (multiplying by a variable) 3. Expanding two single brackets and simplifying 4. Factorising single brackets (dividing by an integer) 5. Factorising single brackets (dividing by a variable) 6. Expand and factorise questions in context (involving area or perimeter)		
Assessment (Informal/Formal)	*Circulation/live feedback/self-assessment/class assessment/whole class feedback (marking cycle)/quiz.*	Circulation Live book marking Do Now self-assessment Whole class AFL Independent practice self-assessment		
Calculator Usage	*Use of calculator functions*	N/A		
Resources	*(Hyperlink)*			
Specific SEN(D)/EAL support	*Overview for the lesson – can be repeated strategies*	Clear Expert Model printed or copied down for students to refer to New information broken down into small chunks Clear steps named for students to follow independently Student specific passport / ILP strategies followed		
Class considerations	*Specific set direction where applicable*	Numeracy focus – Expanding and factorising single brackets in the form ax + b	**Teacher to select most appropriate topic to teach based on class data (Do Now / Fluency / KPI tests / Live marking)**	**Teacher to select most appropriate topic to teach based on class data (Do Now / Fluency / KPI tests / Live marking)**