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2 1 3 1 1 (National Curriculum)						

	of two numbers ____ • Use prime					

• . alculate with positive indices (roots) using wri6en methods ____ . alculate with negative indices in the conte5t of standard form ____ • Know how to s3uare (or cube) a negative number _____ • $ubstitute negative numbers into e5pressions _____ • *nter negative numbers into a calculator • _____ • 2nterpret a calculator	steps are re3uired _____ • . hec- the soluton to an e3uaton b& substtuton • Understand the meaning of the four ine3ualit& s&mbols ___ • . hoose the correct ine3ualit& s&mbol for a partcular situaton _____ • Aepresent practcal situatons as ine3ualites • =ind the set of integers that are solutons to an ine3ualit& _____ • Use set notaton	e5pected outcomes ____ Use e5perimental probabilit& to calculate e5pected outcomes ____ " ' • Benerate a se3uence from a term"to"term rule ____ • Understand the meaning of a positon"to"term rule ____ • Use a positon"to" term rule to generate a se3uence _____ Use the nth term of a se3uence to deduce if a given number is in a se3uence _____ () • ?lot graphs of	range from a grouped fre3uenc& table _____ ___ • 4nal&se and compare sets of data _#/_ • 4ppreciate the limitatons of diCerent statstcs (mean, median, mode, range) • . hoose appropriate statstcs to describe a set of data Dustf& choice of statstcs to describe a set of data ' • Know the meaning of contnuous data _____ • 2nterpret a grouped fre3uenc& table for contnuous data _____	_____ , ! • 2dentf& rato in a real"life conte5t ___ • Write a rato to describe a situaton _____ • 2dentf& proporton in a situaton ___ • =ind a relevant multplier in a situaton involving proporton ___ • Use fractons Euentl& in situatons involving rato or proporton _____ • Understand the connectons between ratos and fractons ___ • Aecognise a graph that illustrates direct proporton _____	_____ • Use the concept of scaling in diagrams _____ • 7easure and state a specifed bearing ____ • . onstruct a scale diagram involving bearings _____ • Use bearings to solve geometrical problems ___ . onstruct triangles ($$$, 4, 4$4,

	displa& when wor-ing with nega t ve numbers • Understand how to use the order of opera t ons including powers and roots Use a calculator to evaluate numerical e5pressions involving powers (roots) • 2den t f& if a frac t on is termina t ng or recurring —— • Aecall some decimal and frac t on e3uivalents (eᶠgᶠ tenths, f Ghs, eighths) ——	to list a set of integers _) (• Use a formal method to solve an ine3ualit& with un-nowns on both sides • Use a formal method to solve an ine3ualit& involving brac-ets • Know how to deal with nega t ve number terms in an ine3ualit& • Know how to show a range of values that solve an ine3ualit& on a number line • Know when to use an open or closed circle at the end of a range of values	func t ons of the form & H m5 8 c (5 ± & H c, a5 ± b& H c) —— • Understand the concept of the gradient of a straight line —— • =ind the gradient of a straight line on a unit grid —— • =ind the &" intercept of a straight line —— • =ind the e3ua t on of a line through one point with a given gradient —— • =ind the e3ua t on of a line through two given points	• . onstruct a grouped fre3uenc& table for con t nuous data —— • . onstruct histograms for grouped data with e3ual class intervals __ ———— ——! • 2nterpret histograms for grouped data with e3ual class intervals —— . onstruct and use the horizontal a5is of a histogram correctl& ——	Aecognise a graph that illustrates inverse propor t on ——	

	• Write a decimal as a fraction ___ • Write a fraction in its lowest terms b& cancelling common factors ___ • 2den t f& when a fraction can be scaled to tenths or hundredths • . onvert a fraction to a decimal b& scaling (when possible) ___ • Use a calculator to change an& fraction to a decimal ___ • Write a decimal as a percentage				

	as a percentage _____ • Aecognise when a fract on (percentage) should be interpreted as a number • Aecognise when a fract on (percentage) should be interpreted as a operator • 2den t f& the mul t plier for a percentage increase or decrease when the percentage is greater than +!!J " __ • Use calculators to increase an amount b& a percentage greater than +!!J " ___				

	• $olve problems involving percentage change • $olve original value problems when wor-ing with percentages • $olve f nancial problems including simple interest • Understand the meaning of giving an e5act solu t on $olve problems that re3uire e5act calcula t on with frac t ons				
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	?upils use mathema t cs as an integral part of classroom ac t vi t esF Khe& represent their wor- with ob;ects or pictures and discuss itF Khe& recognise and use a simple pa6ern or rela t onshipF	t eupils develop their own strategies for solving 7'g. K problems and use these strategies both in wor-ing within mathema t cs and in appl&ing mathema t cs to prac t cal conte5tsF When solving problems, with or without 2. K, the& chec- their results are reasonable b& considering the conte5tF Khe& loo- for pa6erns and rela t onships, presen t ng informa t on and results in a clear and organised wa&, using 2. K appropriatel&F Khe& search for a solu t on b& tr&ing out ideas of their ownF	?upils tear& out pb se& tal tas-s and solve 3uite comple5 problems b& independentl& and s&stema t call& brea-ing them down into smaller, more manageable tas-sF Khe& interpret, discuss and s&nthesise informa t on presented in a variet& of mathema t cal forms, re6s on &evinp nga ea the orig nal son s oleast KKeimonsions b t&uep th wri6en and spo-en language e5plains and informs their use of diagramsF Khe& begin to give mathema t cal ;us t f ca t ons, ma-ing connec t ons between the current situa t on and situa t ons the& hrc às trc ào sp À ;s t 9 T @=cÉails carre

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			mathematcal e5planaton and e5perimental evidenceF
	?upils tr& diCerent approaches and fnd wa&s of overcoming diLcultes that arise when the& are solving problemsF Khe& are beginning to organise their wor- and chec- resultsF ?upils discuss their mathematcal wor- and are beginning to e5plain their thin-ingF Khe& use and interpret mathematcal s&mbols and diagramsF ?upils show that the& understand a general statement b& fnding partcular e5amples that match itF	?upils carr& out substantal tas-s and solve 3uite comple5 problems b& independentl& and s&stematcall& brea-ing them down into smaller, more manageable tas-sF Khe& interpret, discuss and s&nthesise informaton presented in a variet& of mathematcal forms, relatng fndings to the original conte5tF Kheir wri6en and spo-en language e5plains and informs their use of diagramsF Khe& begin to give mathematcal ;ustfcatons, ma-ing connectons between the current situaton and situatons the& have encountered beforeF	?upils develop and follow alternatve approachesF Khe& compare and evaluate representatons of a situaton, introducing and using a range of mathematcal techni3uesF Khe& reEect on their own lines of en3uir& when e5ploring mathematcal tas-sF Khe& communicate mathematcal or statstcal meaning to diCerent audiences through precise and consistent use of s&mbols that is sustained throughout the wor-F Khe& e5amine generalisatons or solutons reached in an actvit& and ma-e further progress in the actvit& as a resultF Khe& comment constructvel& on the reasoning and logic, the process emplo&ed and the results obtainedF
	?upils develop their own strategies for solving problems and use these strategies both in wor-ing within mathematcs and in appl&ing mathematcs to practcal conte5tsF When solving problems, with or without 2. K, the& chec- their results are reasonable b& considering the conte5tF Khe& loo- for pa6erns and relatonships, presentng informaton and results in a clear and	$tartng from problems or conte5ts that have been presented to them, pupils e5plore the eCects of var&ing values and loo- for invariance in models and representatons, wor-ing with and withoicatat ma il	

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organised wa&, using 2. K appropriatel&F Khe& search for a solu t on b& tr&ing out ideas of their ownF	solu t ons, loo-ing for e3uivalence to diCerent problems with similar structuresF Khe& appreciate the diCerence between mathema t cal e5plana t on and e5perimental evidenceF	mathema t cal language and s&mbols eCec t vel& in presen t ng a convincing, reasoned argumentF Kheir reports include mathema t cal ;us t f ca t ons, dis t nguishing between evidence and proof and e5plaining their solu t ons to problems involving a number of features or variables
2n order to e5plore mathema t cal situa t ons, carr& out tas-s or tac-le problems, pupils iden t f& the mathema t cal aspects and obtain necessar& informa t onF Khe& calculate accuratel&, using 2. K where appropriateF Khe& chec- their wor-ing and results, considering whether these are sensibleF Khe& show understanding of situa t ons b& describing them mathema t call& using s&mbols, words and diagramsF Khe& draw simple conclusions of their own and e5plain their reasoningF	?upils develop and follow alterna t ve approachesF Khe& compare and evaluate representa t ons of aU0age?e&	

Pupils will develop their spelling of -e& mathematcal wordsF Khis will be monitored using spelling tests at the start and end of each unitF Khis will be $?4B mar-edF Pupils will be given opportuniti es to write in sentences and paragraphs when suited to the topicF

Develop fluency

consolidate their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals, fractions, powers and roots

select and use appropriate calculation strategies to solve increasingly complex problems

use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships

substitute values in expressions, rearrange and simplify expressions, and solve equations

move freely between different numerical, algebraic, graphical and diagrammatic representations [for example, equivalent fractions, fractions and decimals, and equations and graphs]

develop algebraic and graphical fluency, including understanding linear and simple quadratic functions
use language and properties precisely to analyse numbers, algebraic expressions, 2-Dand -D shapes, probability and statistics!

Reason mathematically

extend their understanding of the number system" make connections between number relationships, and their algebraic and graphical representations

extend and formalise their knowledge of ratio and proportion in working with measures and geometry, and in formulating proportional relations algebraically

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