The Duston School

Knowledge itself is power

Year 8 Maths

Knowledge Organiser

Term 1

Name:		Class:

Keyword	Definition
Integer	A whole number
Ascending	Increasing in size, going up
Descending	Decreasing in size, going down
Decimal	A way of writing numbers which aren't whole. The whole number and the decimal fraction are separated by a decimal point.
Decimal Places	The numbers that come after a decimal point.
Factor	A number which the amount can be divided by without leaving a remainder.
Multiple	A number which is the result of multiplying an amount by an integer.
Prime	A number with only 2 factors.
Square (n)	A number formed by multiplying an amount by itself.
Cube (n)	A number formed by raising an amount to the power of 3.

Homework 1 due:	
Homework 2 due:	
Homework 3 due:	

Term 1 Overview

Big Questions for the term

Calculations and Accuracy

- What is median and range?
- How do Decimals affect calculations?
- How do negatives affect calculations?
- What are the functions on a calculator?

Integers, Powers and Roots

- What did we learn in year 7?
- What is index notation and why do we have it?
- What does it mean to 'root' a number?
- How can we perform operations with Index Notation?
- What is Standard Form and why do we use it?

Knowledge Retrieval Questions – From Year 7

Unit 1 – Calculations and Accuracy

#	Question	Answer
1	What does the word sum mean?	The result of addition.
2	What does consecutive mean?	Following each other continuously.
3	How do you find the difference between two numbers?	Subtract the smaller number from the larger one.
4	What should your answer be if the question tells you to calculate?	A number
5	What should your answer be if the question tells you to evaluate?	A number
6	How do you divide a number by 10?	Move all the digits 1 place to the right
7	How do you multiply a number by 10?	Move all the digits 1 place to the left
8	What is subtracting a negative number equivalent to?	Adding a positive number
9	What is adding a negative number equivalent to?	Subtracting a positive number
10	What is a term-to-term rule?	A rule telling you how to get from one term to the next in a sequence
11	In a sequence, what is meant by a term?	One of the numbers in the sequence
12	What is the first step when trying to find the next term in a sequence?	Identify the pattern.
13	What is a linear sequence?	A number pattern which increases or decreases by the same amount each time.
14	How do you work out the value of a digit in a long number?	Ignore every other digit (make them zeroes)
15	How do you add decimals?	Same method as usual, lining up the decimal points
16	How do you subtract decimals?	Same method as usual, lining up the decimal points

Unit 2 – Integers, Powers and Roots

#	Question	Answer
1	What does the word product mean?	The result of a multiplication.
2	What sign would the product of 2 negative numbers have?	Positive
3	What sign would the product of a positive and a negative number have?	Negative
4	What sign would the answer to a negative number divided by a positive number have?	Negative
5	What is the definition of a square number?	The product of a number and itself
6	List the first 15 square numbers.	1,4,9,16,25,36,49,64,81,100,121,144,169,196,225
7	What is the definition of a factor?	A number which divides another number exactly.
8	What is the definition of a multiple?	A number in another number's times table.
9	What does HCF stand for?	Highest Common Factor
10	What does LCM stand for?	Lowest Common Multiple
11	What is a cube number?	The product of 3 equal numbers.
12	How do you divide by a fraction?	Multiply by its reciprocal (the fraction flipped over)
13	What is the definition of a prime number?	A number with only 2 factors.

Knowledge Retrieval Questions – From Year 8

Unit 1 – Calculations and Accuracy

#	Question	Answer
1	How do you find the median when you have an odd number of pieces of data?	Put the numbers in order and select the middle number
2	How do you find the median when you have an even number of pieces of data?	Put the numbers in order and find the mean of the two middle numbers
3	How do you find the range of a set of data?	Largest number - Smallest number
4	How do you divide by a decimal?	Multiply both numbers by 10 repeatedly until you are dividing by a whole number
5	How do you use a calculation to work out the answer to another calculation with the same digits?	Compare each number to the original number, multiply or divide by powers of 10, as appropriate
6	What are decimal places?	Digits to the right of a decimal point
7	How do you round to 2 decimal places?	Look at the 3rd decimal place, if less than 5 - round down, if 5 or more - round up

Unit 2 – Integers, Powers and Roots

#	Question	Answer
1	How do you estimate a square root?	Identify the square numbers either side of it
2	How do you simplify the product of two powers with the same base?	Add the indices together
3	How do you simplify the division of two powers with the same base?	Subtract the second index from the first
4	What is the answer to any number raised to the power zero?	1
5	How do you simplify a power raised to another power?	Multiply the indices together
6	How is a negative index related to the same positive index?	The negative index is the reciprocal of the positive one
7	How do you determine the index when converting large numbers into standard form?	It is the number of digits after the first non-zero digit
8	How do you determine the index when converting small numbers into standard form?	It is the number of digits before the first non-zero digit
9	The first part of a number written in standard from should be between which 2 numbers?	1 and 10 (smaller than 10...)

Term 1 Homework 1 – Calculations and Accuracy Year 7

#	Type	Question	Answer
1	Knowledge	In a sequence, what is meant by a term?	
	Application 1	What is the third term in the following sequence? 44, 95, 146, 197, 248	
	Application 2	What is the third term in the following sequence? 156, 311, 466, 621, 776	

#	Type	Question	Answer
2	Knowledge	What is the first step when trying to find the next term in a sequence?	
	Application 1	What is the next term in the following sequence 4, 9, 14, 19, 24?	
	Application 2	What is the next term in the following sequence 11, 31, 51, 71, 91?	

#	Type	Question	Answer
3	Knowledge	What does the word sum mean?	
	Application 1	What is the sum of 4 and 5?	
	Application 2	What is the sum of 11 and 20?	

#	Type	Question	Answer
4	Knowledge	How do you find the difference between two numbers?	
	Application 1	What is the difference between 44 and 51?	
	Application 2	What is the difference between 156 and 155?	

#	Type	Question	Answer
5	Knowledge	How do you work out the value of a digit in a long number?	
	Application 1	What is the value of the 5 in the number 64589?	
	Application 2	What is the value of the 2 in the number 52163?	

#	Type	Question	Answer
6	Knowledge	What is adding a negative number equivalent to?	
	Application 1	Evaluate 8 + (-9)	
	Application 2	Evaluate 12 + (-15)	

#	Type	Question	Answer
7	Knowledge	What is a term-to-term rule?	
	Application 1	What is the term-to-term rule in the following sequence 4, 9, 14, 19, 24?	
	Application 2	What is the term-to-term rule in the following sequence 11, 31, 51, 71, 91?	

#	Type	Question	Answer
8	Knowledge	How do you add decimals?	
	Application 1	Calculate 5.1 + 4.4	
	Application 2	Calculate 15.5 + 15.6	

#	Type	Question	Answer
9	Knowledge	What is a linear sequence?	
	Application 1	Is the following sequence linear? 5, 7, 8, 10	
	Application 2	Is the following sequence linear? 22, 44, 68, 90	

#	Type	Question	Answer
10	Knowledge	How do you subtract decimals?	
	Application 1	What is the difference between 0.68 and 5.4	
	Application 2	What is the difference between 1.86 and 13.2	

#	Type	Question	Answer
11	Knowledge	What should your answer be if the question tells you to calculate?	
	Application 1	Calculate 8 multiplied by 9	
	Application 2	Calculate 12 multiplied by 2	

#	Type	Question	Answer
12	Knowledge	What is subtracting a negative number equivalent to?	
	Application 1	Calculate 4 - (-9)	
	Application 2	Calculate 11 - (-12)	

#	Type	Question	Answer
13	Knowledge	How do you divide a number by 10?	
	Application 1	Calculate 44 divided by 10.	
	Application 2	Calculate 156 divided by 10.	

#	Type	Question	Answer
14	Knowledge	How do you multiply a number by 10?	
	Application 1	Evaluate 51 multiplied by 10.	
	Application 2	Evaluate 155 multiplied by 10.	

#	Type	Question	Answer
15	Knowledge	What should your answer be if the question tells you to evaluate?	
	Application 1	Evaluate 44 + 37	
	Application 2	Evaluate 156 + 114	

Workings Space

Term 1 Homework 2 – Calculations and Accuracy Years 7 and 8

#	Type	Question	Answer
1	Knowledge	What is the first step when trying to find the next term in a sequence?	
	Application 1	What is the next term in the following sequence 2, 4, 6, 8, 10?	
	Application 2	What is the next term in the following sequence 20, 32, 44, 56, 68?	

#	Type	Question	Answer
2	Knowledge	How do you divide by a decimal?	
	Application 1	Calculate 0.232 divided by 0.008	
	Application 2	Calculate 2.5 divided by 0.1	

#	Type	Question	Answer
3	Knowledge	How do you divide a number by 10?	
	Application 1	Calculate 99 divided by 10.	
	Application 2	Calculate 135 divided by 10.	

#	Type	Question	Answer
4	Knowledge	How do you find the range of a set of data?	
	Application 1	What is the range of the following data: 11, 15, 12, 11, 14	
	Application 2	What is the range of the following data: 12, 20, 16, 17, 15	

#	Type	Question	Answer
5	Knowledge	How do you find the difference between two numbers?	
	Application 1	What is the difference between 99 and 16?	
	Application 2	What is the difference between 135 and 174?	

#	Type	Question	Answer
6	Knowledge	What does consecutive mean?	
	Application 1	Select 2 of these numbers which are consecutive: 2, 7, 3, 10.	
	Application 2	Select 2 of these numbers which are consecutive: 20, 25, 22, 24.	

	Knowledge	What is a linear sequence?	
7	Application 1	Is the following sequence linear? 2, 4, 9, 11	
	Application 2	Is the following sequence linear? 24, 48, 68, 92	

	Knowledge	How do you add decimals?	
8	Application 1	Calculate 1.6 + 9.9	
	Application 2	Calculate 17.4 + 13.5	

	Knowledge	What is subtracting a negative number equivalent to?	
9	Application 1	Calculate 2 - (-2)	
	Application 2	Calculate 20 - (-17)	

	Knowledge	What is a term-to-term rule?	
10	Application 1	What is the term-to-term rule in the following sequence 2, 4, 6, 8, 10?	
	Application 2	What is the term-to-term rule in the following sequence 20, 32, 44, 56, 68?	

#	Type	Question	Answer
11	Knowledge	How do you work out the value of a digit in a long number?	
	Application 1	What is the value of the 2 in the number 31256?	
	Application 2	What is the value of the 4 in the number 74385?	

#	Type	Question	Answer
12	Knowledge	What is adding a negative number equivalent to?	
	Application 1	Evaluate 10 + (-5)	
	Application 2	Evaluate 15 + (-13)	

#	Type	Question	Answer
13	Knowledge	What does the word sum mean?	
	Application 1	What is the sum of 2 and 2?	
	Application 2	What is the sum of 20 and 12?	

#	Type	Question	Answer
14	Knowledge	How do you use a calculation to work out the answer to another calculation with the same digits?	
	Application 1	Given that 7990 × 479 = 3827210, what is 799 × 4790	
	Application 2	Given that 4680 × 726 = 3397680, what is 46.8 × 72.6	

#	Type	Question	Answer
15	Knowledge	How do you subtract decimals?	
	Application 1	What is the difference between 0.21 and 4.6	
	Application 2	What is the difference between 1.63 and 16.2	

#	Type	Question	Answer
16	Knowledge	How do you round to 2 decimal places?	
	Application 1	Round the number 37.1355 to 2 decimal places	
	Application 2	Round the number 62.3646 to 2 decimal places	

#	Type	Question	Answer
17	Knowledge	What are decimal places?	
	Application 1	How many decimal places does the number 1.29 have?	
	Application 2	How many decimal places does the number 8.28 have?	

#	Type	Question	Answer
18	Knowledge	How do you multiply a number by 10?	
	Application 1	Evaluate 16 multiplied by 10.	
	Application 2	Evaluate 174 multiplied by 10.	

#	Type	Question	Answer
19	Knowledge	What should your answer be if the question tells you to evaluate?	
	Application 1	Evaluate 99 + 62	
	Application 2	Evaluate 135 + 147	

#	Type	Question	Answer
20	Knowledge	What should your answer be if the question tells you to calculate?	
	Application 1	Calculate 10 multiplied by 5	
	Application 2	Calculate 15 multiplied by 2	

Workings Space

Term 1 Homework 3 – Integers, Powers and Roots Year 7

#	Type	Question	Answer
1	Knowledge	Why do we use BIDMAS?	
	Application 1	Calculate 19 + 1 × 5	
	Application 2	Calculate 132 + 16 × 20	

#	Type	Question	Answer
2	Knowledge	What is a cube number?	
	Application 1	What is 4 cubed?	
	Application 2	What is 8 cubed?	

#	Type	Question	Answer
3	Knowledge	List the first 15 square numbers.	
	Application 1	What is the 4th square number?	
	Application 2	What is the 20th square number?	

#	Type	Question	Answer
4	Knowledge	What does LCM stand for?	
	Application 1	What is the LCM of 5 and 4?	
	Application 2	What is the LCM of 8 and 15?	

#	Type	Question	Answer
5	Knowledge	What does HCF stand for?	
	Application 1	What is the HCF of 33 and 30?	
	Application 2	What is the HCF of 66 and 69?	

#	Type	Question	Answer
6	Knowledge	What is the definition of a multiple?	
	Application 1	Give an example of a multiple of 9	
	Application 2	Give an example of a multiple of 15	

#	Type	Question	Answer
7	Knowledge	What does the word product mean?	
	Application 1	What is the product of 10 and 9?	
	Application 2	What is the product of 1 and 15?	

#	Type	Question	Answer
8	Knowledge	What is the definition of a prime number?	
	Application 1	Is the number 1 prime?	
	Application 2	Is the number 16 prime?	

#	Type	Question	Answer
9	Knowledge	What is the definition of a factor?	
	Application 1	Give an example of a factor of 3	
	Application 2	Give an example of a factor of 112	

#	Type	Question	Answer
10	Knowledge	What sign would the product of a positive and a negative number have?	
	Application 1	What is the product of 10 and -10?	
	Application 2	What is the product of 15 and -10?	