INSPIREMATHS

Progression of Key Concepts in Inspire Maths

Fractions, percentages and decimals (making connections between the units) with reference to the pages in the Teacher's Guide

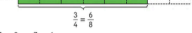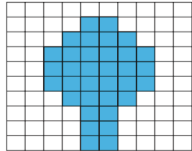| Inspire Maths 1	Inspire Maths 2	Inspire Maths 3	Inspire Maths 4	Inspire Maths 5	Inspire Maths 6
The foundations of fractions are laid in Inspire Maths 1 by analyzing parts and whole using the 'part-whole' strategy. This appears throughout IM1A and IM1B. **Key vocabulary** - part: TG1A p32 - whole: TG1A p32	**_Fractions_: TG2B Unit 12 p56** **Key concepts**: Understanding fractions by using shapes to represent one whole with denominators up to 12 and write fractions with denominators up to 12 from given shapes. *- Using model drawing as a concept to represent fraction contexts:* *- Compare and order two or more fractions with the same denominator using rectangular strips or model drawings of the same size:*	**_Fractions_: TG3B Unit 14 p116** *- Numerator and denominator:* *- Understanding equivalent fractions using a fraction strip (paper) to show equal parts and write equivalent parts of a given fraction with the help of a model drawing:* *- Write equivalent fractions of a given fraction using the multiplying/dividing factor technique expressing in its simplest form.*	**_Fractions_: TG4A Unit 5 p 137** *- Express, interpret, read, draw and mark mixed numbers on a number line and as region models (translating pictorial representations of mixed numbers to symbolic and vice versa).* *- Express, interpret, read, draw and mark improper fractions on a number line and as region models (translating pictorial representations of improper fractions to symbolic and vice versa):* 	**_Fractions (1)_: TG5A Unit 3 p116** *- Identifying and differentiating like and unlike fractions:* *- Adding unlike fractions by making a systematic list of the multiples of the denominator and by drawing a model:* *- Subtracting unlike fractions by making a systematic list of the multiples of the denominator and by drawing a model*	**_Fractions_: TG6A Unit 4 p106** *- Four operations with fractions* *- Dividing by a proper fraction: dividing a whole number by a proper fraction, dividing a proper fraction by a proper fraction* *- Word problems* **_Ratio_: TG6A Unit 5 p145** *- Ratio and fraction: write and express ratio by comparing and analyzing parts and wholes (values):*

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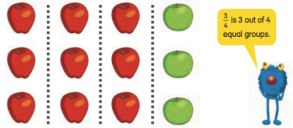| Inspire Maths 1	Inspire Maths 2	Inspire Maths 3	Inspire Maths 4	Inspire Maths 5	Inspire Maths 6
	- *Compare and order two or more fractions with different denominators using rectangular strips or model drawings of the same size.* - *Adding and subtracting like fractions.* - *Solving word problems by recalling and applying 'part-whole' and 'adding on' concepts in addition of two fractions using model drawing. Recalling and applying 'part-whole' and 'taking away' concepts in subtraction of fractions using model drawing.* **Key vocabulary** - fractions: TG2B p56 - equal part: TG2B p56 - unequal: TG2B p56 - whole: TG2B p57 - fractional parts: TG2B p61 - fractions (one-half to one-twelfth):	- *Comparing fractions using the equivalent fraction method:* - *Adding related fractions (the related fractions are changed to like fractions first).* - *Subtracting related fractions (the related fractions are changed to like fractions first).* **Key vocabulary** - numerator: TG3B p116 - denominator: TG3B p116 - equivalent faction: TG3B p117 - simplest form: TG3B p122 - portion: TG3B p123 - common denominator: TG3B p126 - common numerator: TG3B p127 - express: TG3B p129	- *Conversion of fractions relating improper fractions to mixed numbers and converting between the two by separating an improper fraction into a whole and part of a whole, or by division, or by multiplication:* - *Adding and subtracting fractions: add two or three related fractions, subtract two related fractions, subtract a fraction from a whole number:*	- *Fractions and division: a whole number when divided by another whole number can result in a whole number with or without a remainder, a proper fraction or a mixed number:* - *Converting fractions to decimals: converting tenths, hundredths and thousandths, converting using long division, converting improper fractions and mixed numbers* - *Adding mixed numbers with or without regrouping*	- *Comparing ratios:* - *Word problems (2)* **_Percentage:_ TG6A Unit 6 p197** - *Finding percentages: express a fraction or a decimal as a percentage and vice versa, analyze the parts and whole to express the percentage giving the number of parts:* - *Word problems (1)* - *Word problems (2)*

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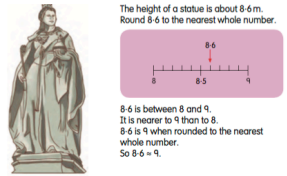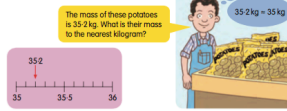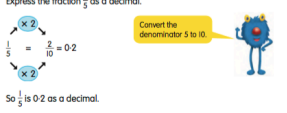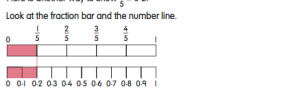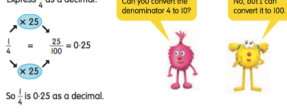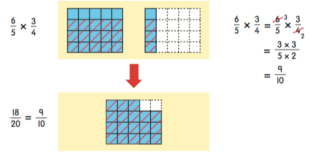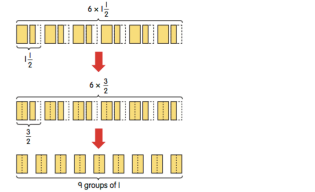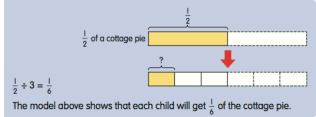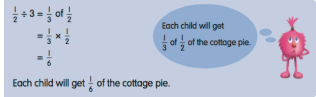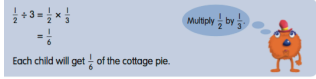| Progression of Key Concepts in Inspire Maths					
Fractions, percentages and decimals (making connections between the units) with reference to the pages in the Teacher's Guide					
Inspire Maths 1	**Inspire Maths 2**	**Inspire Maths 3**	**Inspire Maths 4**	**Inspire Maths 5**	**Inspire Maths 6**
	TG2B p61 - fraction story: TG2B p67 - like fractions: TG2B p74		*- Fractions of a set:* *- Word problems* *__Decimals (1)__: TG4B Unit 9 p6* *- Understanding tenths:* *- Understanding hundredths* *- Understanding thousandths* *- Comparing and ordering decimals*	*- Subtracting mixed numbers with or without regrouping* *- Word problems* *__Fractions (2)__: TG5A Unit 4 p168* *- Product of proper fractions: multiplying two fractions is the same as finding the fractional part of another fraction; conceptualizing the meaning of multiplying two proper fractions with concrete representation; use of the cancellation (simplification) method to compute the product of two proper fractions; exploring and comparing the product of two whole numbers and the product of two proper fractions* 	__Key vocabulary__ - unitary method: TG6A p175

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			- Rounding decimals to the: *nearest whole number* *nearest tenth* *nearest hundredth:* The height of a statue is about 8·6 m. Round 8·6 to the nearest whole number. 8·6 is between 8 and 9. It is nearer to 9 than to 8. 8·6 is 9 when rounded to the nearest whole number. So 8·6 ≈ 9. The mass of these potatoes is 35·2 kg. What is their mass to the nearest kilogram? 35·2 kg ≈ 35 kg 35·2 is between 35 and 36. It is nearer to 35 than to 36. 35·2 is 35 when rounded to the nearest whole number. So 35·2 ≈ 35. The mass of potatoes to the nearest kilogram is 35 kg. *- Fractions and decimals: expressing a fraction (whose denominator is a factor of 10 or 100) as a decimal and express a decimal as a fraction in its simplest form:* Express the fraction $\frac{1}{5}$ as a decimal. $\frac{1}{5} = \frac{2}{10} = 0·2$ Convert the denominator 5 to 10. So $\frac{1}{5}$ is 0·2 as a decimal. Here is another way to show $\frac{1}{5} = 0·2$. Look at the fraction bar and the number line. Express $\frac{1}{4}$ as a decimal. Can you convert the denominator 4 to 10? No, but I can convert it to 100. $\frac{1}{4} = \frac{25}{100} = 0·25$ So $\frac{1}{4}$ is 0·25 as a decimal.	*- Word problems (1)* *- Product of an improper fraction and a proper or improper fraction:* Find the product of $\frac{6}{5}$ and $\frac{3}{4}$. $\frac{6}{5} \times \frac{3}{4}$ $\frac{6}{5} \times \frac{3}{4} = \frac{\cancel{6}^3}{5} \times \frac{3}{\cancel{4}_2}$ $= \frac{3 \times 3}{5 \times 2}$ $= \frac{9}{10}$ $\frac{18}{20} = \frac{9}{10}$ *- Product of a mixed number and a whole number:* There are 6 children in the Walker family. Each child is given $1\frac{1}{2}$ sandwiches. How many sandwiches did they get altogether? $6 \times 1\frac{1}{2}$ $1\frac{1}{2}$ $6 \times \frac{3}{2}$ $\frac{3}{2}$ 9 groups of 1 *- Word problems (2)* *- Dividing a fraction by a whole number:*	

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			Decimals (2): **TG4B Unit 10 p77** - *Refer to addition and subtraction progression document* - *Refer to multiplication and division progression document* **Key vocabulary** - mixed number: TG4A p137 - simplify: TG4A p141 - cancellation: TG4A p141 - improper fraction: TG4A p142 - conversion: TG4A p146	 - *Word problems (3)* *Decimals:* **TG5B Unit 7 p2 p28** - *Converting fractions to decimals: converting tenths and hundredths, converting thousandths* - *Using a calculator* - *Word problems* *Decimals*: **TG5B Unit 7 p6** Refer to multiplication and division progression document *Measurement*: **TG5B Unit 8 p53** - *Converting a measurement from a larger unit to a smaller unit* - *Converting a measurement from a smaller unit to a larger unit*	

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				Percentage: **TG5B Unit 10 p108** - *Per cent* - *Converting more fractions to percentages* - *Percentage of a quantity* - *Word problems* **Key vocabulary** - unlike fractions: TG5A p116 - proper fractions: TG5A p116 - per cent: TG5B p108	

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