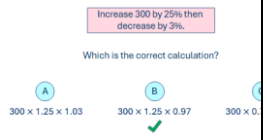
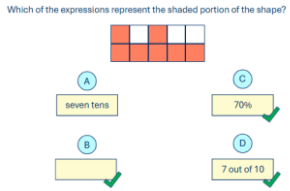
Holy Family Catholic School – Faculty of Mathematics Autumn Half-term 2 Year 10F

Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Hinge Questions	Red Zone
Lesson 1 missing due to training day 02/11/2026						
Week 9 Lesson 2 To be able to calculate repeated percentage change Step 3	Percentage Increase Decrease Change Multiplier	NUMBER	Percentage of an amount Percentage increase or decrease	I will be able to: Use a multiplier to find a repeated percentage increase or decrease.	Slide 11 	Slide 18 The value of a house decreases by 8% each year. After how many years will the house be worth less than 75% its original value?
Week 9 Lesson 3 To express one number as a fraction of a percentage of another. Step 4	Percentage Fraction Proportion Numerator Denominator Percentage	NUMBER	Writing a fraction Rounding to the nearest integer Converting between FDP	I will be able to: • Write a fraction as a percentage to the nearest integer I will be able to:	Slide 10  Slide 12	Slide 19 Calculate the percentage mass of carbon (C) in carbon dioxide (CO_2). Relative atomic mass: C = 12 Relative formula mass: CO_2 = 44 $\frac{12}{44} = 12 \div 44 = 0.2\dot{7}$ $0.2\dot{7} \times 100 = 27.2\dot{7}\%$ $\approx 27\%$ Slide 20

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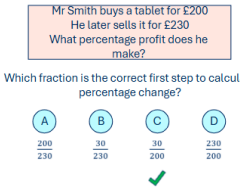
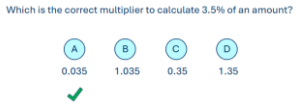
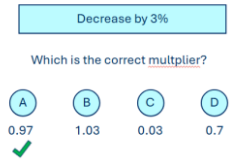
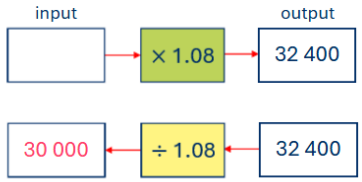
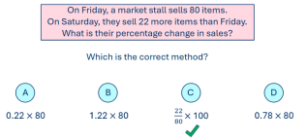
To express change as a percentage Step 5	Loss Profit Difference Fraction		Calculating difference Writing a fraction. Converting a fraction to a percentage	• Find percentage loss or profit		Some students set up an experiment using osmosis to find the concentration of sucrose solution on potato cells. The results show the initial and final mass of a piece of potato from each beaker. Which beaker contained the piece of potato with the greatest percentage change in mass? beaker / A / B / C initial mass (g) / 10.5 / 9.2 / 6 final mass (g) / 8 / 11.7 / 7.9 23.8% 27.2% 31.7% Beaker C contained the piece of potato with the greatest percentage change in mass
Week 9 Lesson 4 Calculate simple interest. Step 7 Calculate compound interest. Step 8	Power Interest, Principal, Rate, Investment Compound Interest, Multiplier, Growth, Investment	NUMBER	Addition law Percentage of an amount Repeated percentage change	I will be able to: • Find yearly interest; total interest; final amount	Slide 8 	Slide 16 £670 is deposited into an account that pays 1.9% simple interest annually on the principal amount. How much money will be in the account after 9 years? 670 × 0.019 = 12.73 12.73 × 9 = 114.57 670 + 114.57 = 784.57 There will be £784.57 in the account. Why did we multiply by 0.019? What does '114.57' represent? Why did we add 670 and 114.57?
Week 10 Lesson 1 Find original values using	Original Value, Multiplier, Reverse,	NUMBER	Percentage multipliers	I will be able to: • Identify multiplier; form	Slide 9	Slide 19

Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Hinge Questions	Red Zone
reverse percentages. Step 6 (E)	Percentage Change			equation; calculate original value		A town's population increased by 8%. The population is now 32 400 people. What was the population before the increase? 100% + 8% = 108%  The population was 30 000 people.
Week 10 Lesson 2 Select efficient methods for percentage problems. Step 9	Method, Percentage, Multiplier, Efficiency	NUMBER	All percentage topics	I will be able to: Identify problem type; choose method; justify choice	Slide 12 	Slide 19 A large parcel has a mass of 8 kg The mass of a small parcel is 35% of the mass of the large parcel. Work out the mass of the small parcel. A small parcel has a mass of 8 kg The mass of a large parcel is 35% greater than the mass of the small parcel. Work out the mass of the large parcel. A large parcel has a mass of 8 kg The mass of a small parcel is 35% less than the mass of the large parcel. Work out the mass of the small parcel. A parcel has a mass of 8 kg. Some items are removed from the parcel. The new mass of the parcel is 6 kg. Work out the percentage change in mass. Discuss the similarities and differences of each problem.
Week 10 Lesson 3 Review and assessment task						

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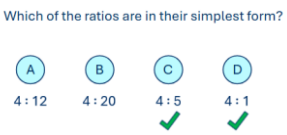
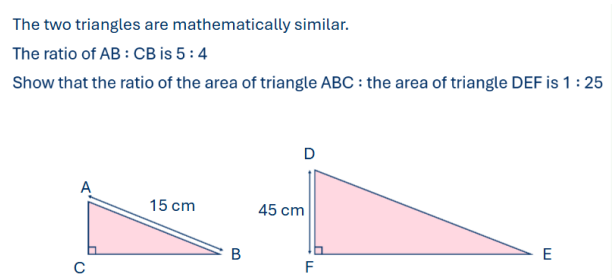
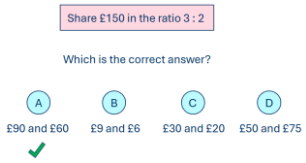
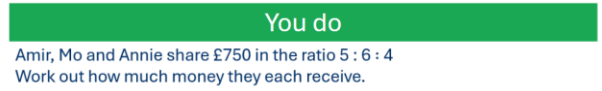
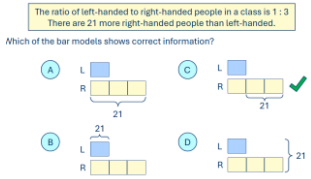
Week 10 Lesson 4 Recognise and create equivalent ratios. Step 1	Ratio, Equivalent, Simplify, Scale Factor	NUMBER	Multiplication facts; Division facts; Simplifying fractions	I will be able to • Simplify a ratio; • Generate equivalent ratios; • Identify equivalent ratios	Slide 14 	Slide 26 
Week 11 Lesson 1 Divide an amount into a given ratio when the total is known. Step 2	Ratio, Share, Total, Part	NUMBER	Equivalent ratios; Division; Multiplication	I will be able to: • Find total parts; • Calculate one part; • Share accurately	Slide 20 	Slide 22 
Week 11 Lesson 2 Share quantities when one share or difference is known. Step 3	Difference, Ratio, Parts, Share	NUMBER	Sharing in a ratio; Multiplication and division	I will be able to: Identify one part; Calculate missing parts; Solve contexts	Slide 16 	Slide 22 A cinema sells adult and child tickets. The ratio of adult tickets to child tickets is 3 : 10 There are 250 child tickets available to buy for £8.50 each. The cinema sells all the tickets for a total of £3025 Work out the cost of one adult ticket.

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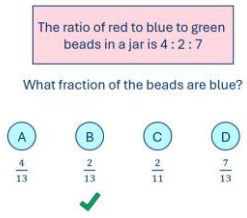
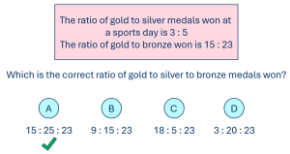
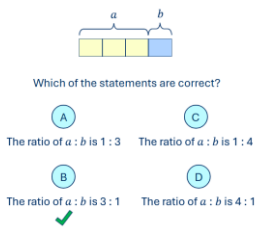
Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Hinge Questions	Red Zone
Week 11 Lesson 3 Connect ratios, fractions and proportions. Step 4	Ratio, Fraction, Proportion, Whole	NUMBER	Fractions; Simplifying; Equivalent fractions	I will be able to • Write ratio as fraction; Simplify; Convert forms	Slide 17 	Slide 21 Mr Fisher earns £500 a week. He spends $\frac{1}{4}$ of his wage on rent. He spends £100 on bills. The rest of his wage is split into spending money and savings in the ratio 2 : 3 What percentage of Mr Fisher's wage is put in his savings? $\frac{165}{500} = 33\%$
Week 11 Lesson 4 Combine ratios with a common value. Step 5	Combine, Common Value, Ratio, Equivalent	NUMBER	Equivalent ratios; Simplifying ratios	• Identify common part; Make equivalent ratios; Combine ratios	Slide 19 	Slide 26 $a : b = 1 : 2$ $b : c = 4 : 7$ $c : d = 14 : 3$ Write the ratio $a : b : c : d$
Week 12 Lesson 1 Use algebra to share amounts in a ratio. Step 6	Algebra, Ratio, Variable, Equation	NUMBER	Sharing in a ratio; Solving equations	I will be able to • Represent parts algebraically; Form equations; Find values	Slide 9 	Slide 21 The ratio of a to b is 3 : 2 $a + b = x$ Write the values of a and b in terms of x.

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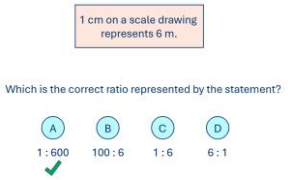
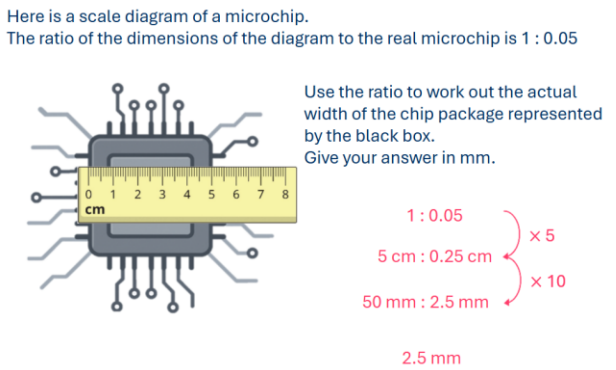
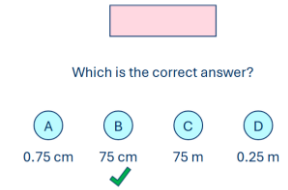
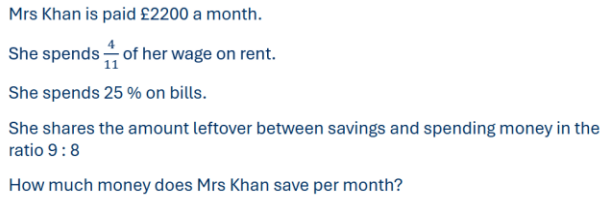
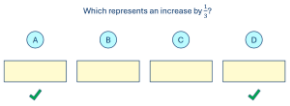
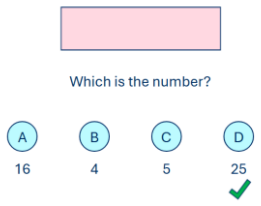
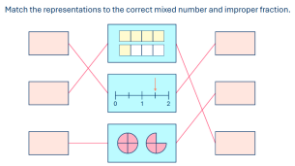
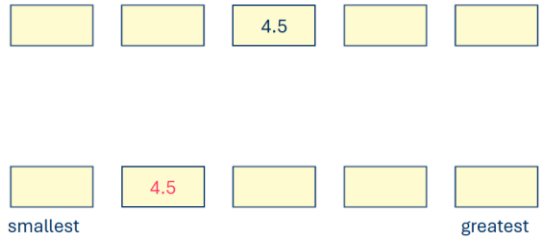
Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Hinge Questions	Red Zone
Week 12 Lesson 2 Use scale ratios in maps, plans and models. Step 7	Scale, Model, Distance, Conversion	NUMBER	Ratio; Units; Multiplication and division	I will be able to Interpret scale; Convert measurements; Solve scale problems	Slide 13 	Slide 21 
Week 12 Lesson 3 Review and assessment task						
Week 12 Lesson 4 and Week 13 Lesson 1 missed due to the long weekend						
Week 13 Lesson 2 To calculate a fraction of an amount using efficient methods. Step 1	Fraction, Numerator, Denominator, Amount	NUMBER	Division, multiplication, equivalent fractions	I can identify the denominator and numerator. I can find one part of a quantity. I can calculate any fraction of an amount.	Slide 18 	Slide 21 
Week 13 Lesson 3 To increase or decrease an	Increase, Decrease, Fraction, Change	NUMBER	Fractions of amounts, addition and subtraction	I can calculate a fraction of an amount. I can decide whether to add or subtract the	Slide 20 	Slide 23

Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Hinge Questions	Red Zone
amount by a given fraction. Step 2				fraction. I can find the new value after the change.		A number is increase by $\frac{4}{5}$ of its value to give 1170 Work out the original number.
Week 13 Lesson 4 To calculate the whole amount when a fraction of it is known. Step 3	Whole, Fraction, Part, Value	NUMBER	Fractions of amounts, inverse operations, division	I can identify the value of one part. I can calculate the value of the whole. I can solve contextual problems involving fractions.	Slide 20 	Slide 24 A class were asked if they were left- or right-handed. $\frac{3}{5}$ of the class were right-handed. The rest were left-handed. 14 students were left-handed. Work out the number of students in the class.
Week 14 Lesson 1 To recognise and convert equivalent fractions and mixed numbers. Step 4	Equivalent, Mixed Number, Improper Fraction, Simplify	NUMBER	Times tables, factors, simplifying fractions	I can find equivalent fractions. I can convert between improper fractions and mixed numbers. I can simplify fractions where appropriate.	Slide 6 	Slide 19 Write the numbers in order, starting with the smallest. 

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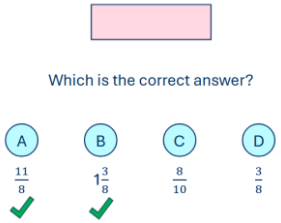
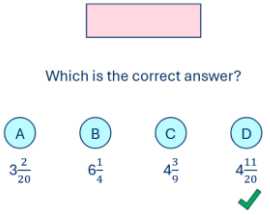
Week 14 Lesson 2 To add and subtract fractions with the same and different denominators. Step 5	Common Denominator, Numerator, Fraction, Simplify	NUMBER	Times tables, factors, simplifying fractions	I can find a common denominator. I can add or subtract numerators correctly. I can simplify my final answer.	Slide 18 	Slide 30 Mr Jones goes running on weekdays. He records the length of each run in a table. Day / Distance (km) Monday 5 Tuesday 4 Wednesday Thursday 3 Friday 1.25 Work out the total distance Mr Jones ran in the week. $14\frac{9}{10}$ km
Week 14 Lesson 3 To multiply fractions and mixed numbers. Step 6	Multiply, Numerator, Denominator, Simplify	NUMBER	Times tables, fractions, simplifying fractions	I can multiply numerators and denominators. I can simplify before or after multiplying. I can multiply mixed numbers.	Slide 23 	Slide 25 Mr Rose is painting a wall. The wall measures $5\frac{2}{3}$ m by $6\frac{1}{2}$ m. Work out the area of the wall. $5\frac{2}{3} \times 6\frac{1}{2} = \frac{17}{3} \times \frac{13}{2}$ $= \frac{221}{6}$ $= 36\frac{5}{6}$ $36\frac{5}{6}$ m^2

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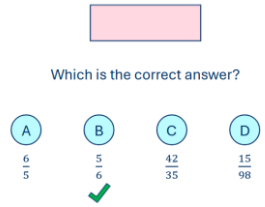
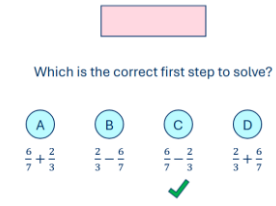
Week 14 Lesson 4 To divide fractions by using the reciprocal method. Step 7	Divide, Reciprocal, Fraction, Simplify	NUMBER	Multiplying fractions, inverse operations	I can identify the reciprocal of a fraction. I can rewrite a division as a multiplication. I can simplify my final answer.	Slide 24 	Slide 27 A car travels $50\frac{3}{4}$ miles in $1\frac{2}{3}$ hours. What is the average speed of the car?
Week 15 Lesson 1 To apply fraction skills to solve multi-step problems. Step 8	Fraction, Problem Solving, Method, Context	NUMBER	Fraction calculations, reasoning and interpretation	I can select the correct fraction method. I can complete multi-step calculations accurately. I can interpret answers in context.	Slide 21 	Slide 22 Work out the length of the side labelled b. 