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| **Spring 1** | **Y6 Ratio and Proportion** | |
| **Notes** | **Children should have an understanding of what percentage is from Y5 and be able to recall the basic FDP equivalences (1/2 ¼ 1/5 1/10 ) both unit and non-unit.** | |
| **By the end of the teaching sequence children should…** | **Examples and models and images to use** | **Notes** |
| Recall and compare equivalent fractions, percentages and decimals |  | NCETM 3.10 is a good reference point for this unit of work on FDP.  White Rose is also good for bar model images. |
| Understand fractions as division and use this to calculate decimal equivalents of fractions | ¾ is 3 ÷ 4 3/8 = 0.375 | Use tenths as an example of how this work 1 ÷10 = 0.1 or 1/10 of 1 |
| Use FDP in contexts |  | Review measures and money |
| Find % of an amount |  | Review fractions of an amount. Use the image of the bar model which the children are familiar with. Practise finding 5% by dividing 10% by 2 and 1% by dividing by 100.  Find 99% by subtracting 1% etc. |
| Find the whole from a % | If 25% of my number is 30 – how much is my whole amount. | Children should be familiar with this skill from fractions of amount. Using the fraction to find the whole. |
| See ratio as a relationship between 2 values |  | Use cubes/counter for concrete resources. Give children plenty of opportunity to play with this new concept and talk about the relationship between the 2 numbers |
| Use the ratio symbol |  |  |
| Show ratio in its simplest form and equivalent ratios | 1:2 4 : 1  2 : 4 8 : 2  3: 6 16 : 4 | Children should notice the relationship between the numbers and that the fractional amount will remain the same. |
| See ratio as fractions | |  |  |  | | --- | --- | --- | | 1 : 2 | | | | 1/3 | 2/3 | | |  |  |  | | Misconception alert! Children will often see 1:2 as ½ and need to see that there are 3 parts and therefore is 1/3 and 2/3. Again, as above, use concrete resources and plenty of time to play. |
| Compare 3 quantities with ratio |  |  |
| Calculate with ratio | See the link with fractions and number of parts   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 32 | | | | | | | | |  |  |  |  |  |  |  |  | | White Rose SOL and barvember has lots of ratio word problems. |
|  | **Y6 Algebra** |  |
| **Notes** | **Children are familiar with algebra due to missing number problems and the formulae for area and volume therefore this needn’t be a big worry for children and it is the problem solving aspect that should be focussed on.** | |
| **By the end of the teaching sequence children should…** | **Examples and models and images to use** | **Notes** |
| Use simple formulae | Screen Clipping | Make sure children are aware that they have already used formulae for area and volume |
| Generate linear sequences with algebra |  | White Rose has good progression on this |
| Express missing number problems algebraically |  | Link to part whole models used further down the school |
| Solve find all possibility problems | |  |  | | --- | --- | | 11 | | | a | b |   Screen Clipping | NCETM 1.31 |
| Find pairs of numbers that satisfy an equation with two unknowns | |  |  |  | | --- | --- | --- | | 10 | | | | g | g | w |     *Year 6 have earnt 200 stars; the stars are either gold or silver. They have 30 more gold stars than silver. How many are gold?*    *Anna and Ellen have £70 in total. Anna has £16 more than Ellen. How much money do they each have?* | NCETM 1.31 |
| **Spring 2** | **Y6 Shape, angles and position** |  |
| **Notes** | **Geogebra is an excellent website for showing these images and being able to show if one angle changes how the others will too**  <https://www.geogebra.org/?lang=en-GB> White Rose is also very good for images and reasoning | |
| **Teaching Points** | **Examples and models and images to use** | **Notes** |
| **Review angles and turns** |  | **Review turns in context of compass points, diving, skating and do turns than are more than one full turn e.g. 1 ¼ turn**  **Children should be clear on key facts 90 degrees in a right angle 4 right angles = 360 degrees and a full turn. Using 9 times table** |
| **Calculate missing angles on a straight line** |  | **Link to algebra and part whole models**  **Make sure the straight line isn’t always vertical or horizontal** |
| **Calculate vertically opposite angles** |  | **Children should use their noticing skills to find the best way to calculate missing angels** |
| **Review properties of triangles** |  | **Make sure children are familiar with the 3 types of triangles** |
| **Find missing angles in a triangle** |  | **Make triangles out of paper and tear up corners and put angles together to show that they make 180 degrees**  **Use different types of triangles** |
| **Review the properties of quadrilaterals** |  |  |
| **Find missing angles in a quadrilateral** |  | **Remind children of the rule of vertically opposite angles** |
| **Review properties of 2D shapes** |  |  |
| **Find missing angles in regular polygons** |  | **Make sure children are exposed to the pattern spotting of the sum of the angles in polygons** |
| **Draw regular 2d shapes accurately** |  | **Check they can use a protractor correctly and a ruler!** |
| **Calculate scale factors** | Enlargement has not been done in the same ratio for the pink rectangle so is not an enlargement of the green rectangle but the orange is | **Children should be familiar with the language of scale factor – making something 10 times bigger linking to times tables. Also reviews ratio and gives lots of practise drawing of 2D shapes** |
| **Draw nets of 3D shapes** |  | **Get cereal boxes etc and pull apart to see their net shape.** |
| **Understand that shapes with the same area can have different perimeters** |  | **Both shapes have an area of 30 cm².**  **Investigate how many different sides could an area of 24 cm²have. Review factors.** |
| **Use formulae for area and volume** |  | **Link to algebra** |
| **Calculate the area of parallelograms and triangles** |  | **Fold squares and rectangles into triangles to show that the area of a triangle is half. Use square paper to begin with so they can count the squares. Use right-angled triangles at first then move to the abstract formula base x height ÷2 for triangles.** |
| **Calculate, estimate and compare the volume of cubes and cuboids** | 32 cm³ | **Start with cubes first (could review cube numbers here). Give the volume then calculate the missing value.** |
| **Describe positions in all 4 –quadrants** |  | **Use laminated co-ordinates grids** |
| **Translate and reflect shapes through all 4 quadrants** |  | **Use paper 2D shapes , mirrors and a laminated co-ordinates grid for children to understand what is happening to the 2D shape.** |