Sri Lankan school Muscat  
Scheme of work academic year 2016/2017  

Class : year 9  
SUBJECT : MATHEMATICS  
TEACHER: MS. INDIKA KORALA  

August/September  
school reopens – 1st term  

<table>
<thead>
<tr>
<th>Week</th>
<th>No of periods</th>
<th>Unit no</th>
<th>Topic</th>
<th>Intended learning outcomes</th>
<th>Date of completion</th>
<th>Remarks</th>
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</table>
| Week 1| 2             | 1       | **Place value, ordering and rounding**                                | Write a number given in standard form  
Standard form  
Calculate numbers in standard form |                    |                     |
|       |               |         | **Upper and lower bounds of a rounded number**                       | Write a decimal number in standard form  
Calculating with numbers in the standard form  
Find upper and lower bounds of a rounded number  
Round large /decimal numbers to s.f. |                    |                     |
| Week 3| 2             |         | **Round to a particular number of significant figures**              | Use hcf when canceling fractions  
Use lcm when adding and subtracting fractions |                    |                     |
| Week 4| 6             | 2       | **Monthly test**  
**Integers, powers and roots**                                        | Find common factors of algebraic expressions  
Can use a calculator to find square, cubes, square root, cubic root and other roots  
Use index laws to simplify algebraic expressions |                    |                     |
|       |               |         | Prime factor decomposition  
Hcf & lcm using a Venn diagram | Use index laws to simplify algebraic expressions  
Write surds in their simplest form |                    |                     |
| Week 5| 7             | 2       | **Common factors of algebraic expressions**                           | Add & minus mentally using complements, partitioning, counting up, nearly numbers, compensation and facts already know  
Multiply & divide using place value knowledge, partitioning, factors, near tens, known facts & doubling and halving  
Convert between fractions, decimals & percentages mentally  
Estimate answers using nice numbers, numbers that will cancel, when multiplying, try to round 1 no up and 1 no down & when dividing try to round both the numbers up or both the numbers down. |                    |                     |
|       |               |         | **Powers & roots**                                                   |                                                                                                                                                  |                    |                     |
| October|               |         | **Index laws**                                                       |                                                                                                                                                  |                    |                     |
|       | 7             | 2       | Negative fractional indices  
Surs |                                                                                                                                                  |                                                                                                                                                  |                    |                     |
| Week 6|               |         | **Calculation**                                                      |                                                                                                                                                  |                    |                     |
|       | 7             | 3       | **Mental calculations**                                              |                                                                                                                                                  |                    |                     |
|       |               |         | **Write mentally with fractions, decimals & %**                     |                                                                                                                                                  |                    |                     |
|       |               |         | **Estimating answers to calculations**                              |                                                                                                                                                  |                    |                     |
|       |               |         | Written calculations  
Reciprocals |                                                                                                                                                  |                                                                                                                                                  |                    |                     |
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<tr>
<th>Week</th>
<th>#</th>
<th></th>
<th><strong>Fractions, decimals &amp; %</strong></th>
<th><strong>Add &amp; subtract fractions with different denominators</strong></th>
<th><strong>Multiply fractions &amp; divide fractions</strong></th>
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<tr>
<td>Week 8</td>
<td>7</td>
<td>4</td>
<td><strong>Fractions, decimals &amp; %</strong></td>
<td><strong>Add &amp; subtract fractions with different denominators</strong></td>
<td><strong>Multiply fractions &amp; divide fractions</strong></td>
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<tr>
<td>Week 9</td>
<td>7</td>
<td>4</td>
<td>+ or – algebraic functions</td>
<td><strong>Add &amp; subtract algebraic functions</strong></td>
<td><strong>Convert fractions to terminating or recurring decimals vise versa</strong></td>
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<td>November</td>
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<td></td>
<td><strong>Monthly test</strong></td>
<td><strong>Convert fractions to terminating or recurring decimals vise versa</strong></td>
<td><strong>Translate expressions and equations to real life problems</strong></td>
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<tr>
<td>Week 10</td>
<td>7</td>
<td>5</td>
<td><strong>Percentage &amp; proportional changes</strong></td>
<td><strong>Calculate the new amount when there is a % increase or decrease</strong></td>
<td><strong>Calculate an increase or decrease as a %</strong></td>
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<tr>
<td>Week 11</td>
<td>5</td>
<td>6</td>
<td><strong>Algebra and equations</strong></td>
<td><strong>Identify equation, formula, function and identity</strong></td>
<td><strong>Solve equations using the transform method</strong></td>
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<td>Week 12</td>
<td>7</td>
<td>6</td>
<td><strong>Solving simultaneous equations using simultaneous equations to solve problems</strong></td>
<td><strong>Use simultaneous equations to solve problems</strong></td>
<td><strong>Show solutions to inequalities on a number line</strong></td>
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<td>Week 13</td>
<td>7</td>
<td>6</td>
<td><strong>Solving inequalities</strong></td>
<td><strong>Solve linear inequalities with 2 variables</strong></td>
<td><strong>Solve quadratic inequalities</strong></td>
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<td>December</td>
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<td></td>
<td><strong>Revision</strong></td>
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<td><strong>Revision</strong></td>
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<td>Week 14-15</td>
<td>5</td>
<td>6</td>
<td><strong>Solving quadratic inequalities</strong></td>
<td><strong>Solve quadratic inequalities</strong></td>
<td><strong>Revision</strong></td>
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<td>Week 16</td>
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<td><strong>First term test</strong></td>
<td><strong>Revision</strong></td>
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<td>Week 17</td>
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<td><strong>First term test</strong></td>
<td><strong>Revision</strong></td>
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<td>Week 18</td>
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<td><strong>Vacation</strong></td>
<td><strong>Revision</strong></td>
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<td>January 2016</td>
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<td><strong>Revision</strong></td>
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<tr>
<td>Week 19</td>
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<td><strong>Vacation</strong></td>
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| Week 20 | 7 | Discussion of the question paper  
Factorizing  
Working with formulae  
**Expressions & formulae**  
Writing simplified expressions  
Expanding 2 brackets | Simplify expressions  
Expand 2 brackets  
Factorizing an expression  
Change the subject of a formula  
Substituting values into formula or expression  
Derive a formula using algebra |
| --- | --- | --- |
| Week 21 | 7 | Substituting into expressions and formulae  
Finding formulae |  |
| Week 22 | 7 | **Sequence & functions**  
Generating sequences  
Quadratic sequences  
T(n) of linear & quadratic sequences | Generate a sequence using first term and term to term rule  
the nth term rule  
Generate a quadratic sequence using the nth term rule  
Find quadratic sequence rule using 1st & 2nd difference |
|  | 8 |  |
| February |  | Monthly test  
Fraction sequences  
Spatial patterns  
Functions | Write the terms of a fractional sequence  
Use inverse operations to find the inputs of a function machine |
| Week 23 | 5 |  |  |
| Week 24 | 7 | **Graphs & functions**  
Linear graphs  
Graphs of quadratic, cubic and reciprocal functions | Find the intercept & the gradient of a given straight line graph  
Identify the lines parallel or perpendicular to a given equation  
Sketch quadratic, cubic & reciprocal functions’ curves |
|  | 9 |  |  |
| Week 25 | 7 | Draw, sketching & interpreting real life graphs |  |
| Week 26 | 5 | **Lines and angles, pythagoras**  
Demonstrations and proves  
Finding angles | Demonstrate geometrical facts  
Can prove geometrical facts by using the properties of angles and shapes to show they are true for all cases |
|  | 10 |  |  |
| March |  |  |  |
| Week 27 | 4 | Pythagoras’ theorem | Use geometrical reasoning to find an unknown angle or prove something  
Use Pythagoras theorem to find the length of the 3rd side of a right angled triangle  
Use Pythagoras theorem to check whether a triangle is a right angled triangle |
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<td>Week 28</td>
<td>7</td>
<td>11  Shape construction &amp; loci</td>
<td>Construct unique triangles when</td>
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| Week 29 | 7 | Constructing triangles  
Congruent triangles  
Similar shapes | Finding unknown lengths  
Circle construction & congruence  
3d shapes  
Locus & construction | SSS,SAS,RHS is given  
Identify the congruence triangles  
Identify similar shapes  
Use similar triangles to find unknown length  
Describe the planes of a 3d shape  
Construct a locus |
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<td>Revision</td>
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<td>Week 31</td>
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<td>2nd term test</td>
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<td>April</td>
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<td>Preparation of report cards</td>
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<td>Week 31-32</td>
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<td>Week 33</td>
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<td>2nd term vacation</td>
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| Week 34 | 2 | 12 | Discussion of the question paper  
**Coordinates & transformation**  
Combination of transformation  
Enlargement | Transform shapes using a combination of reflection, rotation and translation  
Find the original length when the scale factor is given  
Use scale factor of an enlargement to find unknown lengths |
| Week 35 | 7 | | Enlargement and area & volume  
Coordinates & lines  
Length of line joining 2 points | Use scale factor k2, k3 to find area and volume  
Find the coordinates of a point that divides a line in a given ratio  
Find the length of a line joining 2 points |
| May | | | | |
| Week 36 | 7 | 13 | **Measures perimeter, area & volume**  
Practical measurement  
Compound measures  
Area & perimeter of arcs & circles | Write a measurement to the nearest mark using an inequality  
Find length of an arc & area of a sector |
| Week 37 | 7 | | Surface area & volume  
Pythagoras theorem & trigonometry to solve problems | Calculate volume of a prism, a cylinder & surface area of a cylinder  
Find the size of missing angles or lengths of a triangle using sin, cos and tan |
| Week 38 | 7 | 14 | Planning a survey and collecting data  
Planning a survey | Follow the stages in planning a survey & conduct a survey  
Design collection sheet or questionnaire |
|---|---|---|---|---|
| | | | Analyzing & displaying data  
Mean, median, mode and range from tables and grouped data  
Find median & quartiles from cumulative frequency  
Frequency polygons  
Scatter graphs  
Comparing data | Estimate mean, mode, median and range for grouped data  
Find upper & lower quartile and inter quartile range using cumulative frequency graph  
Draw a frequency polygon  
Use it to find the mean and median  
Draw the best fit line for a scatter graph and find the correlation  
Compare & interpret a range of data & data displays |
| Week 39 | 7 | 15 | Monthly test  
Probability  
Describing and calculating probability  
Probability of compound events  
Independent events  
Estimating probabilities from relative frequency | Identify mutually exclusive events and independent events  
Use \( p(a \text{ or } b) = p(a) + p(b) \) or \( p(a \& b) = p(a) \times p(b) \) accordingly  
Estimate probability form relative frequency |
| | | | | |
| June | | | | |
| Week 41 | | | Revision |
| Week 42-43 | | | 3rd term test |
| Week 44 | | | Preparation of report cards |
| July | | | | |
| Week 44 | | | Summer vacation |