ESF Measurement

	Phase 1			Phase 2			Phase 3			Phase 4	
	Kindergarten		Year 1	Year 2		Year 3	Year 4	Year 5		Year 6	Beyond Year 6
IBO Overall Expectation	**Learners will develop an understanding of how measurement involves the comparison of objects and the ordering and sequencing of events. They will be able to identify, compare and describe attributes of real objects as well as describe and sequence familiar events in their daily routine.**			**Learners will understand that standard units allow us to have a common language to measure and describe objects and events, and that while estimation is a strategy that can be applied for approximate measurements, particular tools allow us to measure and describe attributes of objects and events with more accuracy. Learners will develop these understandings in relation to measurement involving length, mass, capacity, money, temperature and time.**			**Learners will continue to use standard units to measure objects, in particular developing their understanding of measuring perimeter, area and volume. They will select and use appropriate tools and units of measurement, and will be able to describe measures that fall between two numbers on a scale. The learners will be given the opportunity to construct meaning about the concept of an angle as a measure of rotation.**			**Learners will understand that a range of procedures exists to measure different attributes of objects and events, for example, the use of formulas for finding area, perimeter and volume. They will be able to decide on the level of accuracy required for measuring and using decimal and fraction notation when precise measurements are necessary. To demonstrate their understanding of angles as a measure of rotation, the learners will be able to measure and construct angles.**	
IBO Conceptual Understanding	Measurement involves comparing objects and events. Objects have attributes that can be measured using non-standard units. Events can be ordered and sequenced.			Standard units allow us to have a common language to identify, compare, order and sequence objects and events. We use tools to measure the attributes of objects and events. Estimation allows us to measure with different levels of accuracy.			Objects and events have attributes that can be measured using appropriate tools. Relationships exist between standard units that measure the same attributes.			Accuracy of measurements depends on the situation and the precision of the tool. Conversion of units and measurements allows us to make sense of the world we live in. A range of procedures exists to measure different attributes of objects and events.	
	Can use the vocabulary of comparison to describe length, mass and capacity	Compare, describe and begin to measure the length, mass and capacity of objects using nonstandard units	Compare, describe and measure the length, mass and capacity of objects using nonstandard units	Estimate, compare and measure the length, mass, capacity, volume and area of objects using nonstandard and standard units	Estimate, compare and measure objects using standard units of measurement: length, mass, capacity and money	Estimate, compare and measure objects using standard units of measurement: length, perimeter, mass, capacity, money, area, volume and temperature	Estimate, compare and measure objects using standard units of measurement: length, perimeter, mass, capacity, money, area, volume and temperature Select appropriate tools and units of measurement to solve problems		Determine the relationships between area and perimeter, between area and volume, and between volume and capacity Select suitable tools and units of measurement to solve problems Determine and justify the level of accuracy required to solve real-life problems involving	

								measurement	
					Convert between kilometres and metres, metres and centimetres, kilograms and grams, litres and millilitres	Convert between units using whole numbers (e.g. 1 metre to 100 centimetres) carry out simple unit conversions within a system of measurement (This was in Year 5)	Convert between units using decimals to at least one place (e.g. change 2.6 kg to 2600 g)	Convert between units using decimals to at least two places (e.g. change 2.75 litres to 2750 ml, or vice versa)	
					Read scales on a range of measuring instruments	Read and interpret scales on a range of measuring instruments	Interpret intervals and divisions on partially numbered scales	Compare readings on different scales, for example when using different instruments	

Time	Identify, describe and sequence events in their daily routine, for example, before, after, bedtime, storytime, today, tomorrow	Identify, describe and sequence events in their weekly routine	Read and write the time to the hour Identify and sequence days of the week, months of the year and seasons	Read and write the time to the hour, half hour and quarter hour Understand that calendars can be used to determine the date, and to identify and sequence days of the week and months of the year	Read and write the time to 5 minute intervals (past, to) Understand that time is measured using universal units of measure, for example, years, months, days, hours, minutes and seconds	Read and write the time to the minute Estimate and compare lengths of time: second, minute, hour, day, week and month. Read simple timetables e.g. TV guide	Read and write digital and analogue time on 12-hour and 24-hour clocks Read timetables using 24- hour clock	Use timetables and schedules (12-hour and 24-hour clocks) in real-life situations Determine times worldwide	
Angles						Recognise that angles are measured in degrees and that one whole turn is 360˚ Compare angles, classify them as equal to, greater/less than a right angle		Estimate angles, and use a protractor to measure and draw them, on their own and in shapes; calculate angles in a triangle or around a point Investigate angles on a straight line, angles at a point and vertically opposite angles Use results to find unknown angles	Identify corresponding, alternate and co-interior angles when 2 straight lines are crossed by a transversal Investigate conditions for 2 lines to be parallel and solve simple numerical problems using reasoning Demonstrate that the angle sum of a triangle is 180° and use this to find the angle sums of a quadrilateral

Notes:
Bullet point= IB Language Scope and Sequence
Hyphen= First Steps Indicators
Reference has been made to the New Zealand Language Curriculum