Foundations of physics

Specification reference	Checklist questions	
2.1.1 a	Can you explain that physical quantities have a numerical value and a unit?	☐
2.1.1 b	Can you estimate physical quantities?	☐
2.1.2 a	Can you describe the Système Internationale (S.I.) base quantities and their units – mass (kg), length (m), time (s), current (A), temperature (K), amount of substance (mol)?	☐
2.1.2 b	Can you use derived units of S.I. base units?	☐
2.1.2 c	Can you use the all the units you have encountered in the course?	☐
2.1.2 d	Can you check the homogeneity of physical equations using S.I. base units?	☐
2.1.2 e	Can you use prefixes and their symbols to indicate decimal submultiples or multiples of units – pico (p), nano (n), micro (μ), milli (m), centi (c), deci (d), kilo (k), mega (M), giga (G), tera (T)?	☐
2.1.2 f	Can you use conventions for labelling graph axes and table columns?	☐
2.2.1 a	Can you identify systematic errors (including zero errors) and random errors in measurements?	☐
2.2.1 b	Can state the difference between precision and accuracy?	☐
2.2.1 c	Can you explain absolute and percentage uncertainties when data are combined by addition, subtraction, multiplication, division and raising to powers?	☐

Specification reference	Checklist questions	
2.2.1 d	Can you identify graphical treatment of errors and uncertainties; line of best fit; worst line; absolute and percentage uncertainties; percentage difference?	☐
2.3.1 a	Can you use scalar and vector quantities?	☐
2.3.1 b	Can you use vector addition and subtraction?	☐
2.3.1 c	Can you use a vector triangle to determine the resultant of any two coplanar vectors?	☐
2.3.1 d	Can you resolve a vector into two perpendicular components; $F_x = F \cos \theta$ and $F_y = F \sin \theta$?	☐

This resource sheet may have been changed from the original