Forces in action

Specification reference	Checklist questions	
3.2.1 a	Can you recall and understand the formula net force = mass × acceleration ($F = m\,a$)?	☐
3.2.1 b	Can you recall the newton as the unit of force?	☐
3.2.1 c	Can you explain why the weight of an object, $W = m\,g$?	☐
3.2.1 d	Can you define and use the terms tension, normal contact force, upthrust, and friction?	☐
3.2.1 e	Can you draw and interpret free-body diagrams?	☐
3.2.1 f	Can you explain one- and two-dimensional motion under constant force?	☐
3.2.2 a	Can you explain drag as the frictional force experienced by an object travelling through a fluid?	☐
3.2.2 b	Can you describe the factors affecting drag for an object travelling through air?	☐
3.2.2 c	Can you describe the motion of objects falling in a uniform gravitational field in the presence of drag?	☐
3.2.2 d i	Can you define terminal velocity?	☐
3.2.2 d ii	Can you list and describe techniques and procedures used to determine terminal velocity in fluids?	☐
3.2.3 a	Can you define the moment of a force?	☐
3.2.3 b	Can you describe a couple and the torque of a couple?	☐

Specification reference	Checklist questions	
3.2.3 c	Can you define and use the principle of moments?	☐
3.2.3 d	Can you describe centre of mass/centre of gravity, and describe how to determine the centre of gravity experimentally?	☐
3.2.3 e	Can you describe the conditions for equilibrium of an object under the action of forces and torques?	☐
3.2.3 f	Can you explain the conditions for equilibrium of three coplanar forces?	☐
3.2.4 a	Can you define density?	☐
3.2.4 b	Can you describe pressure for solids, liquids, and gases?	☐
3.2.4 c	Can you apply Archimedes' principle and use the equation $p = h\,\rho\,g$ to calculate the upthrust acting on an object in a fluid?	☐