***Year 11 ATAR PES  
Task 2***

***Biomechanics Lab & Investigation Book  
Glossary and Help Sheet***

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**Lab 1  
  
Velocity:** Speed in a given direction and is described in terms of its  
 magnitude and direction  
  
V = Displacement / Time Taken  
  
**Acceleration:** Rate at which the velocity of a body changes with respect to  
 time  
  
A = Final Velocity – Initial Velocity / Time  
  
 **Speed:** The rate an object moves from one location to another in the  
 fastest possible time  
  
S = Distance Travelled / Time Taken

**Displacement:** Measure of motion, found by measuring the length of a  
 straight line joining a body’s initial and final positions.  
  
**Inertia:** A body’s resistance to change in its state of motion  
  
- When velocity is increasing, this is called positive acceleration  
- When a body is slowing down, this is called negative acceleration  
- Zero acceleration is a constant speed **F=MA:** Force = Mass x Acceleration   
 - If mass is greater, a greater acceleration and velocity should be  
 achieved, and therefore a greater force.  **Lab 2**

***Key concepts:***  
- Optimal Projection (page 123 – 128)  
- Horizontal Motion (page 124)  
- Vertical Motion (page 125)  
- Horiztonal Displacement  
- Vertical Displacement   
  
- Range of Projectiles  
 Depends on: Velocity of Release  
 Angle of Release  
 Height of Release   
  
- Parabola/Trajectory (shape)  
  
  
**Lab 3**  
***Key Concepts:***  
- Newton’s Three Laws of Motion:  
 Law 1: Inertia   
 Law 2: Acceleration & Momentum   
 Law 3: Every action has an equal and opposite reaction  
  
- Force Production (Maximal and Submaximal)   
- Summation of Forces   
- Momentum   
- Impulse   
- Acceleration  
- Rotational Inertia (page 135)   
  
Force: F=ma (mass x acceleration)  
  
Momentum: P=mv (mass x velocity)

**Lab 4**  
***Key Concepts:***  
- Sequential Movement (page 142)  
- Simultaneous Movement (page 144)  
- Force  
- Summation of Forces  
  
Force: F=ma (mass x acceleration)

**Lab 5**

***Key Concepts:***  
- Flattening the Arc (page 139)  
- Follow Through  
- Contact Time  
- Accuracy  
  
  
  
**Lab 6**  
***Key Concepts:***  
(page 145 – 148)  
  
- Balance  
- Stability  
- Equilibrium  
- Centre of Gravity  
- Centre of Mass  
- Base of Support  
- Effect of a person’s mass/weight