

# Vidya Bhawan Balika Vidyapith

## Lakhisarai

### Sub. Physical edu. , Class 12th

## BASED ON NCERT

#### UNIT 10 BIOMECHANICS & SPORTS

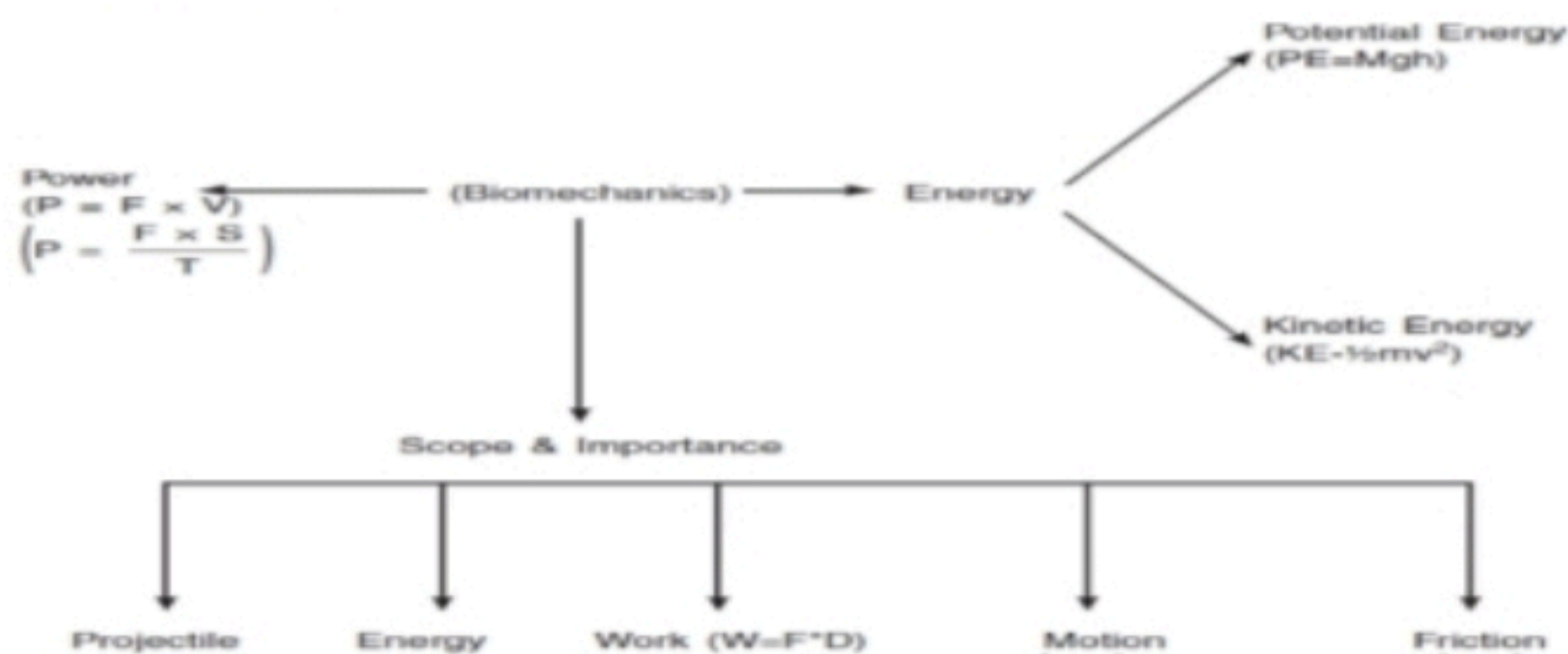
##### Key Points :

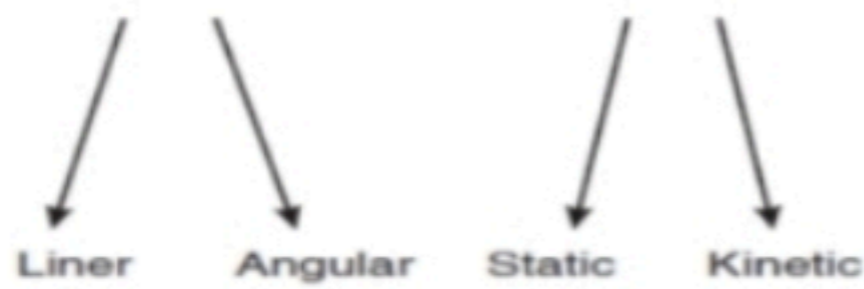
- **Projectile & factors affecting projectile trajectory**
- Angular & Linear movement
- Introduction to Work, Power & Energy
- **Friction**
- Mechanical Analysis-Walking & Running
  - a. The differentiate between walking & running

##### 10.1 Biomechanics

- "Biomechanics is the science concerned with the internal & external forces acting on a human body & effects produced by these forces".
- **Applications of Biomechanics in sports:-**
- Sports performance
- Injury preventions
- Rehabilitations
- Sports mastery
- **Scope of Biomechanics in sports:-**
- Designing of techniques
- Designing of equipments & facilities

##### BIOMECHANICS & SPORTS

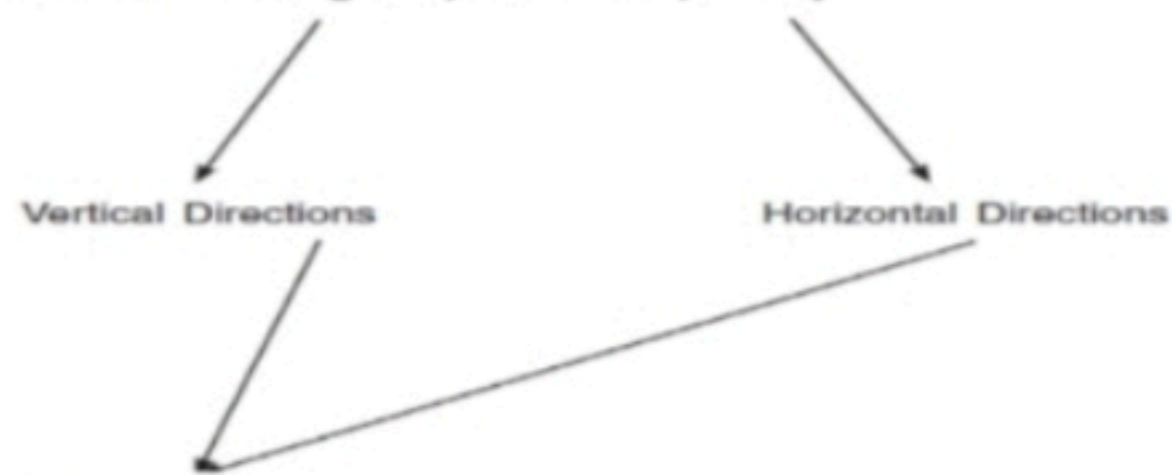




### 10.2A Factors affecting projectile trajectory

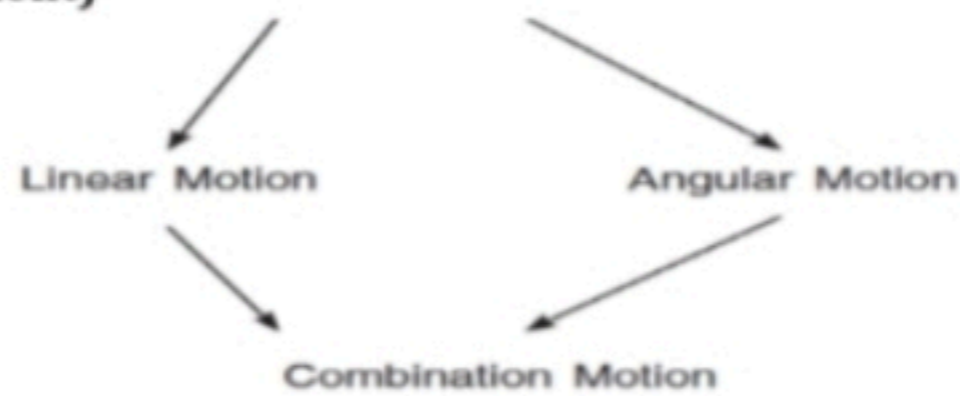
- Directions
- Angle
- Height
- Speed/velocity
- Air resistance
- Gravity
- Spin

### B. Projectile & factors affecting Projectile Trajectory



- Speed of Release
- Angle of Release (Trajectory of Release)
- Height of Release

### 10.3 Motion (Movement)



### 10.4 Introduction of Work, Power & Energy

#### 10.5 Friction

- Type of Friction
- Coefficient of Friction
- Application of Friction in the field of sport

---

### 10.6A. Mechanical Analysis of walking

- Stance phase
- Heel strike
- Early flat foot
- Late flat foot-early heel rise
- **Heel rise**
- Toe off

#### Swing phase

### 10.6B. Running

- Stance phase
- Initial contact/float stage
- Absorption stage
- Mid-stance stage
- Propulsive stage

### 10.7 Differentiate-Running and Walking