

# Kinematics: Motion Description and Analysis

Central concept: **Kinematics**

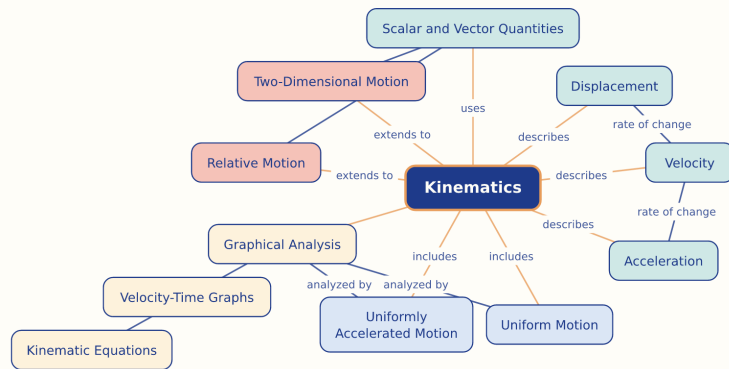
## Connections

- Kinematics (uses) -> Scalar and Vector Quantities
- Kinematics (describes) -> Displacement
- Kinematics (describes) -> Velocity
- Kinematics (describes) -> Acceleration
- Kinematics (includes) -> Uniform Motion
- Kinematics (includes) -> Uniformly Accelerated Motion
- Kinematics (applies) -> Graphical Analysis
- Kinematics (extends to) -> Relative Motion
- Kinematics (extends to) -> Two-Dimensional Motion
- Velocity (rate of change) -> Displacement
- Acceleration (rate of change) -> Velocity
- Graphical Analysis (includes) -> Velocity-Time Graphs
- Velocity-Time Graphs (derives) -> Kinematic Equations
- Uniform Motion (analyzed by) -> Graphical Analysis
- Uniformly Accelerated Motion (analyzed by) -> Graphical Analysis
- Relative Motion (uses) -> Scalar and Vector Quantities
- Two-Dimensional Motion (uses) -> Scalar and Vector Quantities

## Notes

- **Kinematics:** Description of motion in terms of displacement, velocity, acceleration and time [Topic](#)
- **Scalar and Vector Quantities:** Operationally defined and contrasted quantities in motion analysis [Outcome](#), [Outcome](#)
- **Displacement:** Defined qualitatively and quantitatively as change in position [Outcome](#)
- **Velocity:** Defined qualitatively and quantitatively as rate of change of displacement [Outcome](#)
- **Acceleration:** Defined qualitatively and quantitatively as rate of change of velocity [Outcome](#)
- **Uniform Motion:** Constant velocity motion explained using written, numerical and graphical data [Outcome](#)
- **Uniformly Accelerated Motion:** Constant acceleration motion explained using written, numerical and graphical data [Outcome](#)
- **Graphical Analysis:** Construct and analyze graphs showing relationships among kinematic variables [Outcome](#), [Resource](#)
- **Velocity-Time Graphs:** Acceleration from slope; displacement from area under curve [Outcome](#)
- **Kinematic Equations:** Mathematical models connecting acceleration, velocity and displacement [Resource](#)
- **Relative Motion:** Motion of one object relative to another using displacement and velocity vectors [Outcome](#)
- **Two-Dimensional Motion:** Motion in horizontal or vertical plane using vector components [Outcome](#)

## Kinematics: Motion Description and Analysis



■ Central concept   ■ quantities   ■ motion-types   ■ analysis   ■ applications

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