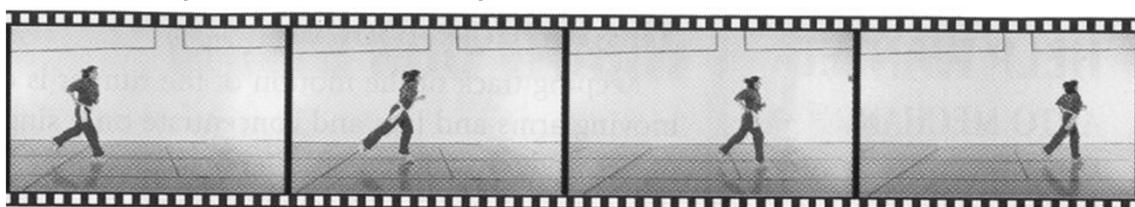


Picturing and Describing Motion

1

Motion Diagrams

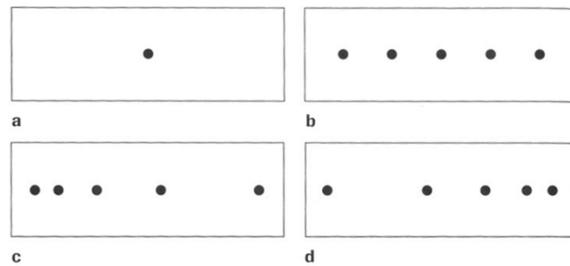
- A series of images of a moving object that records its position after equal time intervals



2

Particle Model

- Replacing the object in a motion diagram with a single point.



3

Defining a Coordinate System

- Each time you take a measurement, you define the zero point, or origin of the variable you are studying.
- You also establish the positive and negative direction of the variable.

4

Types of Measurements

- Scalar quantity
 - measure of quantity only
- Vector quantity
 - measure of quantity and direction

5

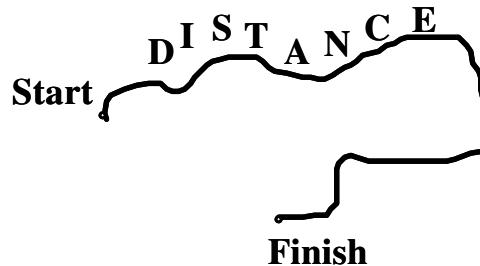
Time interval

- Scalar Quantity
- The change in time, or the amount of time needed to complete the observed motion.
- The symbol used is Δt

6

Distance

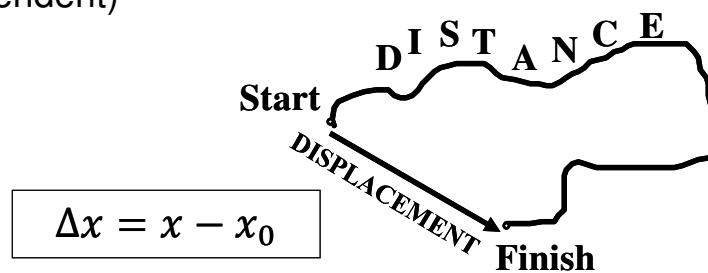
- Scalar Quantity
- The change in position of an object along a path.



7

Displacement

- Vector Quantity
- The change in position in a particular direction when comparing starting and ending positions. (path independent)

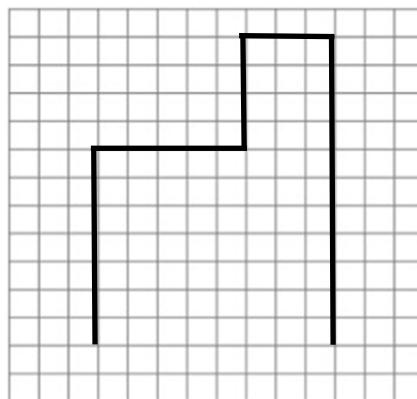


8

Example 1

- What is the distance and traveled and displacement of a bug that crawled from A to B if each box represents 1 cm?
- Distance = 

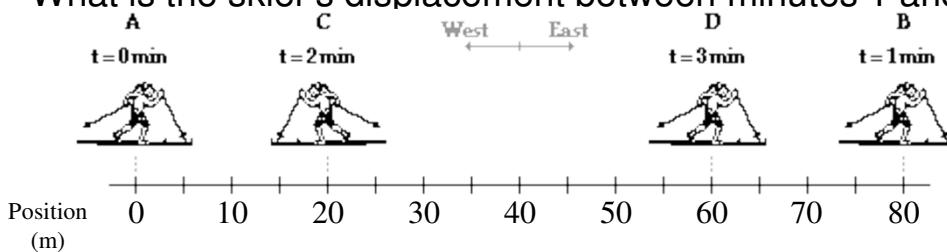
- Displacement =



9

Example 2

- The skier moves as shown below.
 - What distance did the skier move during the first 2 minutes?
 - What is the skier's displacement during the first 2 minutes?
 - What distance did the skier move during the full 3 minutes?
 - What is the skier's displacement after the 3 minutes?
 - What is the skier's displacement between minutes 1 and 3?



10