## Vectors:Representing Position and Displacement
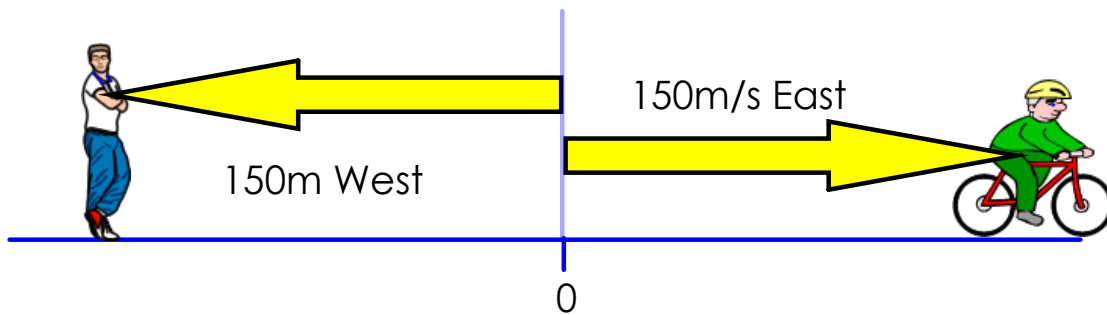
- motion needs to be described in relation to some reference point
- knowing where you are and where you are going is important
- physicists use what is called a "vector" to do this
- it relates your position or displacement with respect to some starting point
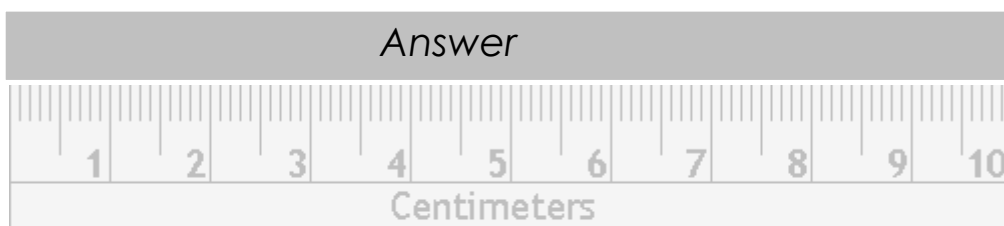- vectors ALWAYS include BOTH size AND direction

150m/s East

150m West

0

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Vectors should always be drawn to scale and labelled
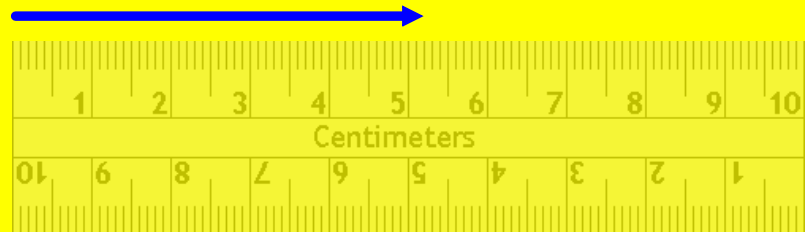
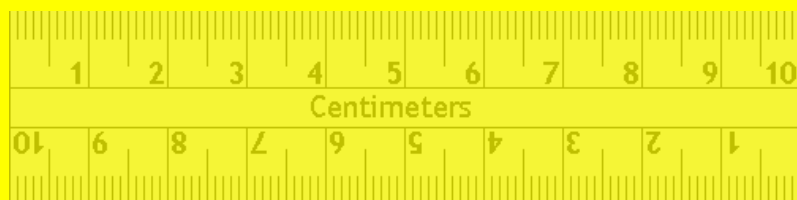For example,

Draw a vector representing 25 m E

1cm = 5 m

*Answer*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Centimeters

**To Scale**

Ex: 1cm=5km

N

W —|— E

S

25km E

Centimeters

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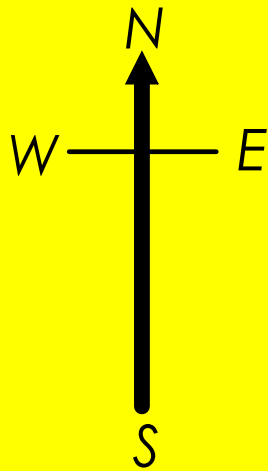
A boy walks 4km E and then turns and walks 6km W.  What is his resultant displacement?

1cm=1km

Centimeters

*Mathematically*

   *One direction is determined to be positive, therefore the opposite direction would be negative*

*From the previous example,*

N

W —— E

S
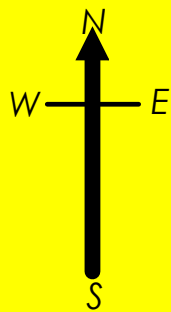
*if East is considered +ve, then West is -ve*

$R = (+4km) + (-6km) = -2km$ or $2km$ W