

SPEED VS. VELOCITY

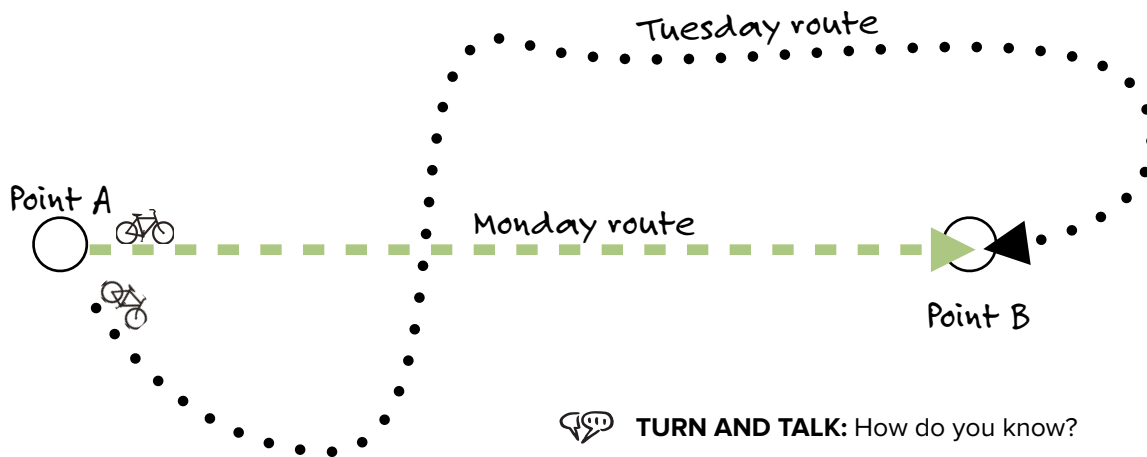
**Speed** is a type of rate that measures how long it takes to travel a distance.

**Velocity** measures how fast something is moving plus the direction that the object is moving. So a car driving from Baltimore, Maryland, to Norfolk, Virginia, might have a velocity of 70 miles per hour south.

On Monday, you rode your bike on the direct road from point A to point B in exactly one hour without stopping.

On Tuesday, you rode your bike on the curvy road from point A to point B in exactly one hour without stopping.

Did you ride your bike at a greater average speed on one of the roads? Absolutely!! The curvy one!



**TURN AND TALK:** How do you know?

Here's the weird part: Your overall (or average) velocity on Monday and Tuesday is the same. But how can that be? It's because you measure average velocity using only the start and end points and by referring to direction. So if Point B is 15 miles east of point Point A, that means that your average velocity was 15 miles per hour east.

Here's another problem to think about:

On Wednesday, you rode your bike at 15 miles per hour from Point A to Point Y. On Thursday you rode your bike at 15 miles per hour from Point A to Point Z. That means that you traveled at the same speed on both Wednesday and Thursday. Right? Right.

But in this case, the average velocity is not the same.

**TURN AND TALK:** Why is the average velocity different?

