



Learning About Velocity

Knowing an object’s speed is important. But you need more information to describe the object’s motion completely. For example if a plane leaves Hobby Airport in Houston and flies in a straight line at a speed of 750 km/hr, where will it be in 2 hours? Although you know the plane’s speed you can’t answer that question without also knowing the direction in which the plane is moving.

The speed of an object moving in a particular direction is called its velocity. Objects in motion have the same speeds but different velocities. For example, a plane traveling west from Houston to Los Angeles at 750 km/hr has a different velocity that a plane flying east from Houston to Atlanta.

You have developed a small rocket ship that can fly at 1400 km/hr. Your company wants to decide which cities you can take passengers to in two hours or less.

Materials: map of USA with cities indicated, calculator, ruler

What To Do:

1. In the chart there are 14 cities listed with their distance from Houston in kilometers. You will need to calculate the speed (km/hr) at which the rocket needs to fly to get the passengers to their destinations.
2. Determine the direction for it to fly so you can determine the velocity.
3. Make a dot on the map to show the location of Houston, TX.
4. To determine the direction use a ruler to draw a line from Houston to the named city on the map and use the compass rose at the bottom of the map to determine which direction the rocket must travel.

City	Km from Houston	Number of hours	Velocity (speed and direction)
Albany, NY	2848	2	
Atlanta, GA	1282	2	
Boise, ID	3140	2	
Charleston, WV	2987	2	
Cheyenne, WY	1965	2	
Columbia, SC	1617	2	
Columbus, OH	1880	2	
Des Moines, IA	1490	2	
Hartford, CT	2826	2	
Indianapolis, IN	1650	2	
Jackson, MS	711	2	
Little Rock, AR	698	2	
Nashville, TN	1260	2	
Phoenix, AZ	1913	2	

Questions:

1. Remember your rocket can only travel at 1400km/hr. Which cities cannot be reached in 2 hours at this speed?
2. The FAA has decided that the airspace in the northeast are too crowded for a rocket ship. Which cities will you have to take off your route?



Watch and listen to the video “Speed and Velocity” by They Might Be Giants. The lyrics are written below. Fill in the blanks as you listen to the song.

When I’m on an _____
And we’re on a runway
Ready to take off
And then we’re in the _____

_____, direction, acceleration
Motion, direction, acceleration

I’ve got _____
That’s how fast I am moving
I’ve got velocity
That’s my speed and _____

When I’m on my Big Wheel
_____, roller coaster
Race car, motor cycle,
_____ ship into outer space

Motion
Direction
Acceleration

I’ve got speed
That’s how _____

I’ve got velocity
That’s my _____ and _____



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That’s my _____ and _____

Name _____ period _____

EXIT TICKET

Learning About Velocity

1. Which of the following is an example of velocity?

- A. 30 meters
- B. 30 m/sec
- C. 30 sec.
- D. 30 m/sec. east

2. Which of the following is an example of speed?

- A. 30 meters
- B. 30 m/sec
- C. 30 sec.
- D. 30 m/sec. east

3. Explain how speed is different from velocity.

Name _____ period _____

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3. Explain how speed is different from velocity.

STATE CAPITALS

