Learning About Velocity

Engage
Directions:
1. Compare the plane drawings below.
2. Pretend they are all flying over Texas.
3. How are they alike?

4. How are they different?

5. Are they all going to the same place?

6. Why do you say that?

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	
Bismarck, ND	1960	2	
Cheyenne, WY	1965	2	
Columbia, SC	1617	2	
Topeka, KS	996	2	
Des Moines, IA	1490	2	
Hartford, CT	2826	2	
Indianapolis, IN	1650	2	
Jackson, MS	711	2	

City	Km from Houston	Number of hours	Velocity (speed and direction)
Honolulu, HI	6268	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 is too crowded for a rocket ship. Which cities will you have to take off your route?

_____

3. What information do you need to know the velocity of an object?
_____

4. If the planes on the first page were all traveling at 800km/hr do they have the same velocity?

_____

5. Why do you say that? _____
_____

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, motorcycle,
_____ ship into outer space

Motion
Direction
Acceleration

I've got speed
That's how _____

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

Elaborate

What's my speed and velocity getting to school?

Do you walk or ride to school? If you walk, your speed is usually between 1 and 2 miles per hour. If you ride, your speed is probably about 35 miles per hour.

Materials: computer or phone with Google maps.
What To Do:
1. Use a Google map app and find your route to school. Draw the map below.
2. Write the speed on each street.
3. Show the direction with arrows.
4. Determine if you are headed north, south, east or west and place that information next to the speed such as 2mph North.

Evaluate
Name _____   period _____
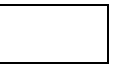
EXIT TICKET

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. Which of the following is an example of distance?

   A. 30 meters

   B. 30 m/sec

   C. 30 sec.

   D. 30 m/sec. east

4. Explain how speed is different from velocity.

   _____

   _____

   _____

STATE CAPITALS

Olympia
Washington
Salem
Oregon
Helena
Montana
Boise
Idaho
North Dakota
Bismarck
Minnesota
St. Paul
Wisconsin
Madison
Lake Superior
Lake Huron
Maine
Augusta
VT
Montpelier
NH
Concord
Albany
Boston
MA
New York
Hartford
CT
Providence
RI
L. Ontario
Lansing
Michigan
L. Erie
Lake Michigan
Pennsylvania
Harrisburg
Trenton
New Jersey
Dover
Delaware
Nevada
Carson City
Sacramento
Salt Lake City
Cheyenne
Wyoming
South Dakota
Pierre
Iowa
Des Moines
Nebraska
Lincoln
Illinois
Springfield
Indiana
Indianapolis
Ohio
Columbus
Utah
Denver
Colorado
Topeka
Kansas
Missouri
Jefferson City
Kentucky
Frankfort
MD
Washington DC
Annapolis
West Virginia
Charleston
Richmond
Virginia
Raleigh
North Carolina
California
Arizona
Phoenix
Santa Fe
New Mexico
Oklahoma
Oklahoma City
Arkansas
Little Rock
Tennessee
Nashville
South Carolina
Columbia
Atlanta
Georgia
Alabama
Montgomery
Mississippi
Jackson
Louisiana
Baton Rouge
Texas
Austin
Tallahassee
Florida
Atlantic Ocean
Pacific Ocean
Gulf of Mexico

United States
Washington — National Capital
Atlanta — State Capital
0 — 400 Km.
0 — 300 Miles

Honolulu
HAWAII

Juneau
ALASKA

N
W E
S

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