**Vector Web Quest**

What you should learn:  
      1) What a vector is.  
      2) How to add them.   
      3) What a resultant is.

Here are your various links to various sites about vectors. Go to the site(s), then answer the questions below the links, before moving on to the next link(s).

**What is a Vector?**

[Vector Applet #1](http://illuminations.nctm.org/tools/vector1/index.html) Then scroll down to the "applet" with the car and the arrow, and mess with it.

1a) The car changes direction with the direction of the vector  
1b) The car accelerates when the vector is longer  
1c) Direction and velocity  
1d) Both. By making the arrow longer, the car accelerates, and by turning the arrow the car’s direction changes

**Adding Vectors**

[Vector Applet #2](http://illuminations.nctm.org/tools/vector2/vector2.asp) Familiarize yourself with all of the controls, then answer the questions below. (Make sure "Show Vector Sum is NOT checked.)

2a) The red vector is for the hurricane, the blue for the plane

2b) The blue vector must be at zero for magnitude and direction, and the red vector must be pointing towards blue arrow

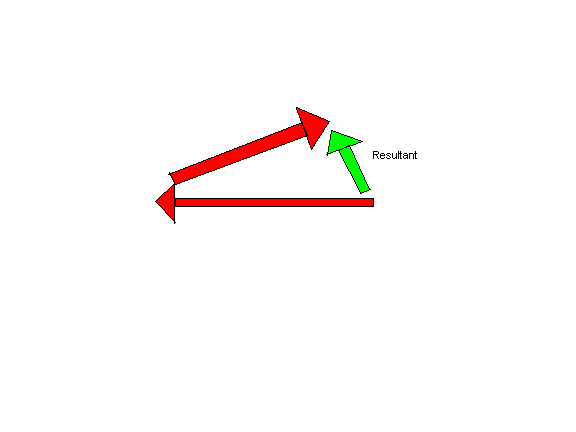
2c) The plane is moving down, because that is the direction it’s vector is pointing.

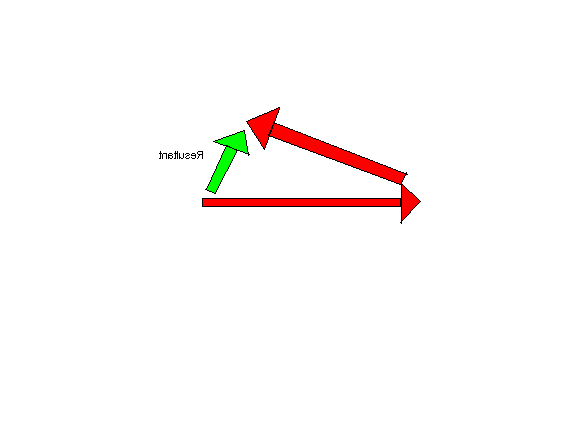
2d) The plane goes up and to the right, because that is the direction the combined forces of the blue and red vectors apply

[Vector Applet #3](http://phet.colorado.edu/sims/vector-addition/vector-addition_en.html) Grab two vectors from the bucket and familiarize yourself with what you can do.

**Directions:** After adjusting the lengths and directions of your two vectors, click the "sum" box to create the resultant vector (green) of the two vectors you are adding together (red).

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| --- | --- |
|  | 3a) Move the three vectors around to make a triangle. Draw a picture your diagram and label the red vectors that are being added together, and green vectors that is their sum.. 3b) Now label the green arrow as the "resultant" vector. That's the sum of the two red vectors. 3c) Notice the "tips" and "tails" of each vector, how MUST the two red vectors be connected to correctly add them? 3d) Yes, because one can be the inverse of the other, facing the opposite direction  3e) essentially, just backwards 3f) Draw the two WRONG ways to add the two red vectors. 3g) Connect the tip of one vector to the other, click ‘sum,’ and from there arrange them further to create a triangle |

Correct ways:



Incorrect ways: 