1. **Answer the following questions for Part 1:**
   1. What two pieces of information do vectors communicate?
   2. How are vectors usually drawn and what shape or symbol is used to draw them?
2. **Click on the Introduction tab to answer the following questions for Part 2:**
   1. What two things do vectors have?
   2. What is a quantity?
   3. What are quantities that only have size called?
   4. Why is the quantity 25 m/s not accepted as a true velocity?
   5. Provide the directions that vectors can be written with?
   6. How are vectors symbolized?
   7. Scroll down to difference between distance and displacement and describe the difference between these terms?
   8. To say an object moved 30 meters to the South a distance or displacement?
   9. Draw and label a vector that is 3 cm East.
   10. Draw and label a vector that is 4 cm North.
3. **Answer the following questions for Part 3**
   1. Define Instantaneous Speed?
   2. Define Average Speed?
   3. What type of speed are you reading when you look at a speedometer?
   4. What is the difference between Velocity and Speed? Hint: Speed is missing a certain component.
4. **Answer the following questions for Part 4?**
   1. Is speed a vector or scalar?
   2. Define speed?
   3. Is Velocity a vector or scalar?
   4. Define Velocity?
   5. Provide the formula for calculating Average Speed?
   6. Provide the formula for calculating Average Velocity?
   7. What are the units used for measuring Velocity?
   8. What is the velocity of a car that has traveled a distance of 40 meters within 8 seconds?
5. **Answer the following questions for Part 5?**
   1. Is acceleration a vector or scalar?
   2. Define Acceleration?
   3. Click on the animation and determine which of the cars has the highest and slowest acceleration?
   4. Provide the formula for calculating Acceleration?
   5. What are the units used for measuring acceleration?
   6. What direction is acceleration when an object is speeding up?
   7. What direction is acceleration when an object is slowing down?
   8. Watch the animation and determine if the Velocity Vector changes when an object is slowing down or speeding up?
   9. Determine the acceleration of an object that accelerated from 5m/s to 15m/s in 10 seconds?
6. **Answer the following questions for Part 6:**
   1. What is equal to the slope of a line on a position versus time graph?
   2. If an object is moving at 4m/s on a position versus time graph, what is the slope of the line on the graph?
   3. The slope equation for finding slope is what value divided by what other value on the graph?
   4. Provide the slope equation that is written in red on the webpage?
   5. Provide the definition of rise?
   6. Provide the definition of run?
   7. Determine the slope of a line with the following points (5 s, 50 m) and (0s, 0m)? HINT: it is worked out on the webpage.
   8. Determine the slope of the line graph on the webpage that is sloping downwards and check your answer?
   9. Determine the slope of the line graph on the webpage under where it says check your understanding and then check your answer?
7. **Answer the following questions for Part 7:**
   1. What type of graph is used to describe the motion of an object that is moving a certain distance in a certain amount of time?
   2. What variable goes on the x-axis of a position versus time graph?
   3. What variable goes on the y-axis of a position versus time graph?
   4. Sketch a Position vs. Time graph for a car moving to the right with a constant velocity?
   5. When the slope of a Position versus Time graph is constant what is the Velocity?
   6. When the slope of a line on a Position versus Time graph is steep the velocity is fast or slow?
   7. When the slope of a line on a Position versus Time graph is not steep the velocity is fast or slow?
   8. Sketch a graph for two cars: one going at a higher velocity that the other?
   9. Sketch a graph for car that has negative Velocity, such as when a car is return to the point or place that it began?
   10. Scroll down to where it says Investigate and sketch the graph that results from inserting the following numbers in to the Position-Time Plot for Constant Velocity: Velocity = 4 m/s, Initial Position = 5 m, and Time = 10 s
8. **Answer the following questions for Part 8:**
   1. If a car moving at a rightward, constant velocity is it accelerating or not accelerating?
   2. If a car is moving rightward with changing velocity is it accelerating or not accelerating?
   3. What type of graph is discussed on this webpage? What variables are plotted on this Graph?
   4. Sketch how a velocity versus time graph is look for an object that is at constant velocity with zero acceleration?
   5. Sketch how a velocity versus time graph will look for an object that is at changing velocity and Positive Acceleration?
   6. Sketch how you think a velocity versus time graph will look for an object that is at a changing velocity and Negative Acceleration?
   7. What is the acceleration of a car when the slop of a Velocity versus Time graph is zero, positive, or negative? (Answer for all three conditions)
9. **Answer the following questions for Part 9:**
   1. Press play on the animation and determine whether the car is accelerating or not based on the graph that forms and explain why or why not? Sketch the graph that forms.
   2. Scroll down and click on Instantaneous Velocity Animation. Play the animation and determine whether or not the car is accelerating based on the graph that forms? Sketch the graph that forms.
10. **Answer the following questions for Part 10:**
    1. What type of graph is present on this webpage?
    2. Click experiment, then START, and then move the black dot to the right VERY SLOWLY. What is happening to the line on the graph?
    3. What is happening to Velocity when the ball is moved to the right?
    4. What is happening to Acceleration when the ball is moved to the right?
    5. Click experiment and START again and then move the black dot to the left VERY SLOWLY. What is happening to the line on the graph?
    6. What is happening to Velocity when the ball is moved to the left?
    7. What is happening to Acceleration when the ball is moved to the left?