Physics 2211: *Matter and Interactions*

Chapter 1 Standards

1. I can provide arguments for whether interactions are present for a given situation.
2. I can relate the fact that an object undergoes uniform motion to the fact that it must experience no net interaction in this case.
3. I can articulate the difference between a vector and a scalar.
4. I can find the magnitude of a vector.
5. I can calculate the unit vector in the direction of a specified vector.
6. I can use vector notation for appropriate quantities (such as momentum).
7. I can calculate the average velocity of an object.
8. I can add and subtract vectors graphically and algebraically.
9. I can calculate the change in a vector quantity graphically and algebraically.
10. I can use the position update formula to relate changes in the position of an object to its average velocity.

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11. I can use the position update formula to calculate the time taken for an object to move from an initial to a final location.
12. I can draw arrows to represent the velocity (or momentum) of an object at a particular location along its trajectory.
13. I can write the definition of momentum.
14. I can articulate when it is appropriate to use a non-relativistic approximation.
15. I can calculate the momentum of a particle at any speed.
16. I can calculate the average rate of change of momentum.
17. I can use VPython to animate an object moving with constant velocity.
18. I can use VPython to draw a vector moving with an object.
19. I can use VPython to leave a trail behind a moving object.