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| **Lesson Plan:** |

**Learning objectives**

1. Understand the difference and give examples of vectors and scalars
2. Understand and apply the vectors with signs relative to the origin and a directional frame of reference
3. Understand and apply the concept of uniform motion in calculating displacement covered from average velocity
4. Interpret and draw conclusions from position time graphs

**BIs**

1. Describe, interpret, calculate, experiment, and graph relationships between displacement, velocity, and acceleration given a storyline
2. Appreciate the importance of units and dimensional analysis
3. Understand the importance of direction in vector quantities and apply this in realistic situations

**PLOs**

**C6** explain the relationship of displacement and time interval to velocity for objects in uniform motion

**Skills developed to meet development goals**

**Material and equipment needed**

- Inquiry video downloaded as backup

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**Assessment Plan:**

**Formative -** Inquiry questions discussed in class and worksheet handed in this class or next class

**Hook and Introduction**

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| **Time** | **Activity** | **Teaching notes** | **Assessment** |
| 15 min | * Inquiry, interesting Science videos | * Guiding questions for students:  What do you think will happen? Why do you think that will happen? What if it's a spool without the edge caps and the string was in contact with the ground?   https://www.youtube.com/watch?v=Bwf3msm7rqM | * Discussion questions for class |

**Development**

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| **Time** | **Activity** | **Teaching notes** | **Assessment** |
| 30 min | * **Group work -** solving each other's questions | * Students form groups of 3-4 and try to solve each other's questions. They revise each other's questions and trade questions with another group. Questions are submitted at the end of class and the next quiz will have at least one question from the class. | * Best question + answer from each group - make sure every student puts their name on their group's form |
| 30 min | * Teacher facilitated, student lead note taking | * Check with students what they learned. Cover guiding questions given in problem. If students are stuck on what notes to highlight, ask them to think about what was important. Later on, may have student facilitated with student lead note taking, completely student led. * If class gets out of hand, can take over note taking session | * Check what students got out of the backward-problem solving including answers they might have for the guiding questions |

**Closure**

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| **Time** | **Activity** | **Teaching notes** | **Assessment** |
| 5 min | * Different room for next class + make sure they handed in their questions | Reminder:  - Computer lab instead of classroom  - Quiz at beginning of class  - Educational game at beginning of class | **HWK**  1) Question and answer handed in as group |

**Useful links:**

Mechanics 1.1: Displacement, Average Velocity

**https://www.youtube.com/watch?v=G0yXTxaCluU**

Other videos by the same Youtube channel:

https://www.youtube.com/channel/UCNkVBE3C9PU9zR0vo\_k6YtA