

## Unit 2A

### Distance and Displacement

#### Note-Taking Guide and Questions to Consider **TEACHER**



#### Main Ideas, Key Points, Questions:

*After watching the video segment, write down key points, main ideas, and big questions.*



#### Objective(s):

- *Differentiate between distance and displacement.*
- *Calculate the displacement of an object that experiences a change in direction, both one- and two-dimensional.*



#### Notes:

*During the video segment, use words, phrases, or drawings to take notes.*



#### Summary:

*After watching the video segment, write at least three sentences explaining what you learned. You may ask yourself: "If I was going to explain this to someone else, what would I say?"*

**Answer the following.**

1. Define displacement in your own words.

*Displacement is an object's overall change in position.*

2. If you wake up in the morning, go to school, go to the grocery store, and then return to the same place where you woke up, what is your displacement for the day?

*Your displacement for the day would be zero, as your initial and final positions are the same.*

3. What kind of quantity is displacement, scalar or vector?

*Displacement is a vector quantity.*

4. Can an object's displacement be negative? What does the sign indicate about the displacement?

*Yes, displacement can be negative because it is a vector quantity.*

*The sign indicates the direction of the displacement relative to the origin.*

5. Can the distance an object travels be negative?

*No. Displacement is a scalar quantity and can only be positive.*

6. If someone told you that they traveled 50 km east, are they describing the distance they traveled or their displacement? How do you know?

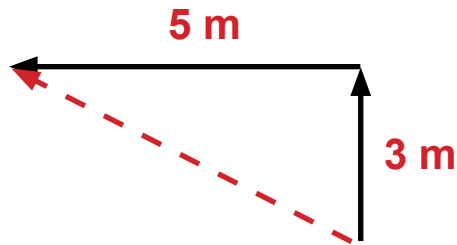
*They are describing displacement because there is a direction associated with the value.*

7. When will an object's displacement and distance traveled be different?

*If the object turns or changes direction, its distance and displacement will be different.*

Answer the following.

8. Draw a vector diagram for a person that walks 3 m north and 5 m east. How would you determine the displacement for this person?



*The Pythagorean theorem must be used to solve for the displacement because*

*these two vectors are perpendicular to one another.*

9. Define time interval in your own words.

*Time interval is how long an object is in motion.*