jPCTI Physics

Names:

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Distance and Displacement Analysis

Part 1

A. Figure out the **calculated distance** and **calculated displacement** you walked.

Add all measurements to find the **calculated distance**	Add all *forward* measurements and subtract all *backward* measurements to find the **calculated displacement**
1740	**1170**

Part 2

B. Figure out the **calculated distance** and **calculated displacement** you walked.

Add all measurements to find the **calculated distance**	Add all *forward* measurements and subtract all *backwards* measurements to find the **calculated displacement.** *Hint: Look at #7&9. Do they count towards the displacement?*
2682	**259**

After looking at the calculated distance, compare them to the actual distances and displacements that you measured. Are there any differences? Why do you think there are or are not?

Yes, Because even though we talk the same amount of steps, there was no guarantee that it would be the same distance. You could have walked in a different way or a different pace. Which also changed over displacement by walking different distances.

Distance vs. Displacement:

To make sure your understanding of distance and displacement please click this LINK and complete the 3 different scenarios.

Follow up:

1. They refer to distance as a **SCALAR**, and displacement as a **VECTOR.** In your own words, what does that mean? How are they different?

Distance is how much ground the object has covered and displacement is how far the place of the object is. Displacement is much shorter in distance from the starting point to the end point.

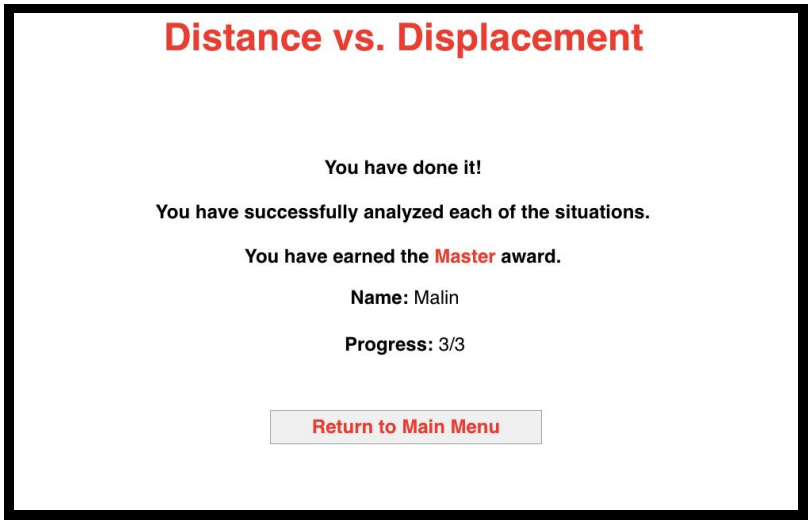
2. While watching the animation, the object was often at a number that was **negative.** When calculating the distance and the displacement they added the negative numbers into the totals as if there were positive. What does it mean to be at a "negative" position or to have a "negative" displacement?

For the animation, there was a negative value because the objects were in 2-D. In real life, there cannot be a negative value, because there isn't a starting point that's zero. The objects in the animation could only move in 2 directions, which is why there can be negative values.

More distance and displacement:

Click this CHALLENGE.

Take a screenshot when you finish the master level and paste here (Must plug in your name).



Conclusion

Describe a situation in nature or everyday life where it is imperative to use displacement rather than distance traveled. (Short paragraph. Use research)

For cars, it's distance that is important because you can't go in a straight line, you have to follow the roads. But with a plane, it's displacement that matters, because they can go in a relatively straight line. There are no random turns that may temporarily face you in the opposite direction of your finish point. Planes are always flying in the direction of where they're landing.