

FIRST LEGO LEAGUE - Ontario

Questions	
Question 1 Science	Was the tire-less 'slipbot' able to do any work? Explain.
No, because it wasn't able to move and this covered 0 distance. That makes the formula $W = F \times D$, $W = 0.75N \times 0$, $W = 0$	
Question 2 Science	Would pulling 'slipbot' up a hill increase the amount of work the 'gripbot' is doing? Show using the formula.
Yes it would, because the force would be greater than 0.75N due to it not only fighting friction (slightly less) but also a lot of gravity.	
Question 3 Science	Which of the tests (1 through 6) would have used the most amount of battery power from the EV3 brick? Explain.
Test number 3, which lasted the longest and went the farthest did the most amount of work, and thus would take the most amount of energy from the batter.	
Question 4 Science	Imagine your battery only had enough energy left for exactly 7.5 Joules of work. How far could your 'gripbot' pull the 'slip bot'?
$W = F \times D$, $D = W/F$, $D = 7.5J/0.75N = 10$ meters	
Question 5 Coding (a) and Science (b)	<p>a) Describe what you could do to the code so that the robot slowed down when it saw the colour yellow, before stopping at red.</p> <p>b) Would this change the amount of work done?</p>
<p>a) Insert another wait block after the first move block that waits for yellow, and then runs the motors at a low %</p> <p>b) Not as long as the robot kept pulling, the force and distance doesn't chane</p>	