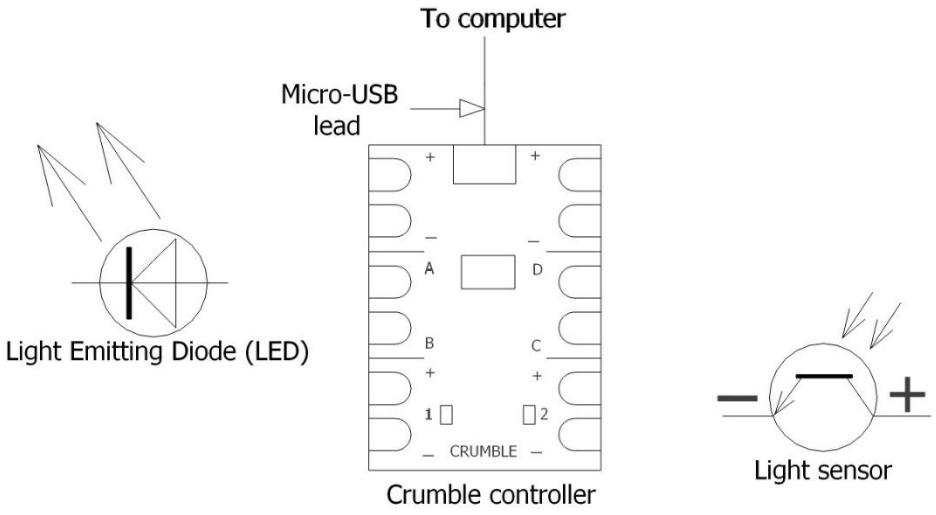
Worksheet 2 – Crumble Vehicle Extension Activities

Name: _____

ELECTRICITY	
Why is an LED bulb more efficient than a traditional bulb?	
What is a light sensor used for?	

Complete this circuit diagram to show how the LED and the light sensor are connected to the Crumble controller.

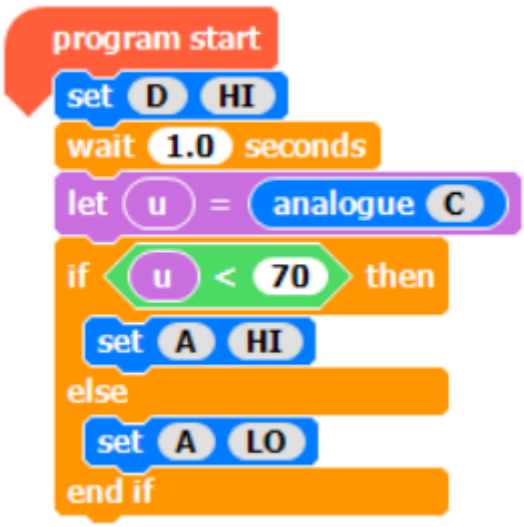


FORCES - FRICTION	
Suggest some real-world applications where we want low friction.	
Suggest some real-world applications where we want high friction.	

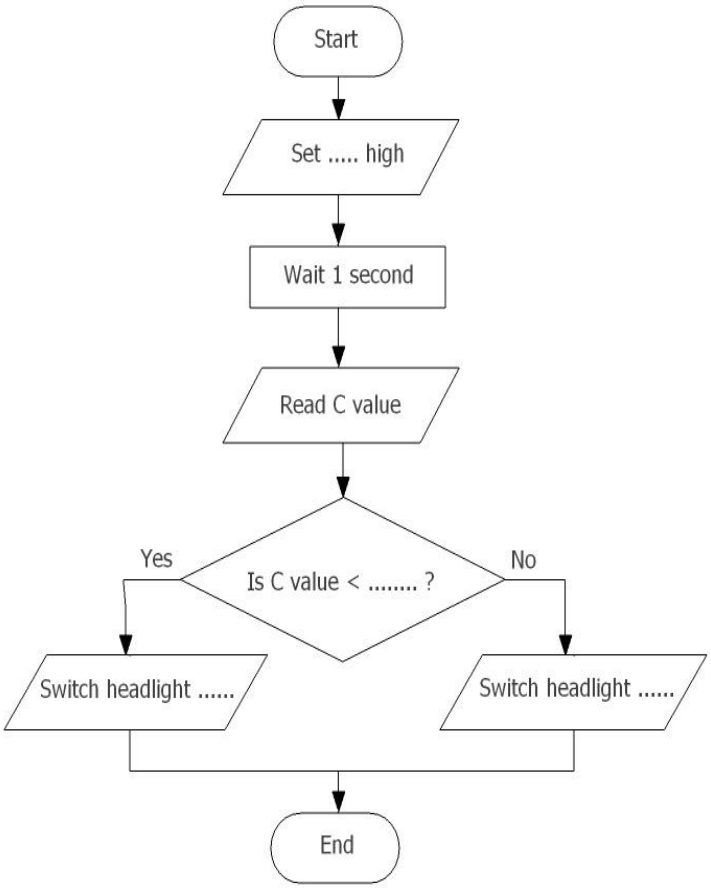
PROGRAMMING

1. **On the right is a program used to switch the headlight on if it is dark. Which of the parameters A, C, D and u are being used for the following:**

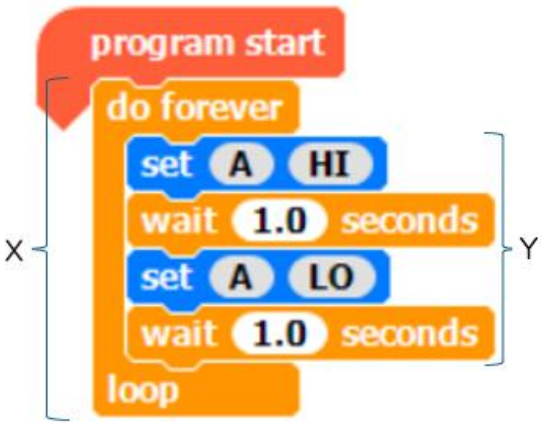
   - **Input**
   - **Outputs**
   - **Variable**



2. **Complete the flowchart below to show the logic of this program.**



3. **Below is a program to flash the headlight on and off continuously.**



Which part demonstrates sequencing?

Which part demonstrates repetition?

MATERIALS	
Is rubber a high friction or a low friction material?	
Why were rubber tyres added to the rear wheels of the vehicle?	
Why were rubber tyres not added to the front wheels of the vehicle?	
MATHEMATICS	
How did you calculate average speed?	
What average speed did your vehicle achieve in the drag race?	
What was the steepest ramp angle which your vehicle was able to climb?	
EXTENSION QUESTION	
Describe any improvements you made to your vehicle.	