Empirical Models 1 **Student**_____ **Score**_____**/10**

		Expectation	**✓ = 1 pts**
1) Cantilever Beam	1	Fitted Plot is included, clear, and complete: with data as points, axes labeled with quantity and units, a fitted line and fitted equation to 3 significant figures.	
	2	Residual Plot included, clear, and complete: axes labeled with quantity and units, presented as a scatter plot or bar graph.	
	3	Clear and complete answer to: a) Does a linear fit look appropriate to this data? Including clear and logical reasons for choice based on plots	
	4	Clear and complete answer to: b) What are the units on the slope (the m parameter)?	
2) Three Fitting Problems	5	Problem clearly presented with clear & complete Table 1, clear identification of which graphs are included, clear pastes of the graphs into the document.	
	6	a) Wind Power Generation (*Power* vs. *Wind*): Correct linear fit of the data (whether appropriate or not), Clear & reasonable justification of answer to question.	
	7	b) LEGO Level Gage Calibration (*Height* vs. *Reading*): Correct linear fit of the data (whether appropriate or not), Clear & reasonable justification of answer to question.	
	8	c) LEGO Flowmeter Calibration (Flow vs. Read): Correct linear fit of the data (whether appropriate or not), Clear & reasonable justification of answer to question.	
	9	Fitted Plot is included, clear, and complete: with data as points, axes labeled with quantity & units, a fitted line & fitted equation to 3 significant figures.	
	10	Residual Plot included, clear, and complete: axes labeled with quantity and units, presented as a scatter plot or bar graph.	
3) Function Discovery Graphs	11	Clear and complete presentation of the problem (Program Development Worksheet is not required)	
	12	Script with clear comments that will produce three graphs Graphs can be separated using figure command or plotted as subplots	
	13		
	14	Linear Graph – properly and automatically formatted (via the script) including data plotted as points, appropriate axis scaling, and axis labels with appropriate units	
	15	Semilog y Graph – properly and automatically formatted (via the script) including data plotted as points, appropriate axis scaling, and axis labels with appropriate units	
	16	Log-Log Graph – properly and automatically formatted (via the script) including data plotted as points, appropriate axis scaling, and axis labels with appropriate units	
	27	A Model Identified by the model name (linear, exponential or power) not simply the graph name (semilog, loglog).	
	18		
	19	Clear explanation of why above model was chosen based on the three graphs (discussion of linear residuals for linear case may be included but is not required)	
	20		