MBF 3C: **Exponential Relations Project: *I've Got 'Power'!***

Ready, set, go! It's time for you to showcase your knowledge of & skills with working with exponential relations.

There are some key components to getting your points across.

Part 1-What is an Exponential Relation?

Define: What is an exponential relation?

[This is the perfect place to showcase the different representations of a relation--graph, table of values, and equation. Be sure that your representations all describe the same exponential relation.]

Part 2: Applications of Exponential Relations

In this section, pick an application (e.g., doubling time, half-life, compound interest, or another application), provide an example of a problem, and show how you would solve it in detail.

Part 3: Modeling with Exponential Relations

In this final section, showcase how your use of technology and reasoning can be used to solve problems involving exponential relations.

You'll be using one of two investigations to report on-"Farm Value of Potatoes"(Statistics Canada Task) or "Ball Bounce"

Follow the instructions in each of the investigation guides.

Ultimately, in Part 3, your **goals are to GO BEYOND** your investigation by:

- generating a graphical model (exponential relation) that includes a curve that best fits the data
- determining an equation for the curve of best fit, $y = ab^x$
- using your graph and equation to solve a problem (or problems) related to the data
  - a problem (or problems) that you have posed and solved

(Assessment →)

Putting it All Together

How you assemble your project is up to you. There are a variety of formats that you can consider--study guide, poster, PowerPoint, Onenote folder, Video,...

Assessment of my Work

How will my work be assessed?

Consult the attached rubric to ensure that you're meeting (and able to go beyond) the expectations set out for this project.

GO FOR IT! *You've got the 'power'*.

Name: _____

MBF 3C **Project: I Got the Power!** Date: _____

Your completed project can lead to demonstrating your achievement of the following expectations:

____ makes connections between the numeric, graphical, and algebraic representations of exponential relations

____ describe and represent exponential relations, and solve problems involving exponential relations arising from real-world applications

The following rubric will be used to determine your level of achievement. **NOTE:** The words in *italics* specify what needs to be shown for Level 3 performance. The remainder of the criteria specifies moving into Level 4.

Part 1-Defining Exponential Relations			
	Levels NL, 1, 2	Level 3	Level 4
KU		I have, as per my own understanding, *correctly defined* an exponential relation—making sure that I've described the relationship between consecutive terms	
KU		I have included an example of a table, graph, and equation (all correctly *developed*) that represent the same exponential relation—making sure that I've tried to show *most* of the connections between the different representations	
Part 2-Applications of Exponential Relations			
	Levels NL, 1, 2	Level 3	Level 4
APP		I have identified a context (example) that can be modeled by an exponential relation, explaining why it's exponential	
APP		I have *found* (or posed) a suitable exponential relations problem and have *solved it correctly*, making sure to have provided considerable detail (i.e., steps in the solution and explanation)	
Part 3-Modeling with Exponential Relations ("Farm Value of Potatoes" or "Ball Bounce")			
	Levels NL, 1, 2	Level 3	Level 4
TIPS		I have completed *most* of the investigation process—generating a *graph*, a *curve* that best fits the data, and the equation that defines the curve	
TIPS		I have identified and understood *most* of the elements important to the solution process—posing ***a*** problem and solving using my graph ***or*** equation	
TIPS		I have provided *appropriate* conclusions *with* supporting evidence	

(Over for Communication→)

Communication Rubric

Did I …

Criteria	Level NL, 1, 2	Level 3	Level 4
Interpret information *correctly* and make *reasonable* statements?			
Consistently use mathematical conventions *correctly*—use of symbols, key terms, labels, solutions written from top to bottom of page			
Include and *integrate* both mathematical forms (tables, graphs, equations) and narrative (i.e., descriptive, explanatory) forms			
Provide *explanations* and justifications that would be *clear* for a range of audiences (e.g., peers and teacher)			