Name_____ Date _____

Exploring Exponential Functions: Don't keep stringing us along!

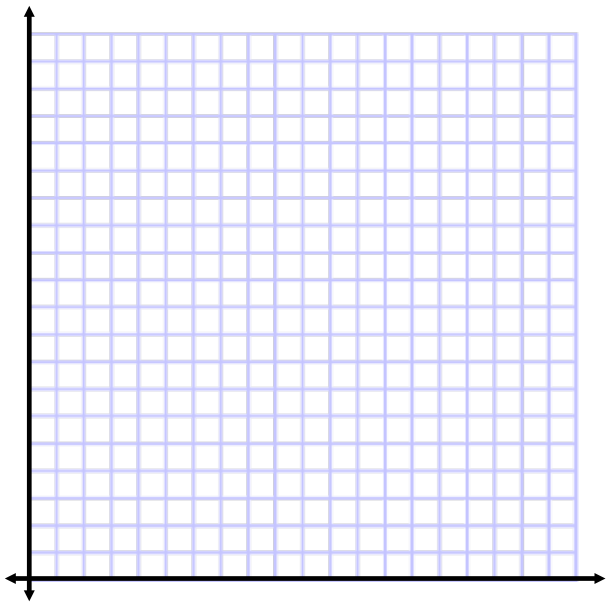
Step One: Fold a 16 inch strand of string in half, then cut at the fold. Fill out the chart.

Step Two: With pieces together, fold in half to cut in half again.

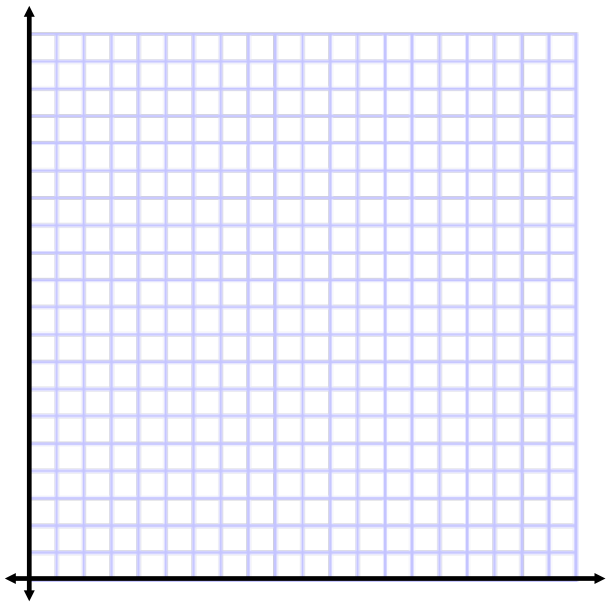
Step Three: Repeat step two until chart is complete!

Number of cuts	Number of String Strands	Length of String Strands
0		
1		
2		
3		
4		
5		
6		

Graph the relationship between the number of string strands and the number of cuts made.



Graph the relationship between the length of string strands and the number of cuts made.



Discussion:

Use the data in the table to identify any patterns you see.

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Which set of data is growing?_____

What is the starting value? _____

What is the growth factor? _____

Exponential Growth Function:_____

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Which set of data is decaying (reduced)?_____

What is the starting value? _____

What is the decay factor? _____

Exponential Decay Function:_____

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By looking at the table, how can you tell that the relationship between number string strands and the number of cuts is exponential (rather than linear)?

By looking at the graph, how can you tell that the relationship between length of string strands and the number of cuts is exponential (rather than linear)?

How many and what length would the string strands be after 10 cuts? Is this number feasible?