(A) Lesson Context

BIG PICTURE of this UNIT:	• How can I analyze growth or decay patterns in data sets & contextual problems? • How can I algebraically & graphically summarize growth or decay patterns? • How can I compare & contrast linear and exponential models for growth and decay problems.		
CONTEXT of this LESSON:	Where we've been In Lesson 1, you generated data from a variety of activities	Where we are How do we analyze data in order to determine the patterns/relationships exist in data sets that exhibit growth & decay patterns	Where we are heading How can I develop equations that will help me make predictions about scenarios which feature exponential growth & decay?

(B) Lesson Objectives:

a. Generate data through various hands-on activities
b. Analyze the data to look for patterns in the data that was generated
c. Make predictions/extrapolations through numeric or algebraic analysis

(C) Fast Five (Skills Review from Gr 8)

6. Simplify the following expressions. Use only positive exponents in your answer.

A. $\frac{32a^4b^2}{10a^2b^6}\cdot\frac{5a^2b^3}{4ab^3}$	B. $x^6y^{-3}\left(\frac{x^2}{y^3}\right)^{-3}$

2. Simplify or evaluate the following expressions. Write answers in simplest form.

A. $(8^2)^{-1}(4^{-2})^{-2}$	B. $\left[(-1)^5\right]^4$
C. $(-2a)^3(4a^2)^0\left[(a)^{-2}\right]^4$	D. $\frac{1}{(3x)^{-3}}$

DATA SET ANALYSIS #1

Data Set #1 ➔ {1,2,4,8,16,32,64,….} ➔ and as a data table ➔

X	0	1	2	3	4	5	6
y	1	2	4	8	16	32	64

Describe the pattern in words and with an equation

DATA SET ANALYSIS #2

Data Set #2 ➔ {20,60,180,540,1620…} ➔as a data table ➔

X	0	1	2	3	4	5	6
y	20	60	180	540	1620	4860	14580

Describe the pattern in words and with an equation

DATA SET ANALYSIS #3

Data Set #2 ➔ {320,160,80,40,20,10,5,….} ➔as a data table ➔

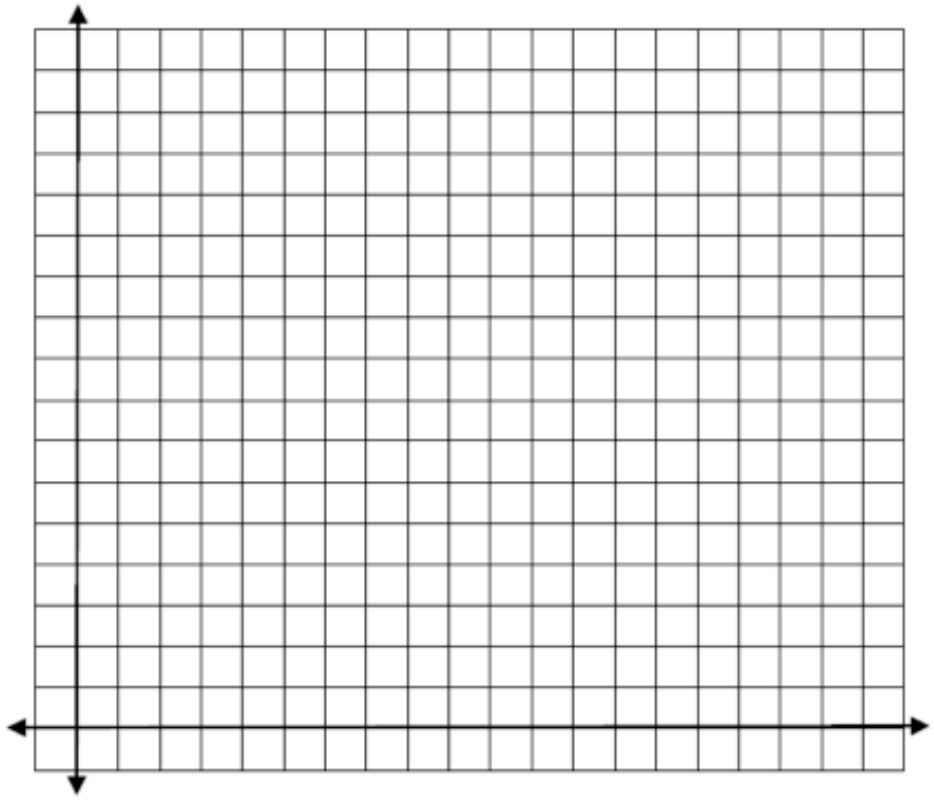
X	0	1	2	3	4	5	6
y	320	160	80	40	20	10	5

Describe the pattern in words and with an equation

Data Analysis ➔ ***Part I: Modeling Exponential Data***

The value of Mr S car is depreciating over time. I bought the car new in 2002 and the value of my car (in thousands) over the years has been tabulated below:

Year	Value
2002	40
2003	36
2004	32.4
2005	29.2
2006	26.2
2007	23.6
2008	21.3
2009	19.1
2010	17.2



Data Analysis ➔ *Part II: Modeling Exponential Data*

The value of Mr S car is depreciating over time. I bought the car new in 2002 and the value of my car (in thousands) over the years has been tabulated below:

Year	Population
1700	250
1750	370
1800	560
1850	840
1900	1270
1950	1900
2000	2850