Name: _____

Date: _____ Period: _____

Lab Activity: Graphing Analysis

INTRODUCTION:

Constructing and interpreting graphs are an integral part of Earth Science. When data is collected and plotted a pattern can emerge. The picture-like representation makes it easier to see relationships that are not obvious from a column of data. Moreover, these patterns can be extrapolated to predict a future event.

OBJECTIVE:

You will see how graphing a natural phenomenon can aid in predicting future events.

VOCABULARY:

Direct Relationship

Dependent Variable

Inverse Relationship

Independent Variable

Cyclic Change

Dynamic Equilibrium
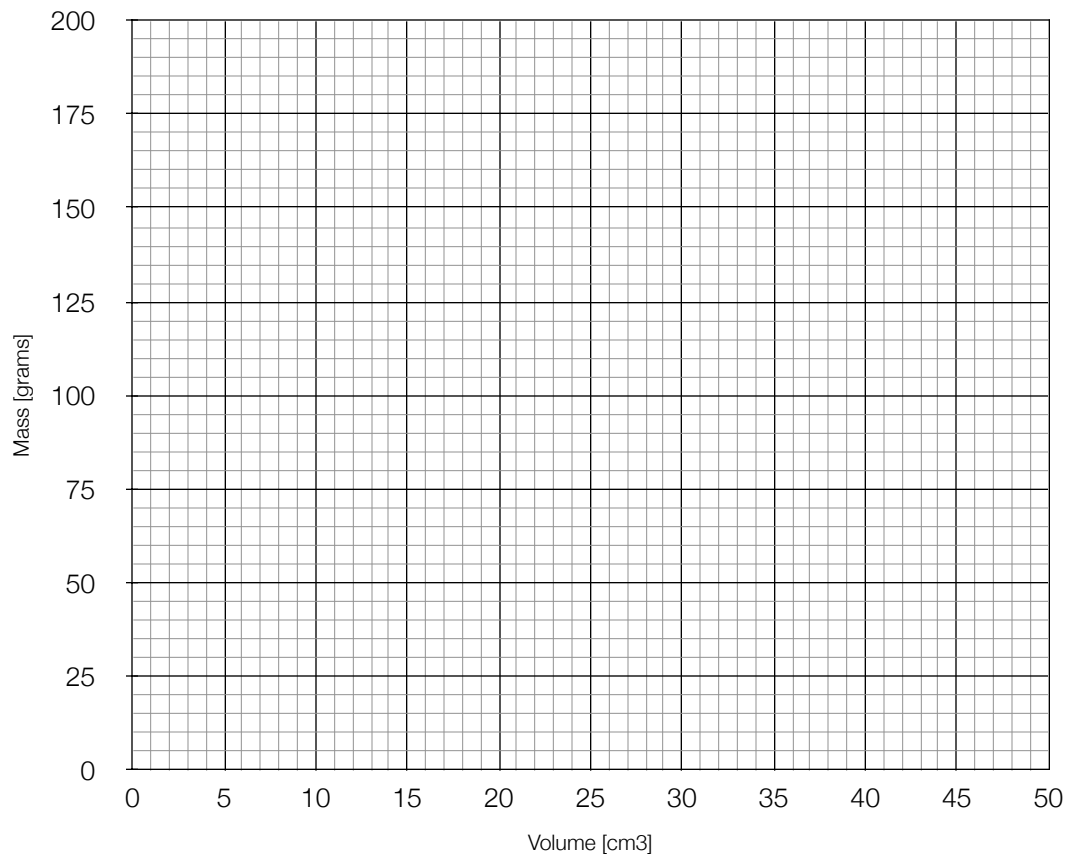
Lab Activity: Graphing Analysis

PROCEDURE A:

1. Using the "Density Data", graph the Mass vs. Volume of the mineral sample.
2. Be sure to connect the points with a line.

DENSITY DATA

Mass [grams]	0	10	20	30	40	50	60	70	80	90	100
Volume [cm³]	0	2	4	6	8	10	12	14	16	18	20

MASS VS. VOLUME
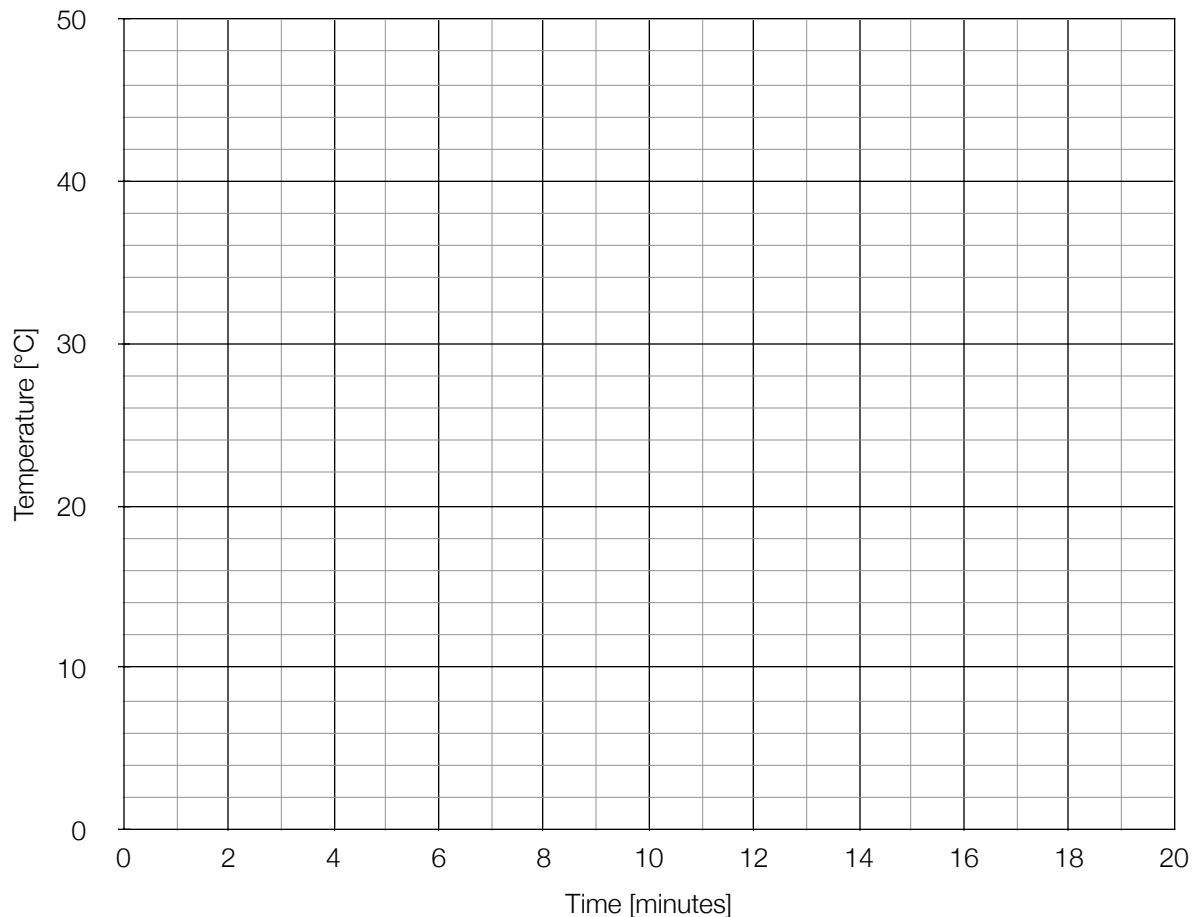
Lab Activity: Graphing Analysis

PROCEDURE B:

1. Mrs. Parrinello left her chi latte on the lab table. Temperature was measured and recorded at one-minute intervals. Plots the given data on the the "Cooling Rate of Chai Latte" graph.

2. Be sure to connect the points with a line.

CHAI LATTE TEMPERATURE

Time [min]	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Temp. [°C]	36.0	32.5	30.5	29.0	28.0	27.0	26.0	25.5	24.5	24.0	23.5	23.0	23.0	23.0	23.0	23.0

COOLING RATE OF CHAI LATTE

Lab Activity: Graphing Analysis
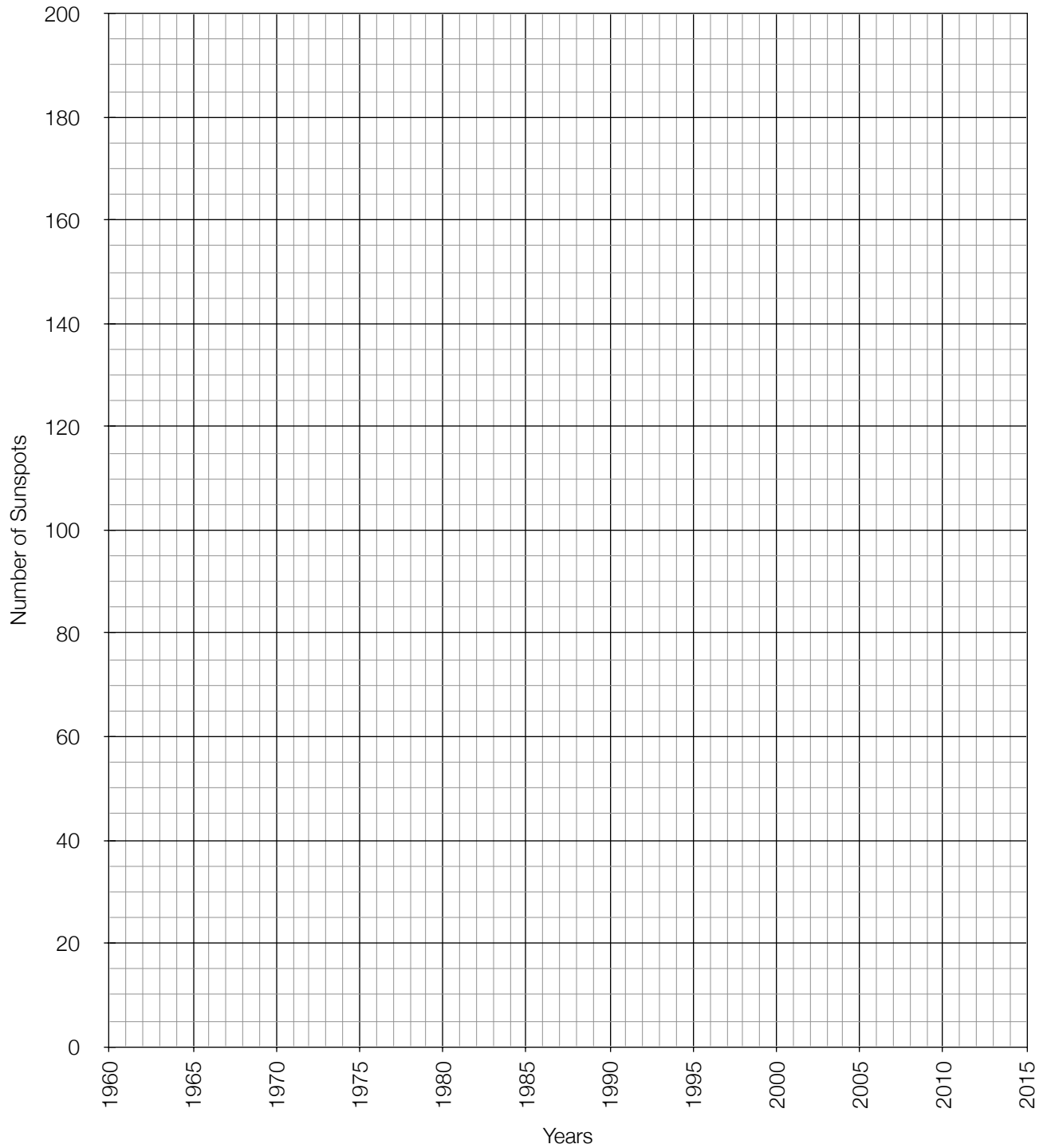
PROCEDURE C:

1. Using the data given, graph the number of sunspots in the years from 1960 to 2013.
2. Be sure to connect the points with a line.

Year	Number of Sunspots	Year	Number of Sunspots
1960	112	1987	29
1961	54	1988	50
1962	38	1989	145
1963	28	1990	155
1964	10	1991	150
1965	15	1992	94
1966	47	1993	55
1967	94	1994	30
1968	106	1995	18
1969	105	1996	7
1970	105	1997	21
1971	67	1998	64
1972	69	1999	93
1973	38	2000	120
1974	34	2001	111
1975	16	2002	104
1976	13	2003	64
1977	27	2004	40
1978	93	2005	30
1979	155	2006	15
1980	146	2007	8
1981	134	2008	2
1982	116	2009	3
1983	72	2010	17
1984	46	2011	56
1985	18	2012	58
1986	13	2013	65

AVERAGE ANNUAL SUNSPOT NUMBERS

Number of Sunspots

Years

Lab Activity: Graphing Analysis

DISCUSSION QUESTIONS:

1. What type of relationships exist for procedure A, procedure B and procedure C?

2. In procedure A, extrapolate the data to find the mass if the mineral has a volume of 40.0 cm^3?

3. In procedure B, describe the condition that exists for time and temperature from time 12 to 15?

4. In procedure B, calculate the rate of temperature change from time 0 to time 4?

5. In procedure C, calculate how long does it take to complete one sunspot cycle?

CONCLUSION: Describe the advantages of plotting data in graph form.