

NAME: \_\_\_\_\_

## Moose-Wolf Population Modeling

### Directions:

1. Graph and analyze the following dataset of the populations of the wolves and moose on Isle Royale over a given set of years.
2. Create separate curves on the graph for the wolf and moose populations, respectively.
3. Create different vertical axes, one on the right and another on the left side of the graph, to scale accordingly for each of the populations, since their numbers are different by a scale factor of roughly 100.
4. Label different regions of the graphs that you think are meaningful, such as maximum or minimum points on each.
5. Next to your graph, write an explanation for what the labeled regions of your graph mean.
6. Be prepared to tell a story about the population dynamics of wolves and moose based on your graphs and the label regions on them.

Year	Wolf Population	Moose Population
1988	12	1116
1989	12	1260
1990	15	1315
1991	12	1496
1992	12	1697
1993	13	1784
1994	17	2017
1995	16	2117
1996	22	2398
1997	24	900
1998	14	925
1999	25	997
2000	29	1031
2001	19	1120
2002	17	1100
2003	19	900
2004	29	750
2005	30	540
2006	30	450
2007	21	385

NAME: \_\_\_\_\_

Notice & Wonder Protocol

**NOTICE**

*Things that you noticed about the topic*

**WONDER**

*Things that you wondered about the topic*

NAME: \_\_\_\_\_

4 Notes Summary Protocol

**OOOH!**

*Something that was interesting to you*

**AAAH!**

*Something that became clearer; an "ah-ha" moment*

**HMMM...**

*Something that left you wanting to learn more*

**HUH?**

*Something you questioned or wondered*

Sum It Up Statement:

*Summarize your group discussion about your 4 Notes Summaries below:*

NAME: \_\_\_\_\_

Rose, Thorn, Bud Protocol

---

# ROSE

Something that "blossomed" for you in your learning

---

# THORN

Something that challenged your thinking or was difficult to understand

---

# BUD

Something that's new and growing in your mind — a "budding" idea

NAME: \_\_\_\_\_

Think Pair Square Protocol

---

**THINK**

*Write down your own individual ideas*

---

**PAIR**

*Summarize what you and your partner discussed*

---

**SQUARE**

*Summarize what your group discussed*

NAME: \_\_\_\_\_

## Free Recall Protocol

*With 1-2 partners, generate a list of everything you can remember learning about in this lesson related to the central topic of the lesson. Draw lines between any terms that relate to one another.*

---

**NAME:** \_\_\_\_\_

## A Word, Phrase, Sentence Protocol

What is a **word** that you thought was most important from this lesson?

What is a **phrase** that you would like to remember from this lesson?

What is a **sentence** that sums up what you learned in this lesson?

---

## 3, 2, 1 Review Protocol

What are **3 things that you liked or learned** from this lesson's activities?

- 
- 
- 

What are **2 ideas that make more sense** now to you?

- 
- 

What is **1 question that you were left with** after this lesson?

-