

Name _____ Teacher _____ Date _____

1.5 Grading the Finding a Trend in Arctic Sea Ice Worksheet

1. Follow the five steps to draw a trend line on your arctic sea ice graph from Activity 1.3 Graphing Arctic Sea Ice Worksheet. Here is a reminder of the steps:

Step 1: Connect the dots.

Step 2: Divide the picture into sections by drawing vertical lines on the graph every five years.

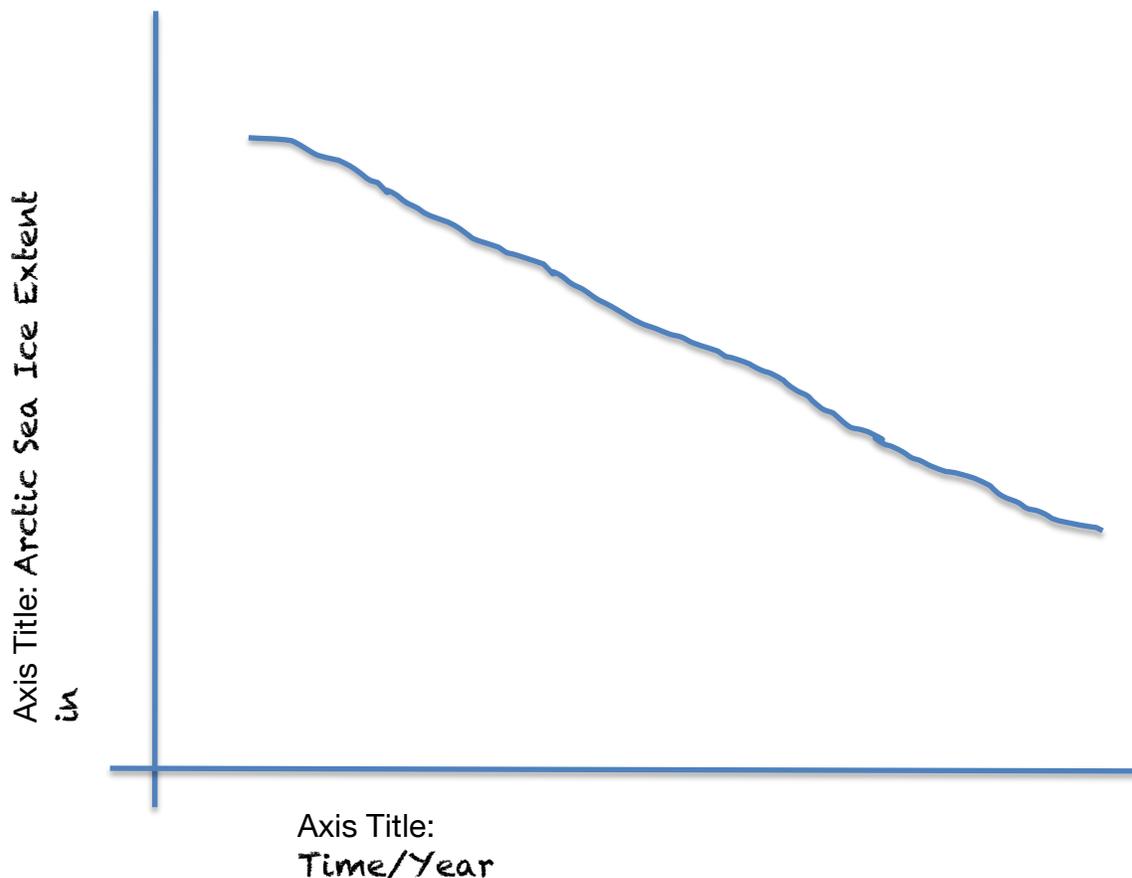
Step 3: Calculate the average of all the data points within those five year time periods.

Step 4: Place one dot in each section that shows the average for that time period.

Step 5. Draw a line to connect the new dots.

2. Draw a rough sketch of the arctic sea ice graph here. Remember to label your axes, and give your graph a title. *Students should reproduce a hand-drawn graph with a trend line from the Activity 1.3 Graphing Arctic Sea Ice Worksheet. Their graphs should include time on the X-axis, Sea Ice Extent on the Y axis, and a negative trend line. They may or may not choose to draw grid lines, and some may smooth out the line more than others.*

Graph Title: Arctic Sea Ice



3. What did you see? Write a description of the trend line from your arctic sea ice graph here. Remember: you're describing what is happening to the line, not the ice.

The graph shows a negative trend, meaning that the trend line decreases from left to right, and that the line decreases over time.

4. Explain in your own words what this trend line tells us about what is happening to arctic sea ice. Remember: you're describing what is happening to the ice, not the trend line itself.

The long-term trend is that the percent cover of annual ice in the arctic is decreasing over time, despite a lot of short-term variation. This means that over time there is less and less ice covering the arctic sea.

5. Why do you think it is important to look for overall trends in graphs like arctic sea ice?

Drawing a trend line helps represent the data in a different way. We can see a trend that we couldn't see just looking at the pictures or numbers or dots alone. Drawing a trend line helps us identify long-term trends and helps us look past short-term variation.

6. Based on this trend line, can you predict how many square kilometers of arctic sea ice there will be 5 years from now? Why or why not?

Level 4 responses will predict with confidence that the arctic sea ice will be less than it is now in about 5 years from now. This is due to the fact that there is a clear long-term trend, which is a reliable source or evidence that the trend will continue. They may not have been able to predict this before drawing the trend line due to the stochastic nature of the short-term variation in the data.

Level 3 and Level 2 students may suggest that due to short term variation in the arctic sea ice that they can't predict what will happen in five years.