

The Solar System • Skills Lab**Stormy Sunspots**

During which years were electrical disturbances on Earth most common? In this lab, you will consider the relationship between sunspot activity and magnetic storms on Earth.

Problem

How are magnetic storms on Earth related to sunspot activity?

Skills Focus

graphing, interpreting data

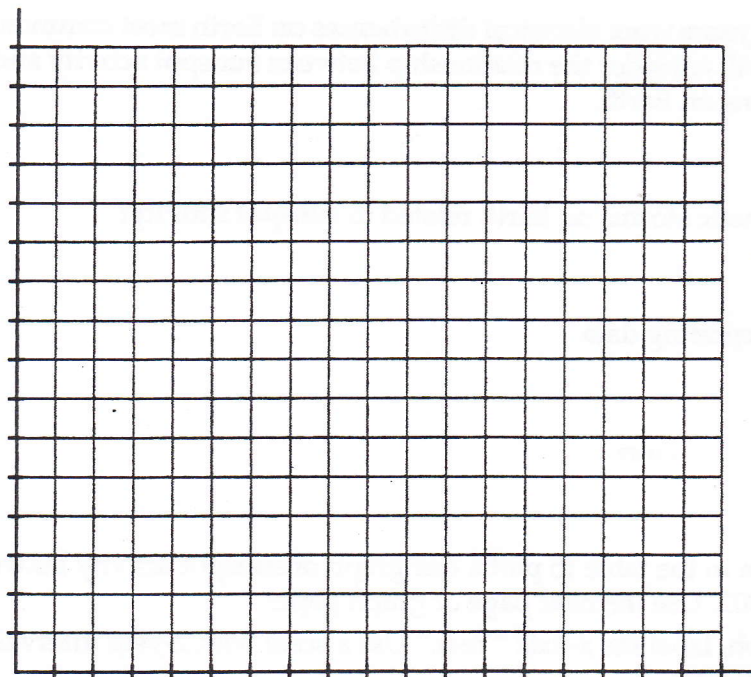
Materials

graph paper ruler

Procedure

1. Use the data in the table to plot a line graph of sunspot activity between 1972 and 2002. Use the next page or graph paper.
2. On the graph, label the *x*-axis "Year." Use a scale with 2-year intervals, from 1972 to 2002.
3. Label the *y*-axis "Sunspot Number." Use a scale of 0 through 160 in intervals of 10.
4. Graph a point for the Sunspot Number for each year.
5. Complete your graph by drawing lines to connect the points.

Sunspots			
Year	Sunspot Number	Year	Sunspot Number
1972	68.9	1988	100.2
1974	34.5	1990	142.6
1976	12.6	1992	94.3
1978	92.5	1994	29.9
1980	154.6	1996	8.6
1982	115.9	1998	64.3
1984	45.9	2000	119.6
1986	13.4	2002	104.0

The Solar System • Skills Lab**Line Graph****Analyze and Conclude**

Write your answers on a separate sheet of paper.

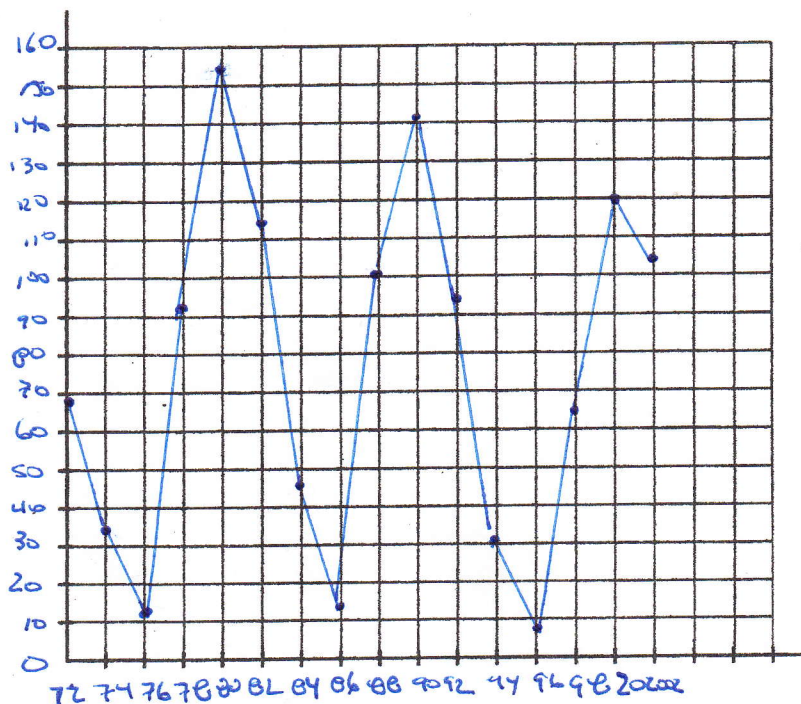
1. **Graphing** Based on your graph, which years had the highest average Sunspot Number? The lowest average Sunspot Number?
2. **Interpreting Data** How often does the cycle of maximum and minimum activity repeat?
3. **Interpreting Data** When was the most recent maximum sunspot activity? The most recent minimum sunspot activity?
4. **Inferring** Compare your sunspot graph with the magnetic storms graph in your textbook. What relationship can you infer between periods of high sunspot activity and magnetic storms? Explain.
5. **Communicating** Suppose you are an engineer working for an electric power company. Write a brief summary of your analysis of sunspot data. Explain the relationship between sunspot number and electrical disturbances on Earth.

More to Explore

Using the pattern of sunspot activity you found, predict the number of peaks you would expect in the next 30 years. Around which years would you expect the peaks to occur?

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Line Graph



Analyze and Conclude

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- Communicating** Suppose you are an engineer working for an electric power company. Write a brief summary of your analysis of sunspot data. Explain the relationship between sunspot number and electrical disturbances on Earth.

Highest - 1980, 1990, 2000
Lowest - 1976, 1986, 1996

max → min - 6 yrs
min → max - 4 yrs

max - 2000
min - 1996

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