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## Class Notes

Analyzing the Game of Sprouts
Objective: To determine the maximum and minimum number of moves of a sprouts game based on the number of vertices at the start of the game.

## Data Collection

With a partner, play a game of sprouts (on a separate sheet of paper with both of your names written at the top) that starts with 3 vertices. While playing, you and your partner will keep track of the characteristics of the graph at the end of each move by using the chart provided. Each of you must fill-in your own chart, but you should double-check each other and agree on all the characteristics.

|  | Sprouts Game Starting with 3 Vertices |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Player's <br> Initials | Move <br> Number | Number of <br> Vertices | The Degree of Each Vertex <br> (separate each using a comma) | Sum of all <br> Degrees | Number of <br> Edges |
| n/a | 0 | 1 | 0 | 0 | 0 |
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This time with a different partner, play a game of sprouts (on a separate sheet of paper) that starts with 5 vertices. While playing, you and your partner will keep track of the characteristics of the graph at the end of each move by using the chart provided. Each of you must fill-in your own chart, but you should double-check each other and agree on all the characteristics.

|  | Sprouts Game Starting with 5 Vertices |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Player's <br> Initials | Move <br> Number | Number of <br> Vertices | The Degree of Each Vertex <br> (separate each using a comma) | Sum of all <br> Degrees | Number of <br> Edges |  |
| n/a | 0 | 1 | 0 | 0 | 0 |  |
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## Observations \& Analysis

On a separate sheet of paper, identify and describe as many patterns you can notice/see/find from the charts. Be as specific as possible when describing the patterns and write in complete, grammatically correct sentences

## Conclusions

What would you say is the minimum and maximum number of moves in a sprouts game that starts with 12 vertices? Explain/Justify your answer.

