Interim Report

School Name: Melrose High School

Area of science: Mathematics

Project Title: Fibonacci Sequence

Team Members: Jouie Barnes, James Rush, Brianna Rierson, Aaron Jones

Problem definition:

Our team is doing a project on the Fibonacci sequence. We chose to do this because our team is good at math and we like sequences and patterns. Math is a big part of our lives and we enjoy looking for science and math in nature.

Our team would like to create a model based upon the Fibonacci sequence and Phi (1.61….) to calculate numbers that show the sequence and allow them to be applied. The applications will include the formation of 'golden rectangles' and 'golden spirals'.

Solving the problem:

The Fibonacci sequence is involved in nature, weather, and even architecture. The sequence makes a spiral that is appealing to the human eye. This spiral is seen in various plants, severe weather and in seashells. The spiral then forms a rectangle around the outside of it. This rectangle is visually perfect and is used in many buildings, objects, and is appealing to a human's perception.

In our model we would like to continue the spiral. First, we will build a program to calculate the Fibonacci sequence and use those numbers to have agents draw connected golden rectangles. These rectangles will allow us to construct a perfect spiral our project is over the sequence will help is and others better visualize this important math concept.

Phi=$1 + \sqrt{5} \div 2 = 1.6180339887$ ...ECT. We can use, $N \div M = M \div N - M$, which refers to the square sequence that makes the golden ratio. Where N= the whole and the longer part being M. Our goal is to create an equation to allow for variants of this sequence. Example: putting in four feet for the width of a doghouse door and finding the perfect height and length.

Progress:

We have researched and found that the Fibonacci sequence, the golden ratio, and phi are tied into each other in specific ways. The relationships between them form the basis for our programming.

Expected results:

Our project over the sequence will help us and others better visualize this important math concept. Our team wants to create an equation solver that will show a golden rectangle based upon input numbers.

Citations:

Books:

The Golden Section: Natures Greatest Sequence by Scott Olson

The Mathematics of Patterns by Hannah Fry

Websites:

Fibonacci Sequence:

Fibonacci the Man:

Golden Spiral: