My Understanding of ‘Graph Coloring’ Problem:

Graphs are made up of edges and vertices. There are mainly three forms of coloring the graph.one form is coloring edges ,second is coloring vertices and the last one is total coloring. All coloring forms has a common restriction, no adjacent vertex/edge have the same color and have to use minimum number of colors. There are many other forms of coloring with different rules.

https://en.wikipedia.org/wiki/Graph_coloring is the wiki doc which describes different graph coloring forms.

There are different versions of this game in CSU unplugged as below:

The Poor Cartographer: this is simple version of graph coloring in which we will have maps to color.

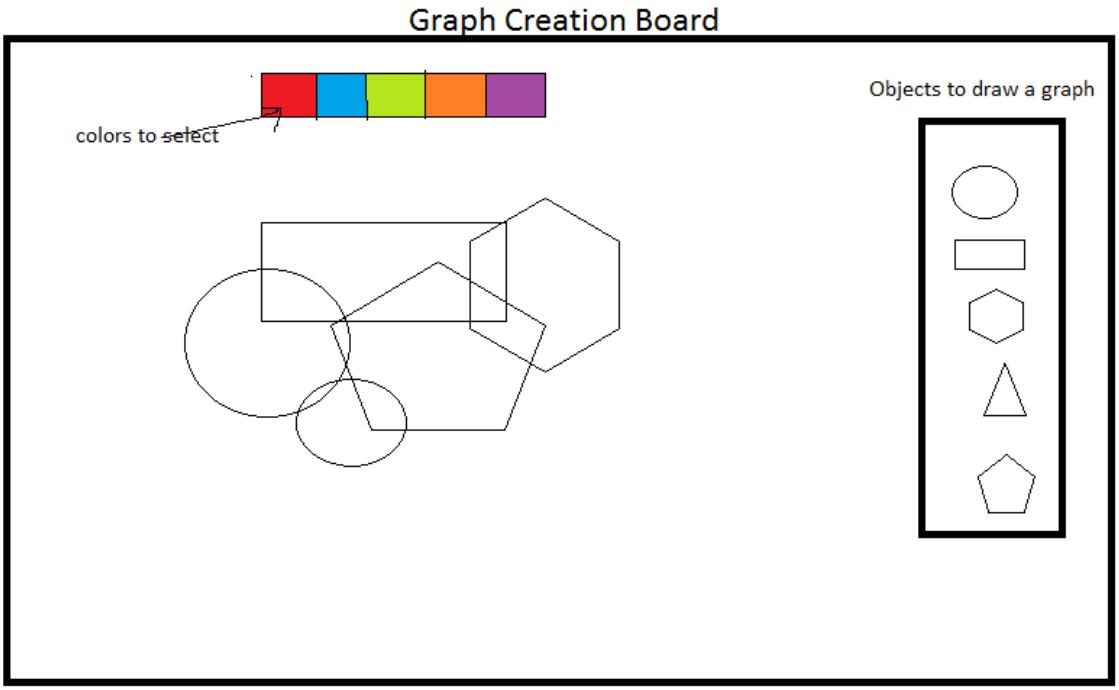
Coloring Curves Game: This is a two player game in which one will start coloring and fill a curve and other player will fill the color such that same color should not be adjacent. For this game we have some issues which decides who wins the game like who play’s first, number of curves to color.

Painting by Numbers: Pint the regions formed by ellipse or rectangles and fill the color with some rules (http://nrich.maths.org/7020).

Sketch :

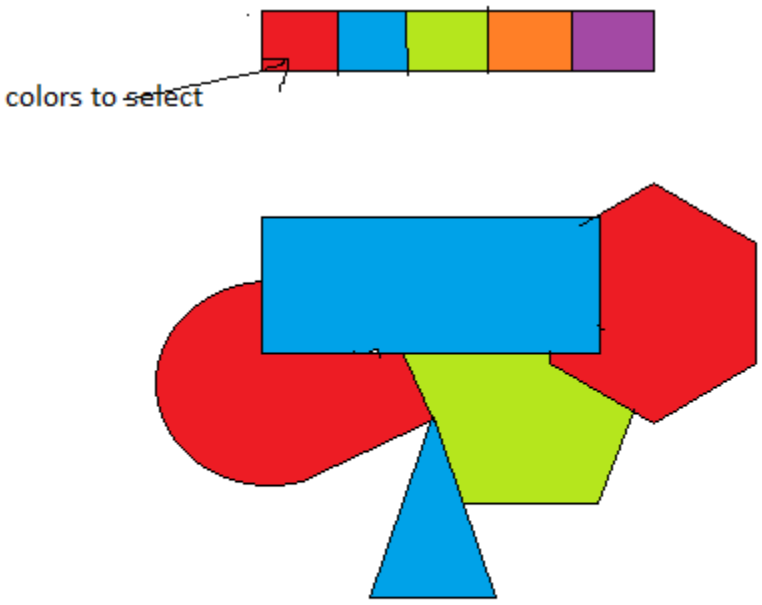
We have decided the game to be designed as follows:

1. Pre-built Graphs: Built the graph like continuous curve and fill the intersecting regions.
2. Designing graphs with predefined shapes as objects and fill them with the given colors as shown



We will be using different shapes as objects to create a graph and will give only predefined colors.

Example:



Can extend this to multi-player by setting time or minimum number of colors used as criteria of winning.