**WEEK 11 – Capture the grid**

**Unit:** Spatial Sense

**Grade:** Junior (4-6)

**Curriculum Expectations**
 Use the row and column structure of an array to measure the areas of rectangles and to show that the area of any rectangle can be found by multiplying its side lengths

**SEL-** Recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope

**Activity
1)** Your task is to play a game involving creating rectangles and placing them to capture as much of a grid as possible (you can play by yourself or against someone else) **2)** You will start by rolling aroll dice once to determine the base and once for the height of the first rectangle (you may determine which role is base and which is height). Calculate the dimensions in units. Count each square on the grid as one unit
**3)** With the first rectangle place it in Team A’s corner of the grid, colour it green. As you place each rectangle, fill in the attached recording sheet with the base and height, and calculate the perimeter and area of the rectangle.
**4)** Either your opponent (or if playing alone, you) willroll the dice again to determine the dimensions of the next rectangle. This will be placed in Team B’s corner. Colour this one red
**5)** Repeat this process, switching teams and rolling the dice to place new rectangles for each team. Fill out the recording sheet as you go. New rectangles may be placed anywhere you like as long as they are touching one of your team’s existing rectangles. **6)** The game is over when one player is unable to place a rectangle based on the rolled dimensions for 3 turns in a row. Count the number of squares each team has. The team with the most squares wins.
**Note:** If you don’t have dice, you can use an online dice or a random number generator to determine the dimensions

**Check for Understanding**
I understand how base and height work in calculations of a rectangle
I can calculate area and perimeter of a rectangle
I understand how to best tile a plane with given rectangles.

**Materials**
Grid paper (Attached below), Recording sheet (attached below) pencil, pencil crayon (or marker/other colouring utensil)

**Team A**



**Team B**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Team**  | **Base** | **Height** | **Area of rectangle** | **Perimeter of rectangle** |
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