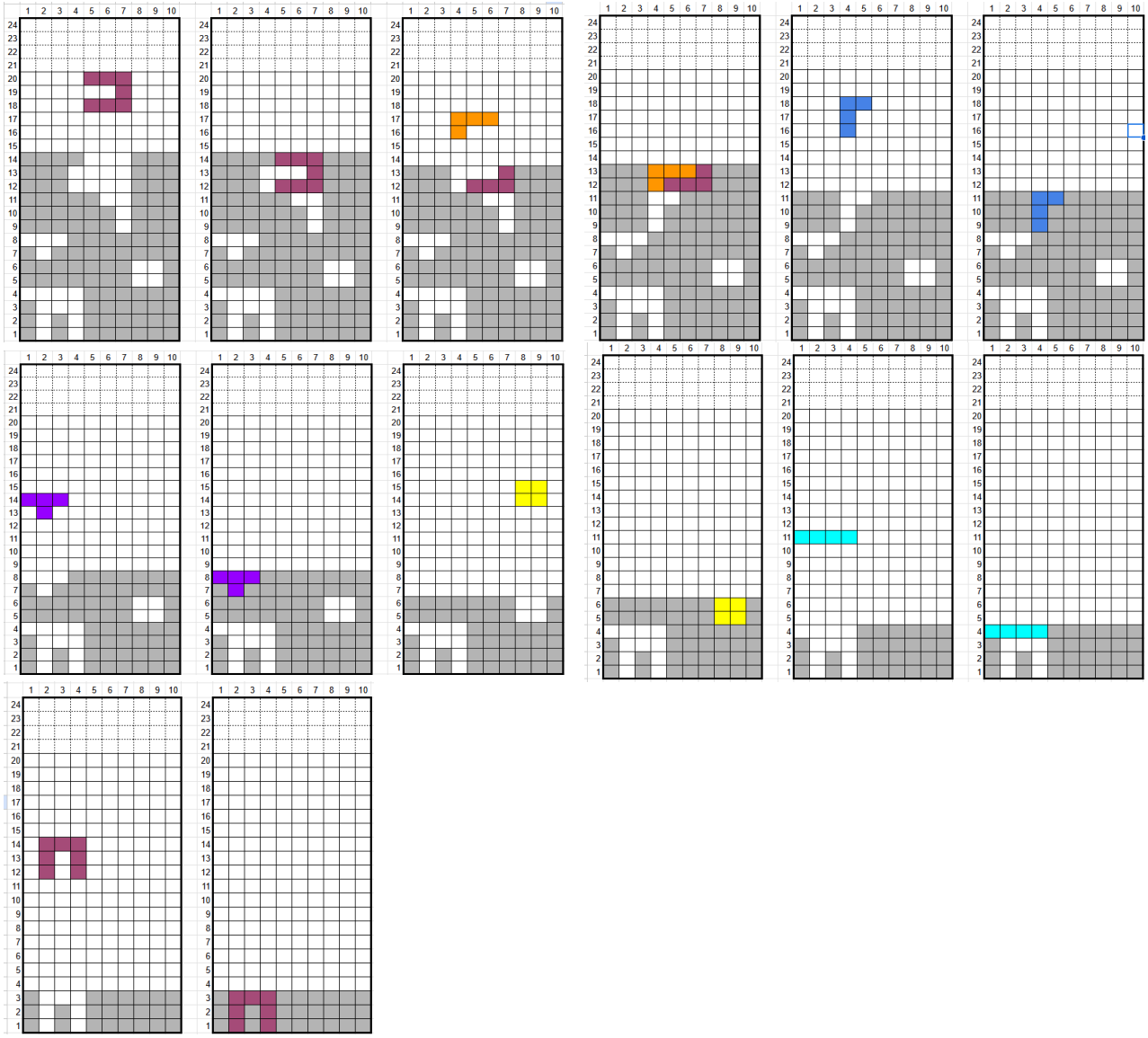
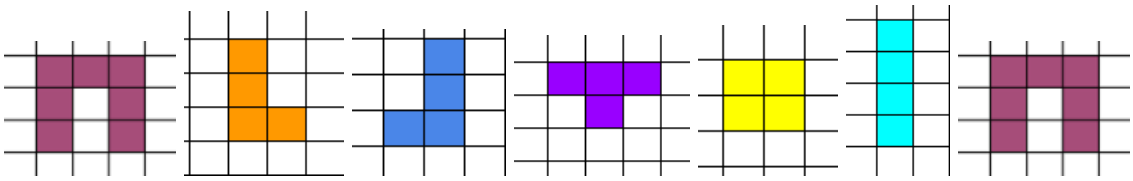
Board states:



Piece Sequence:



1. **What interesting properties does your polyomino piece have within the systems of Tetris? Why?**

The polyomino piece I designed is a U-shaped heptomino, which means it is made up of seven cells. One of its interesting properties within the systems of Tetris is its odd symmetry. Even cell amount pieces such as the “I” and “O” require a -0.5 offset to rotate correctly. Since the heptomino piece contains an odd number of cells, it has a central cell that functions as a pivot point allowing it to rotate easily around its centre without the need for additional adjustments. Another interesting property is its shape and size. The U-shaped heptomino occupies three rows of the board regardless of its orientation. The two vertical walls are each three cells tall and the horizontal base is also made up of three cells.

The final interesting property is that the missing middle cells of the U-shaped heptomino add to the difficulty of the piece. Players must think ahead to prepare the board in order to accommodate the missing centre cells rather than just stacking willy-nilly. This tricky piece is balanced by its reward, as when it is placed correctly, the piece fills a large amount of board space creating an opportunity to clear multiple lines at once. High risk = high reward was the design intention for this piece.

2. **What interesting relationships does your piece sequence have with the board state within the envisioned play session? Why?**

The sequence was designed to intentionally make the players think about how they will fill the negative space on the board. Early in the sequence there is a lot of negative space, the player must strategically place their first U-shaped piece rotated once to the left. Due to the rules of the “Bing Bang” style gameplay, any other orientation would cause the player to fail as there would be leftover cells or nowhere for the next piece to properly fit.

After the first line is clear, the player is left with L-shaped remains of the heptomino. This is when players realize how well the U-shaped piece works together with both the L-piece and J-piece. Both pieces are played after another in order to clear five more lines. This relationship makes the piece feel built for a purpose. The rest of the sequence is more spaced out and simple. The game then ends with the U-shaped piece as well, showing the players it can be used at every orientation and can clear up to three lines totaling up to 300 points.

3. **How do you expect your board state to provide an interesting challenge to players? Consider objects, properties, behaviours, and relationships.**

The irregular gaps and uneven surfaces interact directly with the U-shaped heptomino's missing centre cells, meaning careless placement can leave behind empty spaces that are difficult or impossible to fill. This makes orientation and timing critical as it cannot simply be dropped anywhere.

The board also encourages players to think proactively about their placement of the U-shaped heptomino. Early placements will leave L-shaped remains that can only be resolved if the player understands how the L and J-pieces would fit prior to putting the U-piece down. This forces the player to be intentional with their placements and orientations of the pieces. As well as, always having them think several moves ahead by taking advantage of the upcoming pieces sequence window.

Overall, the board balances difficulty with reward. While the U-shaped heptomino may be more difficult to place than the other pieces, successful placement can potentially clear up to three lines at once. This creates a high risk, high reward experience that tests the player's spatial awareness and strategic planning.