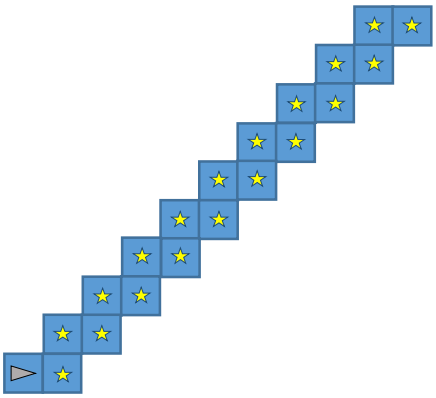
Part 1:

Game 1: Stairs



F1:	↑	←	↑	→	F1

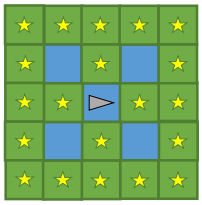
There are many solutions for this puzzle.

Game 2: zipline

F1:	↑	→	→	F1

There were no other solutions that I could have generated for this puzzle.

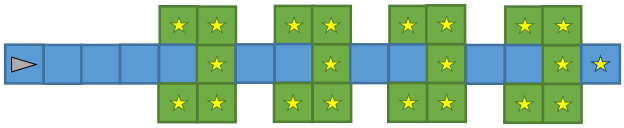
Game 3: Blue X



F1:	↑	↑	←	F1

There are many solutions for this puzzle.

Game 4: Bumbling Bee



There were no other solutions that I could have generated for this puzzle.

Part 2:

Find the largest number out of 5 random cards pulled from a deck of cards.

Step 1: Problem Analysis

a. There are fourteen possible numbers in a deck of cards ranging from 0 to 14. Cards that read the Ace cards has a value of zero, which is the lowest possible card one can pick from a deck of cards, the Jack card has a value of eleven, the Queen card has a value of twelve, and the King card has a value of thirteen, which is the highest possible card one can pick from a deck of cards.
b. Knowledge that is expected to be known in order to follow the solution, is the understanding on the basic numbering system- like order from largest to smallest of a set of numbers. Another aspect would be how to read the numbers on a card of a set of cards, in order to determine which card has the largest number on it.

Step 2: Program Design

1. You should have a deck of cards of card out in front of you on table if you are sitting in a chair, or on the floor if you are sitting on the ground.
2. Shuffle the deck of cards by splitting the deck of cards, so that you have two halves of the deck in front of you in two equal piles.
3. Then split each half again, so that you have four equal piles of card in front of you.
4. Take each pile one at a time, and stack them on top of each other till you get to your last chosen pile of cards, ending up with only one stack of cards in front of you.
5. Pick the first five cards of that single pile with the fingers of one of your hands.
6. Separately lay each of the cards on the surface into front of you, facing up, so that you can read each of the face of each of the five cards that you picked.
7. Rearrange the five cards so that they read from lowest to highest from left to right in a row on the surface in front of you.
8. Choose the fifth card on the farthest right of your single row of five cards, which will be the largest number of the five cards that you picked.

Step 4: Program Testing

Average Case:

If the result of the five cards read all different numbers, then follow the directions of Step 2 in order for you to pick the largest card from the five randomly chosen cards.

Extreme Case:

If the solution results with multiple cards that read the same as the card on the farthest right of your row, then the final decision of finding the largest number of the five cards has multiple cards associated with result, which is the only difference of the outcome.

Part 3:

How does your solution change if the size of the list is 50, 500, or n, instead of 5?

If the list increases, getting to the solution will take longer than if it was just a list of five, and vice versa, if the list was smaller than five, getting to the solution will be faster. And if the list was larger, there is a higher chance of having multiple largest cards since the range of a deck of cards is only from zero to thirteen.