

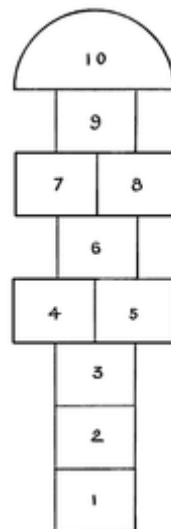
# Hopscotch Assignment

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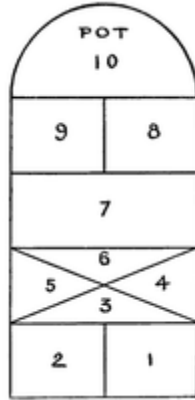
## PART I

Personally I know the game as "Luche" as it is called in Chile, and that game is played like in the modern version of Hopscotch. I've got information that it is also called "Avion", because it looks like an airplane. I've never played it before, so I needed to make some research and play the actual game. For that, I went to the Wikipedia page, and obtained pictures and rules of the game.

<http://en.wikipedia.org/wiki/Hopscotch>



This design is the most common and more related to the Hopscotch I know. Even with this information, I gathered information from actual Hopscotch former players that knew the game rules, and certain strategies on this game. One of the Hopscotch players played a different version of the game, more similar to the following, which is the old style American hopscotch:



For research, I along with others built a hopscotch indoor version of the game (without the chalk) by using two pieces of cardboard and pencil, because of the weather conditions.



Andy Federspiel, Chris Stagno and me, played a 3 person Hopscotch match on this cardboard version of the game.



That allowed me to understand the physical nature of the game and also some of the strategies you can create while you are playing in a group, which is one of the main focuses of the game.

The main challenges in the game are jumping in each square, and not losing balance when you need to do some serpentine moves, and also throwing the ball was more challenging than it looked at the beginning. The game took weird turns depending on where the ball of the other player was placed, so the easiness or difficulty also was dependant on other players

I find that the game was pretty enjoyable and it was more interesting than I thought it would be. This thing it might be because the game was new to me, so that might be something that affects my judgment.

The problems that my design should address are:

- Speed of the game. There is a waiting time between children where the player has nothing to do but watch.
- Mental Challenge: this game is mostly about physical abilities, so for someone physically in disadvantage, the game will not be fun.

- Rewards : There are no established rewards in the game, except for winning
- Balance: I have a bigger foot than my competitors, which gave me a disadvantage.
- Setup: It's perfect for schoolyards, but not that good for indoors.
- If you use chalk then it's easy to check if someone is stepping on the line, but otherwise it's harder.

#### Brainstorming ideas for hopscotch:

1. In order to solve the problem of gender and to focus to a different audience, it could be themed as a warzone, so it feels manlier.
2. In order to solve the problem of setup, the court could be created with laser beams (technology realm), so it can be played indoors or outdoors.
3. To solve the problem of speed, the game could be a one on one simultaneous competition, instead of a turn based game.
4. To solve the problem with the interaction between players, the game could be played simultaneously in a bigger court, but with obstacles that affect the jumping
5. To solve the problem of mental challenge, you could be required to throw the bean in one of the numbers that require the next player to make a difficult jump
6. In the aesthetics realm, the games lines could be themed as jumps between crocodiles, so it feels like every jump jeopardizes the player's life.
7. To make sure that you touch the lines, the shoes of the player can be electrified and make contact with lines made with copper turning a light on that shows that the player stepped on the line
8. In the realm of mechanics, you could add some rules such as having the players stay in the position they failed making the next player have a harder time, and giving them risk of stepping on them
9. In the realm of technology, you could use light sensors in order to check if the players actually stepped on a line or not
10. In the story, hopscotch could be about saving the princess in a dungeon, so the player has to get to the princess in the castle (safe zone) and then get it to safety

11. Story wise, the game could be about picking a treasure as Indiana Jones, where you go through the name of some God like in the movie and then returning to save your father, so instead of numbers you go through a series of letters.
12. To solve the problem of rewards, kids that win could kick the others kids in the butt (as other games do).
13. There could be a Wii Balance Board Hopscotch game that would allow kids to play against a computer in home.
14. For added challenge, there could be a mixture of hopscotch with rope jumping, so that the kid has to jump in time while he is jumping from square to square
15. Since the game is all about jumping, it could be played with pogo sticks and smaller squares, making it more visually appealing for the rest that, but requiring more challenge
16. Strip Hopscotch, every number you go through is one piece of clothing your opponent has to remove.
17. Different courts that make turning possible, in order to have like "dance steps" making hopscotch like training for DDR but in a direction
18. Hopscotch in two surfaces: using strings and poles, you have people step in one surface with their foot, and on the bounce you have them touch a square in the ceiling
19. Hopscotch with letters, so you get scores by creating words. (you don't go in order), but it is a mix between scrabble and hopscotch
20. hopscotch for break dancers (all done with one hand instead of one foot) and done to the music
21. Rotating hopscotch (a hopscotch course that keeps rotating, so you need to balance forward and to the side). Each of the squares in the court rotates around themselves, so it adds a higher difficulty to the game.
22. Dangerous Hopscotch: The same hopscotch, but the court is done in a set of stairs. It requires more strength in the feet, and more balance so you don't fall off the stairs
23. Timed Concentric hopscotch: A hopscotch that has squares, but these squares have numbers from 1 to 10, and are circles that turn around each other, so you have to wait for the square with the right number to be in front of you to jump on it
24. Diced hopscotch: you have to through a dice to get the number you have to go to. If the number is not the one that corresponds to the player, he still has to play it until he gets the number.
25. Basketball hopscotch: The throwing of the bag is done through the amount of basketballs shots scored in a row. In order to get to the end you need to through a lot of basketball shots in a row

26. Beer pong hopscotch: it's thought for frat boys, and if you get one number right, the opposite team has to drink that amount of shots. At the end, it gets harder and harder (more drinks).
27. Hopscotch themed as a medieval battle, where you have to get weaponry to fight in the "safe zone", so the players go recollecting all the weaponry to fight the adversary.
28. Hopscotch with numbers in an order that makes you go back and forward all the way.
29. Hopscotch in hell: The aesthetics of the game is that you go hop scotching stones that are in a sea of lava. You get to the end, to find enough things to construct in each turn something that allows you to escape hell.
30. Hopscotch for Olympics, where the hopscotch court is put over a mattress, where Olympic gymnasts, can perform a routine correctly as training. So the squares fit hands and feet in a way that the gymnasts can do a trick closer and closer to perfection and compete to each other in a more quantifiable way.
31. Hopscotch with squares floating in water. You have to step on them however you want, but you want to keep balance so you can cross the court.
32. Toggling lights hopscotch: Technology-wise, every time you step on a square, it toggles a color. The idea is that in your turn you must turn every square in one of the same color. If you make a mistake, you'll have a lot of squares that will require stepping more time by your competitor, making it harder to get to the end.
33. Burning hopscotch: The squares are made of hot coal, so people that are willing to test their meditation skills can compete and see if they can endure a whole game of hopscotch in the heat.
34. Hopscotch where you have to really stretch your legs in the section where you step on two squares at the same time, so it's harder to go back to a hop in one leg.
35. Flames and fire around each square of the court!
36. Every square is made from elastic plastic that makes you jump higher and higher
37. Every square has a letter and the player has to both jump and say a word that starts with that letter
38. Octagon hopscotch: The court is made from octagons instead of squares, and they are positioned in a way that you don't move straight
39. Hopscotch played by two players at the same time in a court with two paths that intersect in several squares. It will require some timing and skill to go through those squares without bumping each other.

40. Hopscotch with a musical chair music. The player can only advance while the music is playing.
41. Secret spy based hopscotch: With laser beams instead of lines, like if the player would go and steal a disk with information.
42. Hopscotch with obstacles: In every square, you have to jump and to jump over several obstacles between each square
43. juggling hopscotch: Every 3 squares there are beanie bags that the player has to pick and start juggling, and has to continue juggling until his turn ends
44. Computer Hopscotch: The game is played online: The player uses a force threshold meter to throw the marker, and between every step he has to use a precision meter coordinated with the number he wants to jump to, to jump to that number.
45. Radio controlled robots that jump between spaces. The players don't actually play, but have to control some robots that jump with certain parameters.
46. A retractile marker, so the players don't have to go and pick it up after the play
47. A court made of fabric that you can put in the floor like a carpet. That way you can play everywhere with no problems. This fabric can be folded on itself so it can be portable.
48. Several designs for the marker though for girls such as stars, little cats, puppies, fairies and other that little girl can collect and share.
49. Several collectable markers for boys that can be exchanged and show cartoons characters.
50. Food hopscotch: The markers contain food (or are candies) so when you are playing you can eat the marker and change it for another one.
51. Underwater hopscotch: It's played in a pool (maybe the court is included in the pool design), where water goes just to the knees. It's made for refreshment
52. Team based Hopscotch: Two teams play the game simultaneously, and the teams whose players finish first win.
53. Hopscotch in an O shape, where the player stays where it left ducking down and has to go for a full circle. That makes the other player need to jump over the player crouching or ducking, and makes it more difficult.

## PART II

I've selected three ideas based on a target audience.

I think that Hopscotch could be a game that would be more appealing for young boys and maybe young adults. I'm interested in making a game that would help boys of different aptitudes play. This allows more balance in the game, for players with abilities in the physical realm and also in the mental realm. In terms of length, I think it should be maintained or made faster, because length wise it is a game that can be played during recess time.

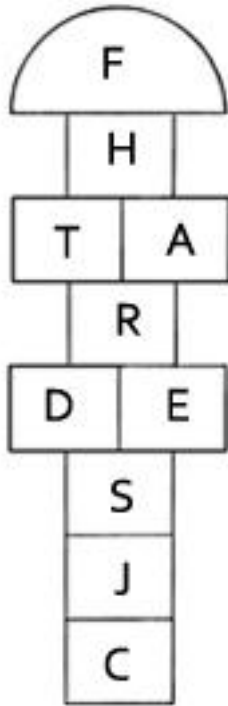
### Idea 1

To solve the problem of lack of mental challenge in this game, I would replace all the numbers in this game for letters. The court keeps the same shape as the court in the original hopscotch. These letters are to be picked at random at the beginning of each game. It can be done having a deck of cards with each letter (only letters that have a lot of combinations, for example no Xs in the deck). The game is to be played by at least two players. Each player throws a marker at the first letter in the court, and has to hop over it and continue to the next letter in order in the court, until he gets to the safe zone, and then return. Every time he steps in a letter, the player has to say a word (without repeating) that begins with that particular letter. There is challenge in the fact that the player has to remember most of the letters in order AND say two words in each turn for each complete turn.

Each turn consist on the following: A player throws a marker into the corresponding letter (in order in the court). In the first turn, the player should try to get the first letter. If he manages to make his marker go into the square and not go out of it, then his turn starts. Otherwise, it's the turn of the next player.

If the players manages to get to the end and come back hopping in one feet (or two in the sections that have two places in parallel), without stepping on the lines, without losing balance, without changing feet, and managing to say a word that starts with the letter he is stepping on, then his turns end and he can advance to the next letter. When he completes all 10 letters, then he wins. If he fails some of the above requirements, then his turn ends, and the other player has to play.

For example, a game court could be like this:



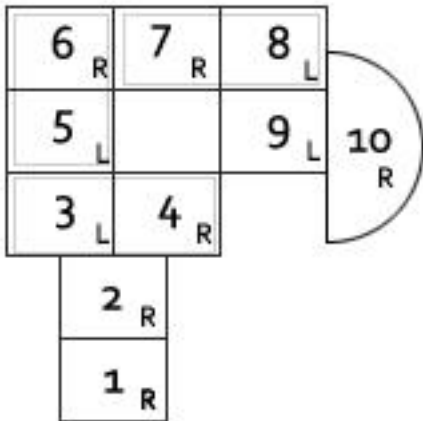
The game should have cards (with big letters to pick to select for the game), a court (in cardboard, or drawn in chalk), and markers for each player.

## Idea 2

A court that make turning possible, in order to have like “dance steps” making hopscotch like training for DDR but in a direction. Having to skip the marker makes all the dance steps different every time.

The rules of hopscotch are the same, but the court could have extra information about the foot (L = Left, R= Right) that is supposed to be in every square. This helps the game have more fluidity and give the audience something more fun to watch. Double marked squares require stepping with two feet at the same time.

A court for this kind of game could be like the following:



This kind of court allows players to rotate, and it looks like dancing. It requires coordination, but it also looks good for everyone else that is watching.

### Idea 3

Toggle lights hopscotch: Technology-wise, every time you step on a square, it toggles a color. The idea is that in your turn you must turn every square in one of the same color. If you make a mistake, you'll have a lot of squares that will require stepping more time by your competitor, making it harder to get to the end. It takes some of the portability of the game, but it adds a pattern creation to the game.

In this version of hopscotch, every square has a color in it. (Green, Yellow or Red). The rules of the original game are the same (throwing a marker), but every step a player takes over a square, it toggles the color to the next one in a cycle. To win a turn, and to get access to the next turn, you need to jump through all the squares, and make all the squares the same color. This makes it more challenging to win a turn. You need some strategy to win a turn, and also you could be helping your adversary to get it. If you manage to jump the whole way through, you can continue your turn and keep jumping until you manage to change all the colors. The player can skip squares if he wants to, but he has to skip the square where his marker is.

For this idea, the court should be shorter, so the jumping is less of a challenge, and the pattern completion is better.

## PART III

I thought the most fun of these three ideas would be the third one, since I think personally it is more different to the regular hopscotch, and I think it adds up some mental strategy to the game.

### *Color Hop*

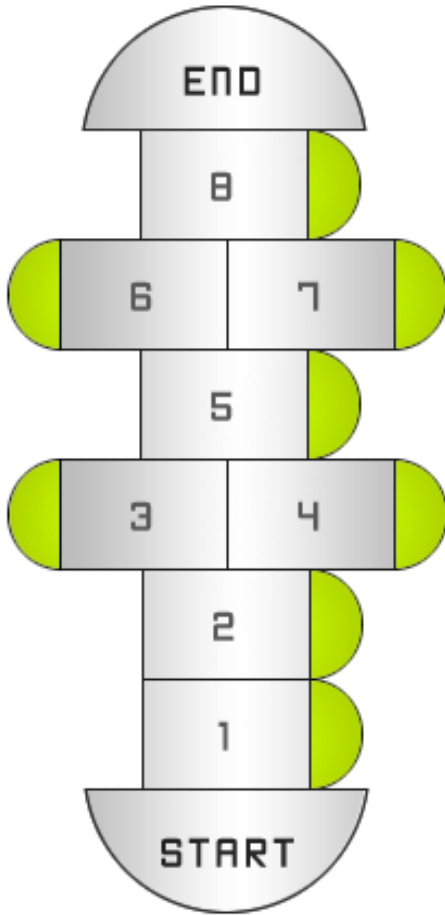
This game is about ability, pattern recognition and strategy.

The requirements for this game are the following:

- a) Two or more players
- b) One marker for each player: This is a ball or something that you can throw into a square. IT needs to be light.
- c) A Color Hop court

The Color Hop court concept is thought out to be a carpet with pressure sensors and squares that toggle lights on the side. The idea is that it could be foldable, like a DDR carpet, but even more if possible, and that it would require a Double A battery to change lights. The color changing can even be done with mechanics and pressure turning of a wheel or flag.

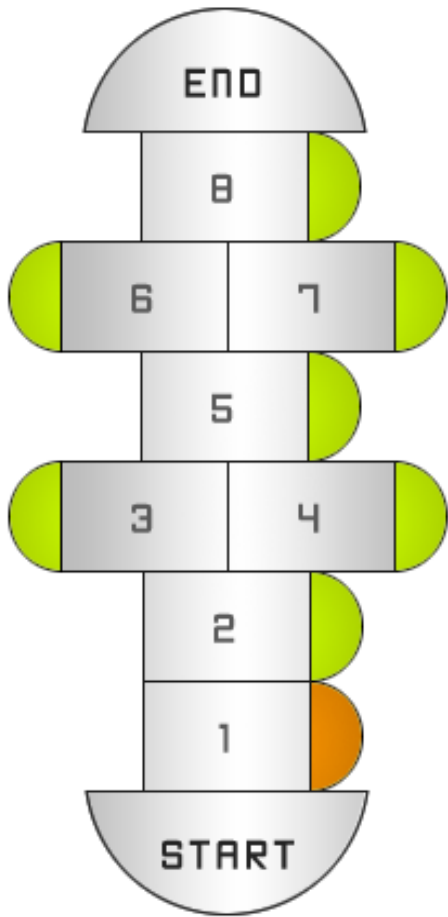
This is a concept sketch of the court:



In this court, the squares are connected to the lights on the side (LED), but they are weight activated.

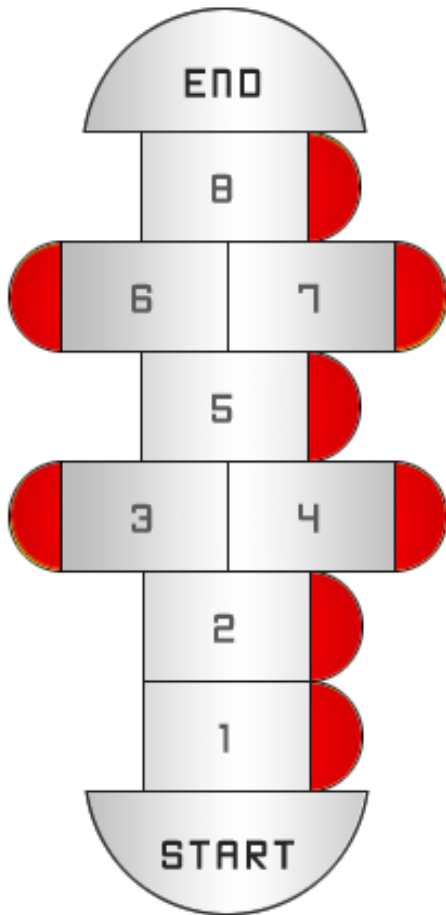
If the weight moves over a certain threshold, then they switch to the next color. Notice that START and END are safe zones, and have no light.

For example, if a player steps over the number 1, the court would look like this:



If he keeps stepping on all of them, he would get to the END the board would look like this:





There are three colors, so if it's in red, the next step on that square would turn it back to green.

### ***RULES OF THE GAME***

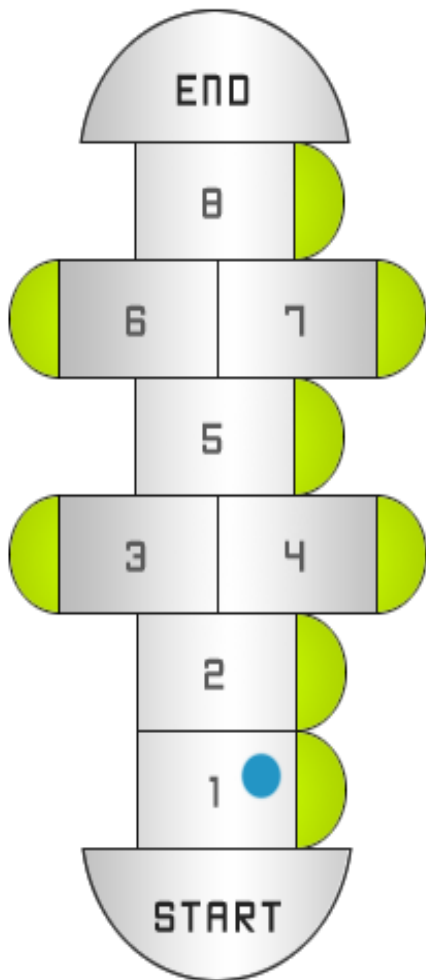
1. The game starts with the court on the ground, and all the lights on green
2. The first player takes his position in the START Safe Zone, and takes his marker and throws it to the square number 1. If the marker thrown ends up outside the square or touching the lines, the player can be given another chance. Since the marker is not heavy enough, the square will remain the same color.
3. The player then hops from square to square in ascending order, but skipping the square with the marker. In the first set, that would be Square 1. He can also decide to skip any other squares, but he needs to reach the END Safe Zone to keep his turn. The player has to hop with only one foot in each square at any one time. The foot selected in the first hop from the safe zone to one of the numbered squares has to remain the same in any hop to a single square. In the case of the two square that are next to each other, (for example square 3 and 4, or 6 and 7), the player may put one foot in each square simultaneously.

4. When hopping from square to square, the player can't touch the lines, or fall. If he does, he loses his turn.
5. If the player gets from START to END, without falling or touching lines, he has to come back and continue hopping from END to START, and back, until the player manages to transform all the colors in the court to the same color. That allows the player to continue his turn, but throw the marker to the next number and repeat the process
6. When the player loses his turn, the next player has to continue where he had left off. The player who loses his turn HAS to remove his marker from the court. For example, when a player touches the line when he was doing a sequence with the marker at number 5, he should continue with this sequence on his next turn.
7. The player who finishes the sequence on all numbered squares wins the round of the game. If the game is too long, a time limit can be imposed so that when the time is due, the winner is the one with more sequences solved already.

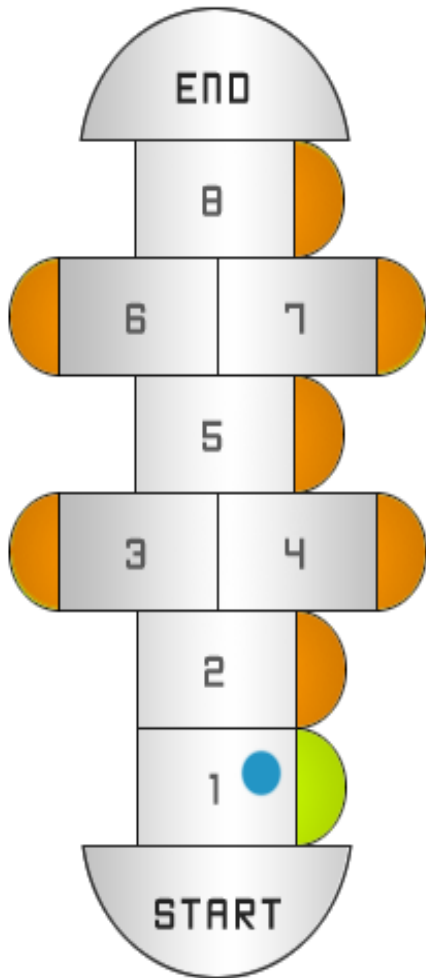
A sample game could go on like the following:

Player 1, first turn:

He throws the marker to the 1 square.

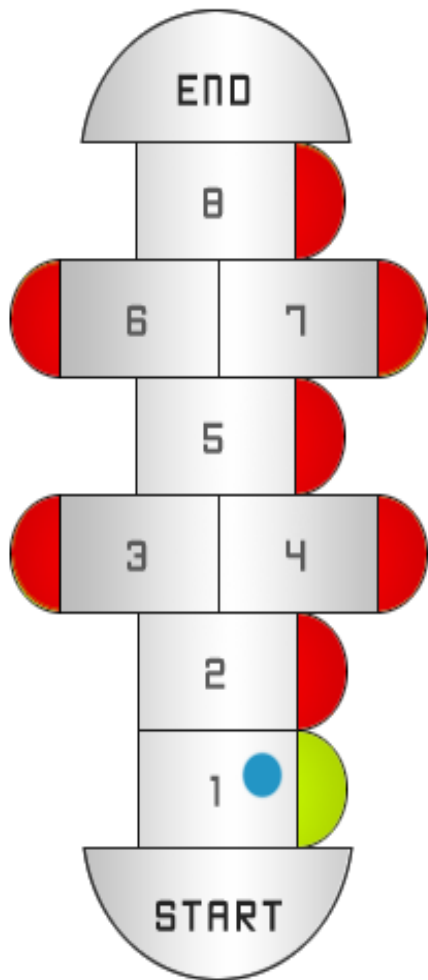


He proceeds to jump from START to END, by skipping his marker. If he succeeds, the court would look like the following:

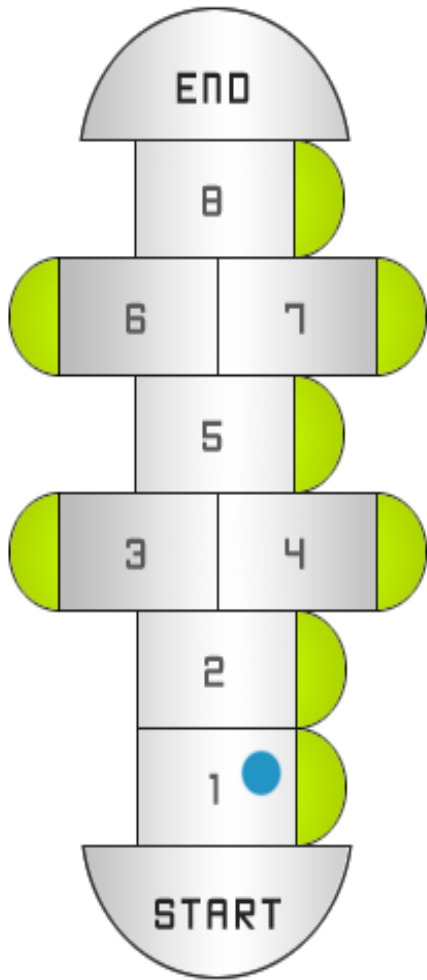


The player is at the END Safe Zone right now, and he continues his turn. His goal is to have all the court in the same color, which since the marker is in green, and the player has to skip it, has to be green.

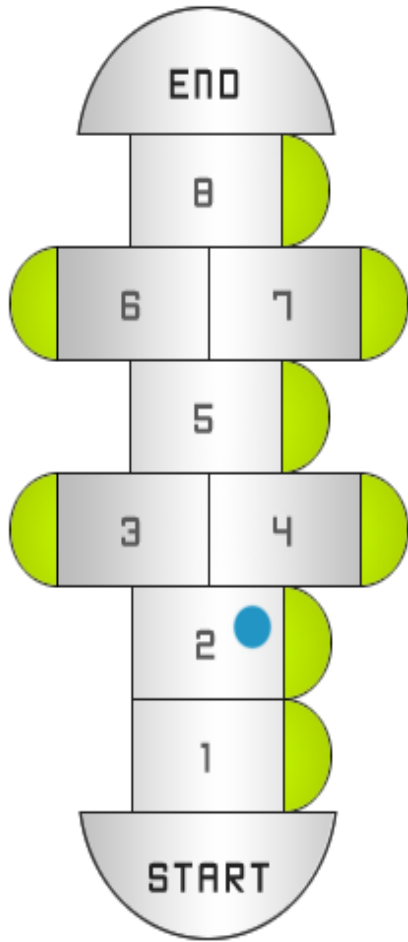
The player then comes back, and if he succeeds in doing so the court would look as following:



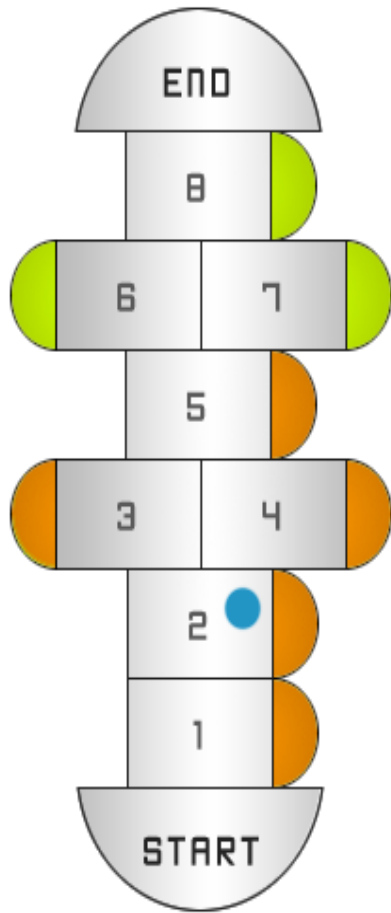
The player would be in the start position, and would have to go back again to end.



That makes him win his turn, and now he has to throw his marker at two and continue playing.

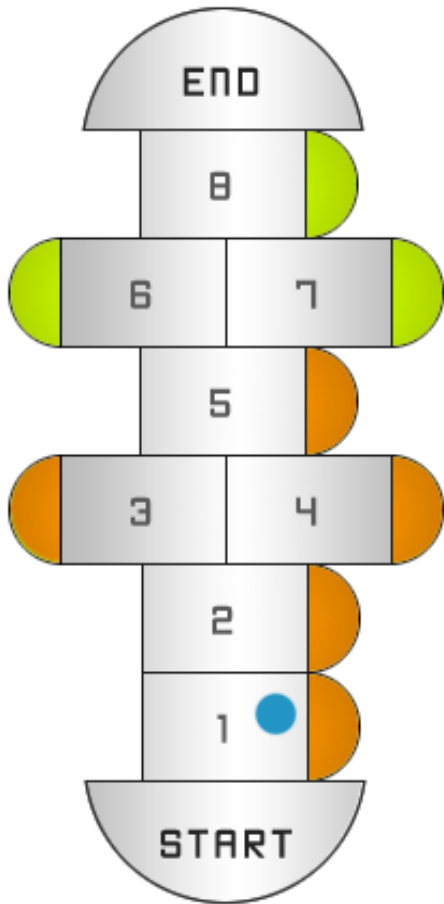


If he succeeds, he starts jumping and skipping the second. Let's suppose the player fails on 5 (touches a line or falls). The court would look like this.

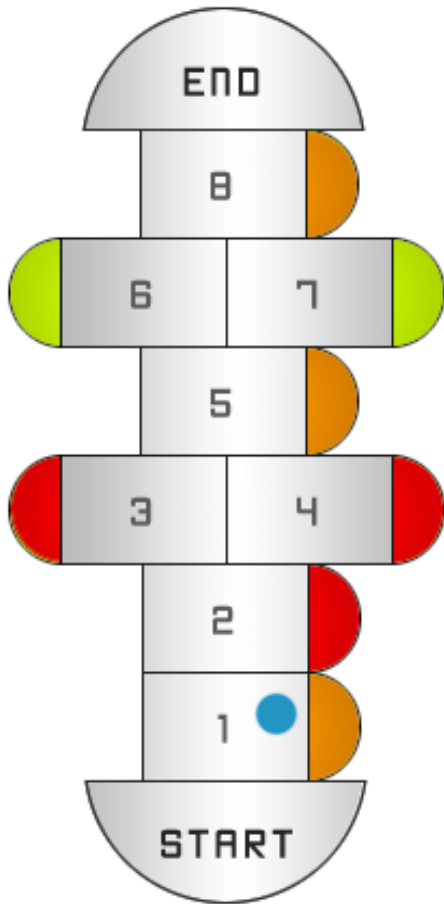


The player would have to remove his marker, and the second player would start his turn.

He would throw the marker at 1, and skip that number. But he would have to go for orange, since his marker would be staying in orange.



If the second player succeeds getting to the END safe zone, he could skip one or more squares. He could possibly do the following:



In this case, the second player, jumped into the square 2,3,4,5 and 8. This is how the game turns interesting, since every wrong move could be a good move for the opposite player. On the way back, he would have to come up with a good strategy to solve the court and win a sequence. The game continues like this, until someone wins.

For testing this game, I made a cardboard court, and used post it notes, to replace the lights. The toggling of colors will be done manually, following an established order and changing the corresponding post it note taped to the side.



The play testing went through and I explained the rules. Some of the rules weren't clear intuitively. One of them is the fact that you can't step on the same square repeatedly, and you have to move forward all the time.



The play testers liked the concept, and found the color changing challenging both physically and mentally, which is the concept I was pursuing.

The biggest problem we found is that if one player was really good at the game, then it was easy for him to keep playing and winning the game with no mental challenge.

Therefore, the play tester suggested me a random reboot of colors at every complete sequence. This allows it to be more mentally challenge for the player that gets a sequence complete. It makes him think of strategies to play the turns in the easiest way.

To summarize:

## *ITERATION 1*

### *WHAT WORKED*

- The concept of adding a puzzle was an interest concept for the players
- The ability to have to think the best way to play was appealing
- The length of the court was challenging enough and it was not too long in terms of physical challenge
- The size of the squares was good enough.
- The amount of colors chosen was good enough.
- In terms of intended audience, I think this game fits correctly.

### *WHAT DIDN'T WORK*

- If someone is agile enough, the player could finish the game with almost none mental challenge, but lots of physical effort.
- When a player wins a turn, the time it takes to change all the colors to the color under the marker is the maximum possible, since at the end of a successful turn, every color is the same, and he has to go through the board almost 3 times, so it makes the game very long.

### *WHAT WAS CHANGED IN THIS ITERATION*

- I decided to have random colors (between the selections of 3 colors) after every completed sequence.
- I added the following rules to explain better the mechanics of the game:
  - You have to move forward between each hop.
  - You have to complete the court in the color of the square where the marker landed.
  - You can rest in the safe zones and after you hopped in them, you can put two feet on the ground to rest.
  - You can stop at any square, as long as you don't fall, or put two feet in the ground.

The second iteration of the game included these changes and was play tested with two different players.

They thought this game was fun, and enjoyed the concept of colors. They did made good suggestions, that I like, and I think will make the game more interesting and balanced, both in terms of time and balanced between the mental challenge and the physical ability. To summarize:

### *ITERATION 2*

#### *WHAT WORKED*

- The game was faster, and more dynamic
- The randomize factor between each sequence made it more interesting in the planning of the hops

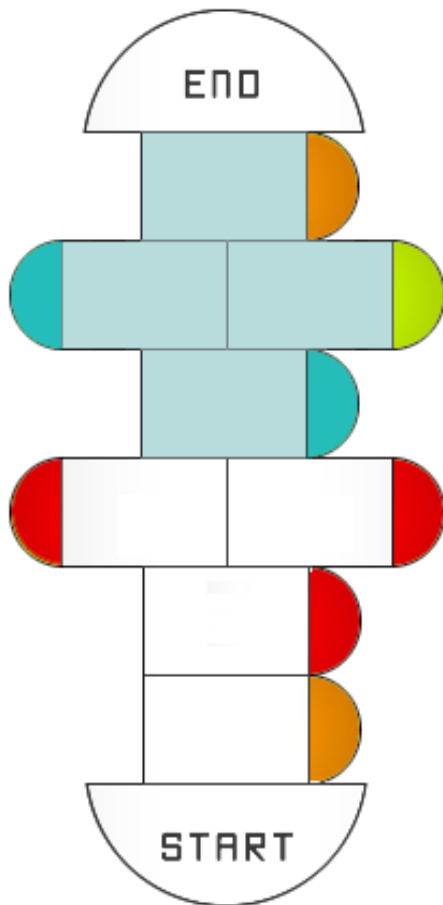
#### *WHAT DIDN'T WORK*

- The game was still too easy for someone with good hop scotching abilities, in the sense that even though there was a randomizing of the sequence, it was easy to strategize an easy way to hop through the court in 2 or three times and succeed.
- The game might still be too long to keep fun, even though the game was reduced.

### *WHAT WAS CHANGED IN THIS ITERATION*

- I decided to hear the suggestions of the play testers, and find a way to balance the game, in order to make it more competitive between the agile players and the strategizing players. For this, I added a color to the sequence.
- The colors will include a number in order to make it easier for players to remember the correct order. And the toggling goes like this: A -> B -> C ->D -> A -> B , etc.

- The game finishes when a player completes 4 sequences. A sequence is completed when the player manages to convert all the colors in the court to the color under his marker.
- After finishing a sequence, the turn ends for the player, and the board is randomized again.
- If a player fails a turn, he has to remove the marker, but when it's his turn again on the same sequence, he has to put the marker back, even if its color was changed by the other player.
- The marker must be thrown up to two times, but it should be thrown to one of the last four squares (now marked in blue). That adds randomness to the shot that can create a difficulty to the strategy of the color hopping.
- The board would now look like the following:



Since a lot of rules changed, for this iteration I defined the following set of rules:

### *RULES OF THE GAME (FOR ITERATION 3)*

1. The game starts with the court on the ground, and with a color associated with each square. This could be any of four colors. Note: ideally the randomization is made by a computer.
2. The first player takes his position in the START Safe Zone, and takes his marker and throws it to one of the gray squares (the last four ones). He can choose whichever, but the marker will determine his sequence color for that turn. If the marker thrown ends up outside the square or touching the lines, the player can be given another chance. Since the marker is not heavy enough, the square will remain the same color. If he fails twice, he will lose his turn, and in his next turn he will have to continue trying to throw the marker.
3. The objective of the player is to win a sequence, that is, to change all the colors in the board to the color under the only square he cannot step into, which is the color of the square under the marker.
4. The player then hops from square to square in ascending order, but skipping the square with the marker. In the first set, that would be one of the last squares. In every step on one square, the square changes color. The player can also decide to skip any other squares, but he needs to reach the END Safe Zone to keep his turn. The player has to hop with only one foot in each square at any one time. The foot selected in the first hop from the safe zone to one of the numbered squares has to remain the same in any hop to a single square until the safe zone. In the case of the two square that are next to each other, the player may put one foot in each square simultaneously.
5. When hopping from square to square, the player can't touch the lines, or fall. If he does, he loses his turn, and the square must be changed to its original color.
6. If the player gets from START to END, without falling or touching lines, he has to come back and continue hopping from END to START, and back, until the player manages to transform all the colors in the court to the same color. Once he does that, he wins a point and the court's colors randomize again. The next player gets his turn.
7. When a player loses his turn, the player who loses his turn HAS to remove his marker from the court. The other player should continue his previous sequence. For example, when a player touches the line when he was doing a sequence with the marker at the fifth square, he should continue with this sequence on his next turn. If a player has to continue his turn, he has to reposition his marker on that square, even though the color of that square was changed by the other player. This means that his sequence will be of the new color under his marker.
8. The player who finishes four sequences first wins the game.

### *ITERATION 3*

#### *WHAT WORKED*

- The game was faster, and more dynamic

- The added colors (now 4) added more variety and difficulty to the game
- The change of turn, when a sequence it's done, makes the wait shorter for the following player

### *WHAT DIDN'T WORK*

- The game is still too long for the player that is waiting, so
- The game has some plays that can be impossible to play, if neither of the players is willing to take the long road and change colors.
- There are still some plays are hard to make, and it would be good to have some rule to avoid them

### *WHAT WAS CHANGED IN THIS ITERATION*

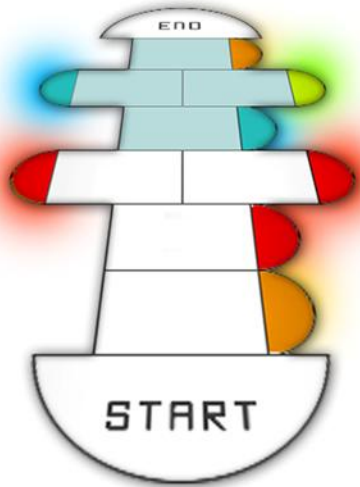
- I decided to shorten the time between each turn, by doing the following:
  - A turn ends either in failing, or getting back to the start in one turn. If the player manages to solve the puzzle the turn remains his (but the court is randomized again).
  - Every time the board is randomized, the players have to throw their markers again.
  - If both players have their markers on the same color, and can't perform their jump, the court is randomized completely, but the markers remain in the same place.

This allowed me to play test it with new players.

I was happy with the result, since I felt the mechanics were good enough, and it fits all the objectives in term of the target audience. It creates a lot of mental challenge, which satisfy me as a design.

The prototype does not have the esthetics of the final concept, but it represents the playability of the game. Ideally, the final carpet would look like the following:

# Color HOP



START