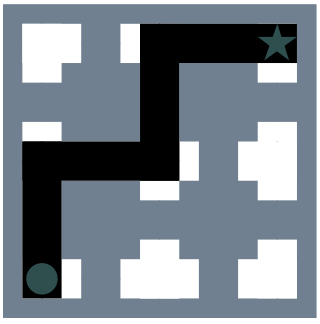
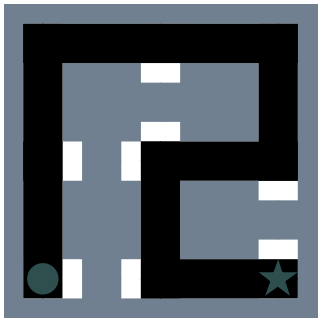
Watch and Learn -- FLUORINE VALLEY

+	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M
S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D
W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
-	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Every grid is a puzzle with a unique path from the circle to the star described by a string: N indicates moving north, S south, E east, and W west. However, when moving along an edge with a number, the N, S, E, or W letter gets Caesar shifted by that amount. Here are the paths and strings for the first four intro puzzles:



NENE



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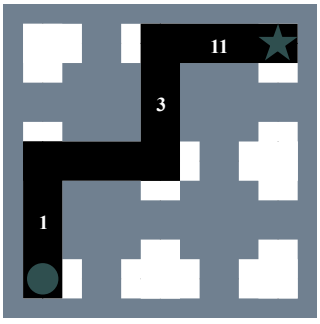

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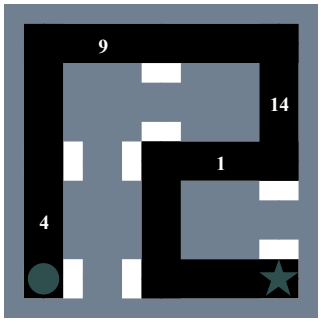
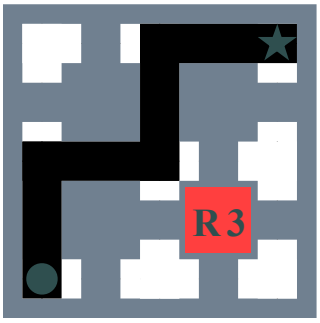


RNNEGXSE

The first special cell introduced is the red square. There are two things to learn.

First, whenever a path touches a corner of a colored square, all future letters in the solution string will be Caesar shifted by that square's number. This will be true of all colored squares.

Additionally, from these red puzzles, we learn that in order for a path to be valid, the number in a red square must equal the number of squares in its connected component.



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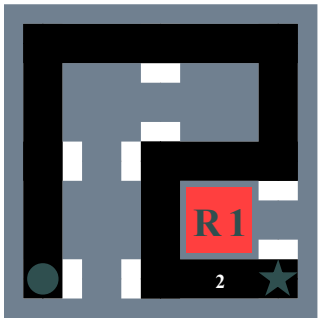

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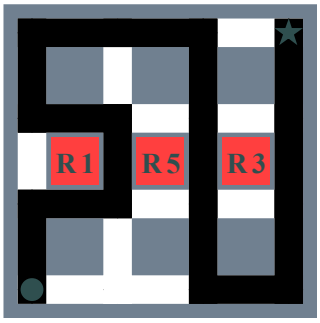

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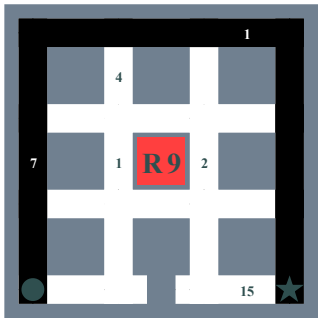

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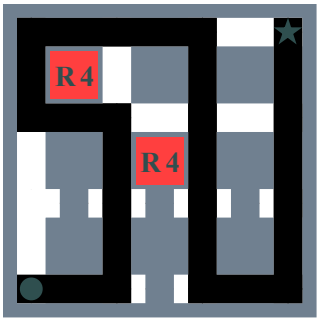

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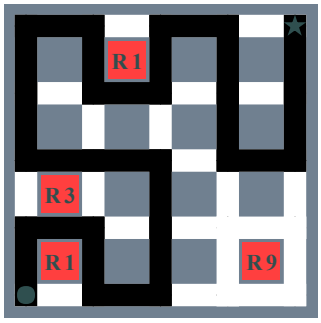

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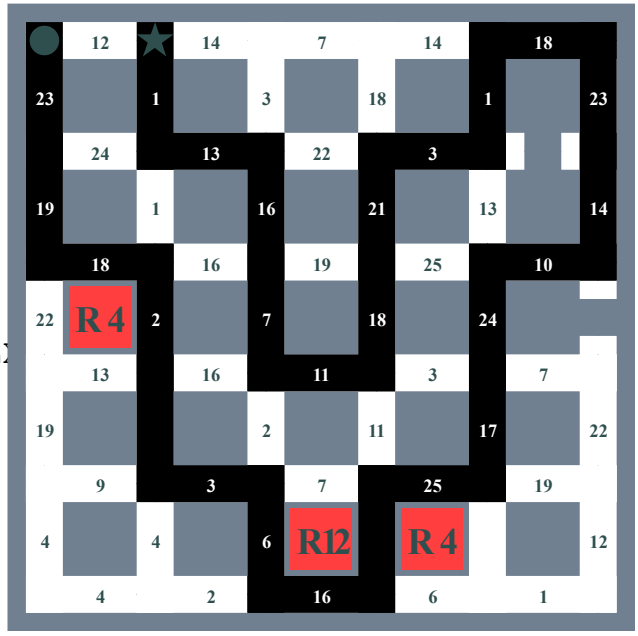
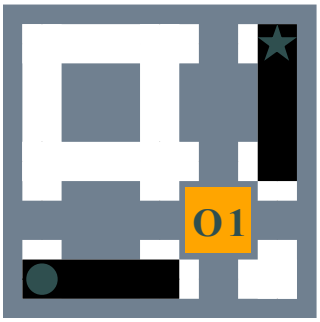
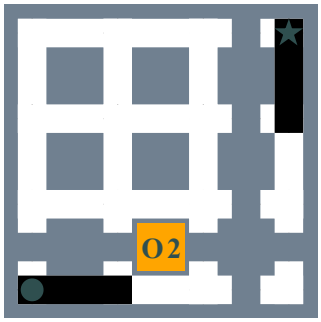


PLACETWENTYFIVEINTHEBOXDI

Next up are orange squares. Orange squares do not constrain the final path; instead, when you touch a corner of an orange square, you are immediately teleported a number of squares diagonally equal to the number in the square. You are teleported *across* (rather than away from) the square, so that an orange 1 teleports you to the opposite corner, and an orange 2 teleports you one square diagonally away from the opposite corner.



EO



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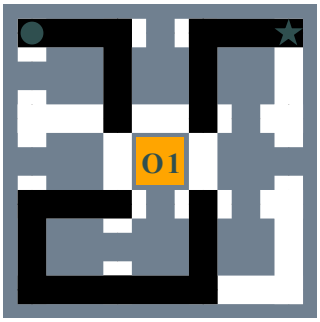

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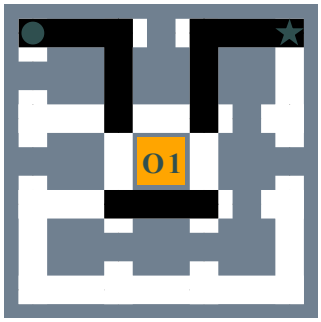

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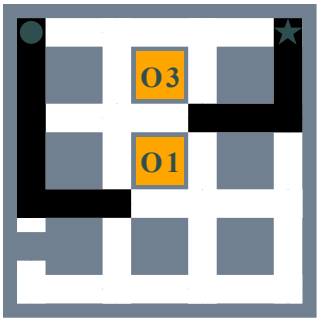

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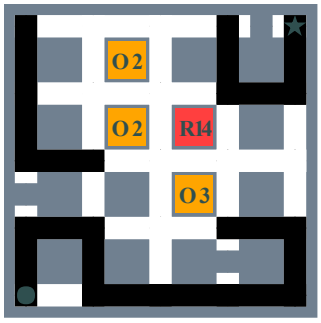
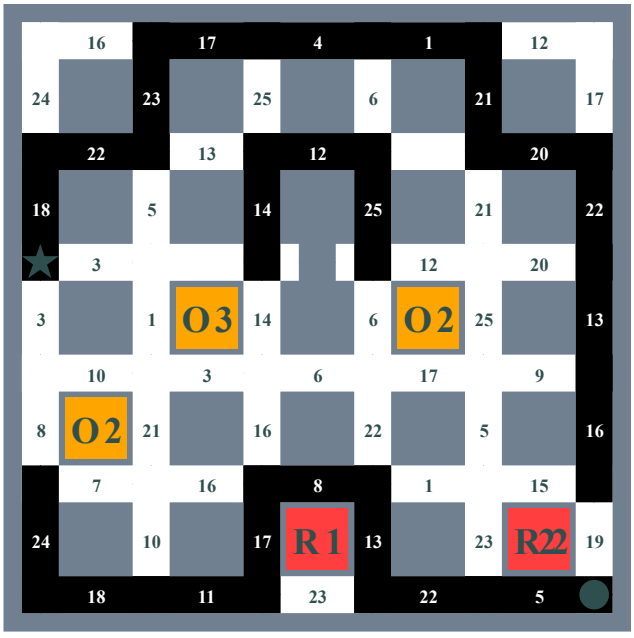
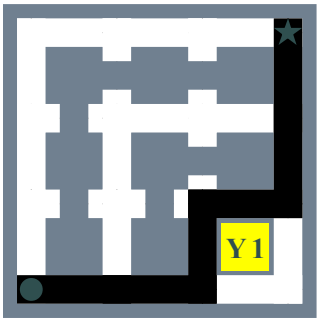


NESEEENWVVHXXG



BOXCIHOLDSTHENUMBERTWO

Yellow is another color that affects whether the final path is valid. From the yellow square, determine how many squares in its row (both to the left and right combined) it can see before encountering a portion of the path. Similarly do this for the column. The number in the yellow square must be the maximum of these two.



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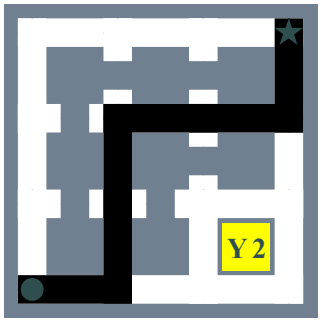

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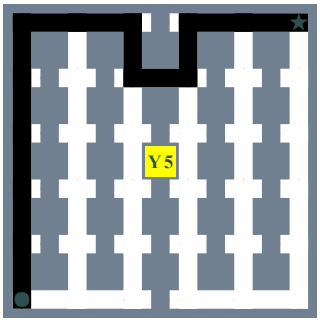

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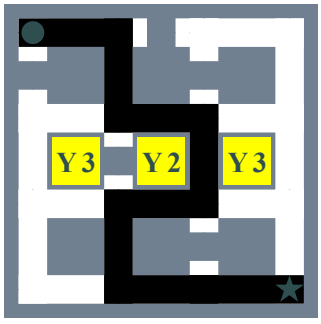

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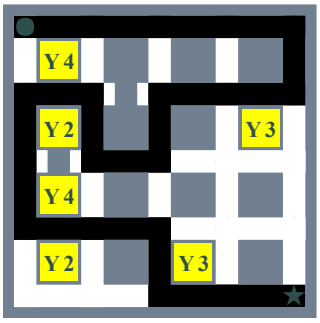

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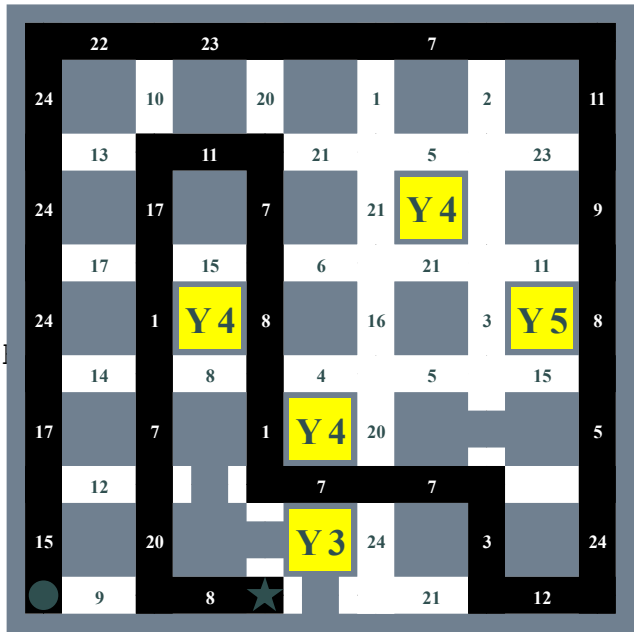
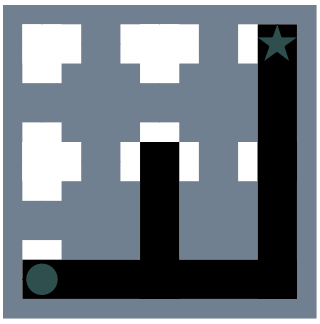


CELLLABELEDBFHASANUMBERTHREE

Green is another active square. When you touch a corner of green with the number *n*, it teleports you to the corner you were at *n* corners ago. Once touched, a green square disappears. A path is only valid if there are no green squares left at the end.



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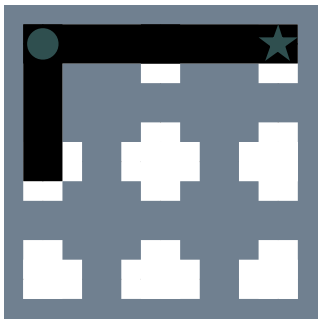

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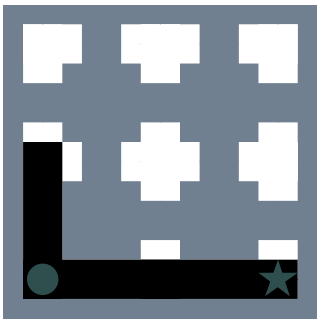

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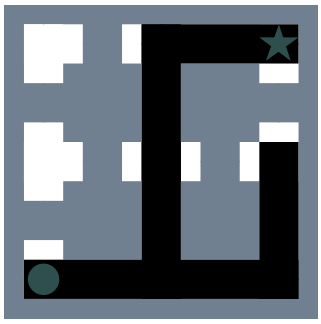

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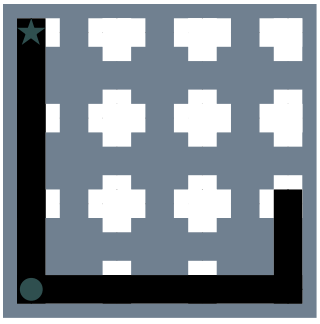

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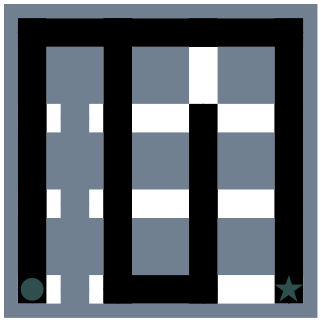

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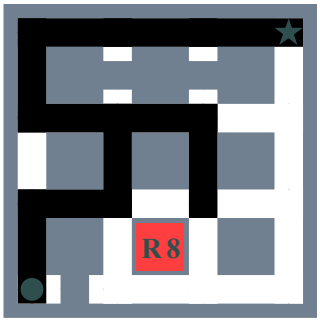

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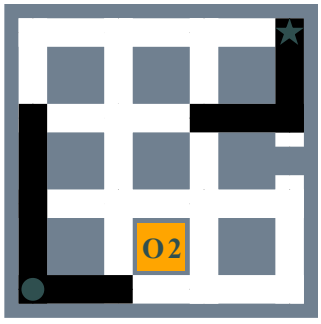

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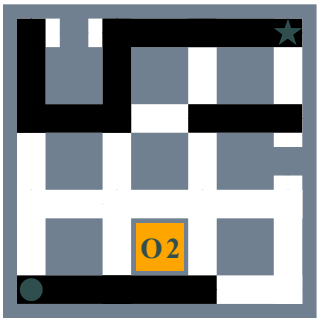

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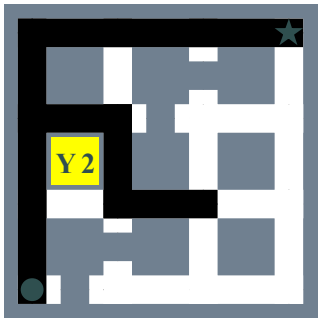

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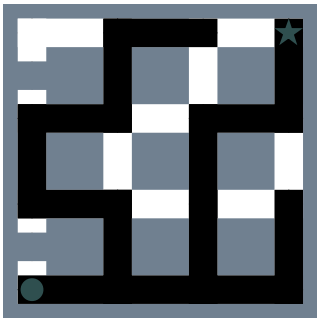

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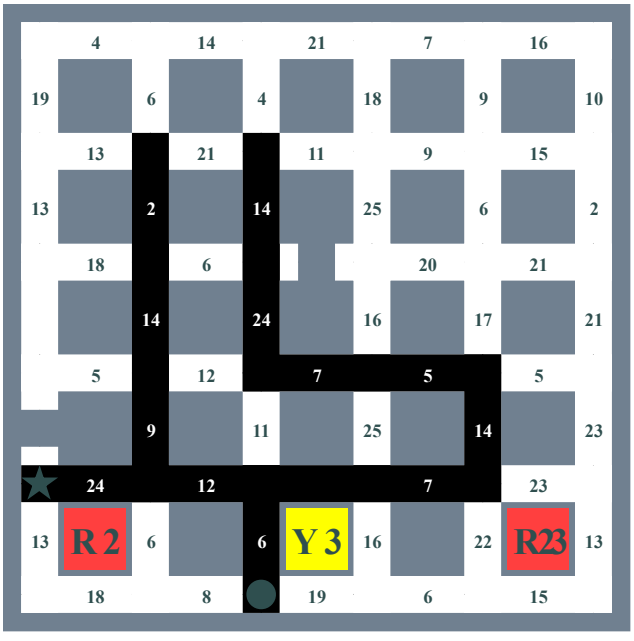
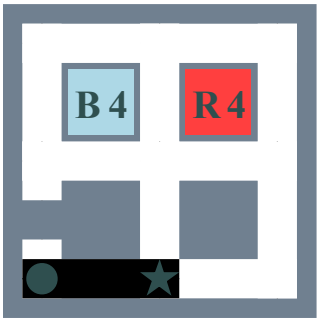


THREEGOESINBJ

Blue does not impose any constraints on its own. However, when determining whether a completed path is valid, it changes the number of any square in its connected component to its own number. Blues cannot coexist with blues. The Caesar shifting caused by touching corners of squares is also not affected by blue's mechanic; blue changes the numbers only *after* the path string has been constructed.



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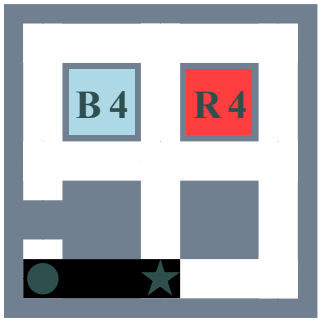

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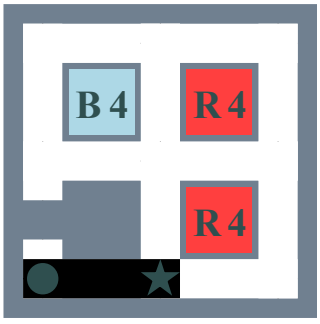

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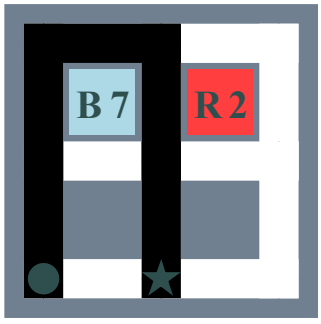

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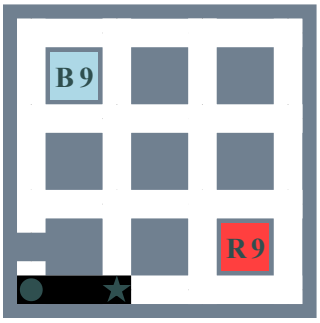

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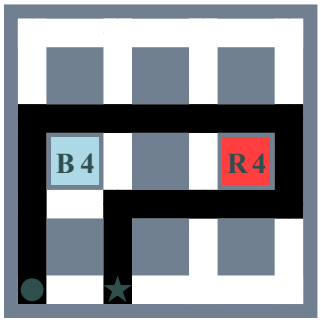

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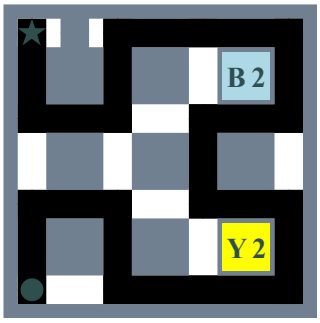

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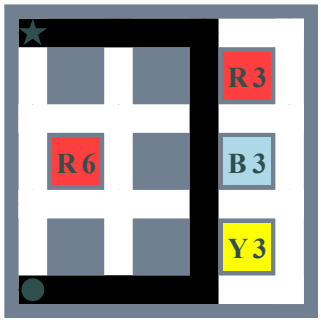

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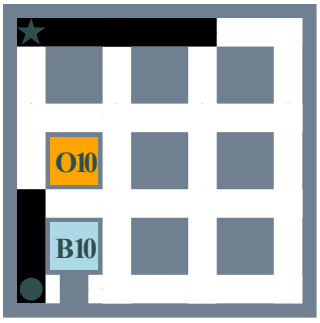

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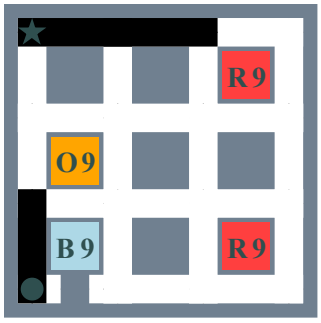

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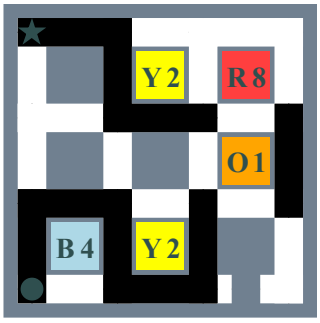

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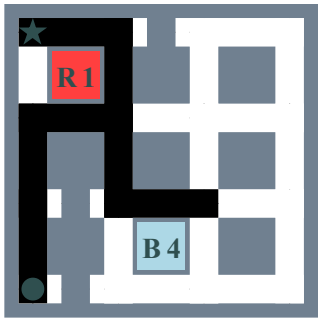

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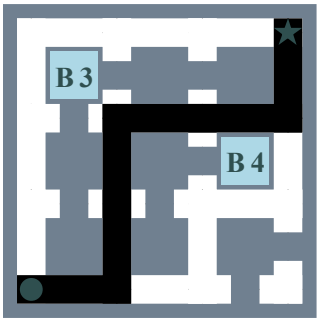
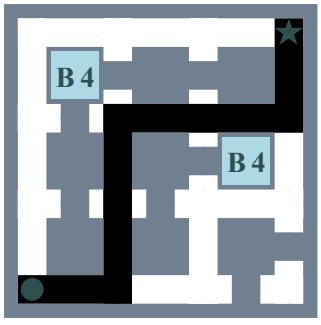
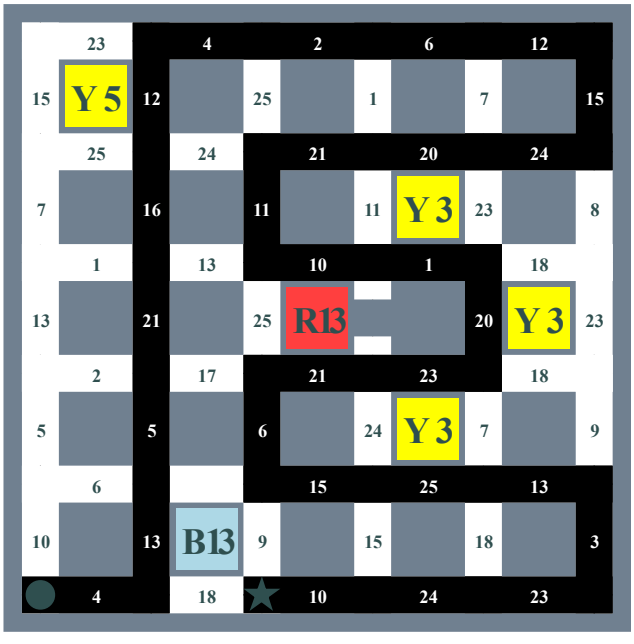


ENNHLY

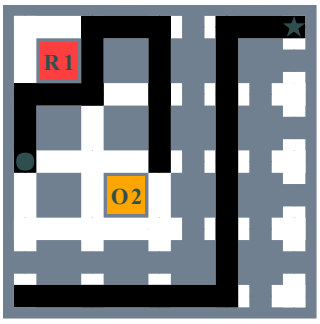


ENNIMZ

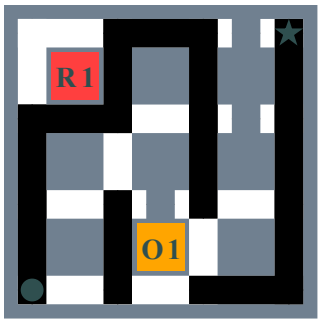


INSIDESQUAREDHTHEREISANEIGHT

Purple is the last active mechanic. When a corner of purple is touched, every color cycles in rainbow order according to the number in the purple square. For example, a purple 1 sends red to orange, orange to yellow, etc., including sending itself (purple) to red.



NFPHVVJJJSSSSJ



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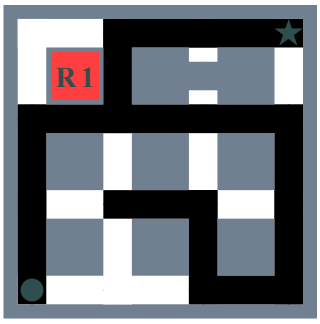

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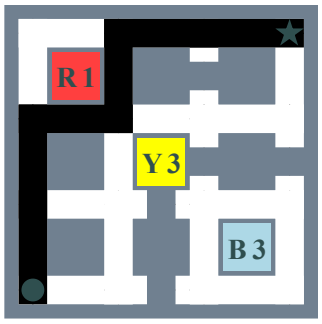
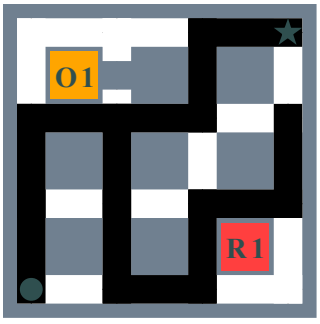
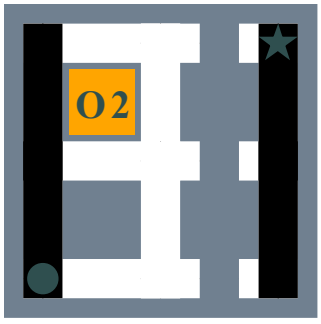


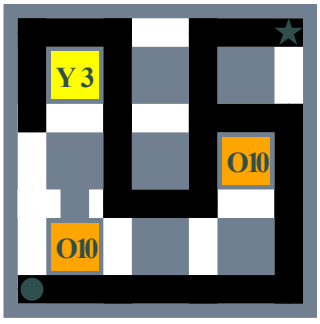
NNFTLL



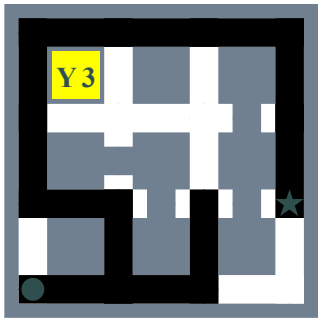
NNFUUGQISPYP



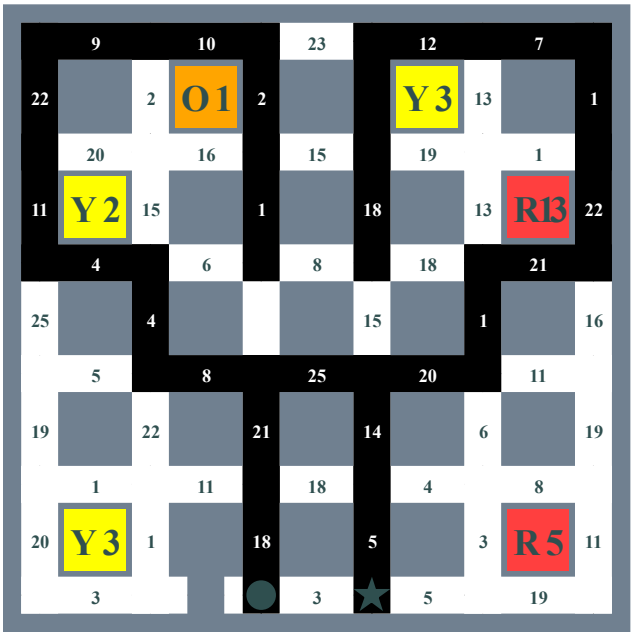
NPRR



EOOXHAGUBKWVZQ

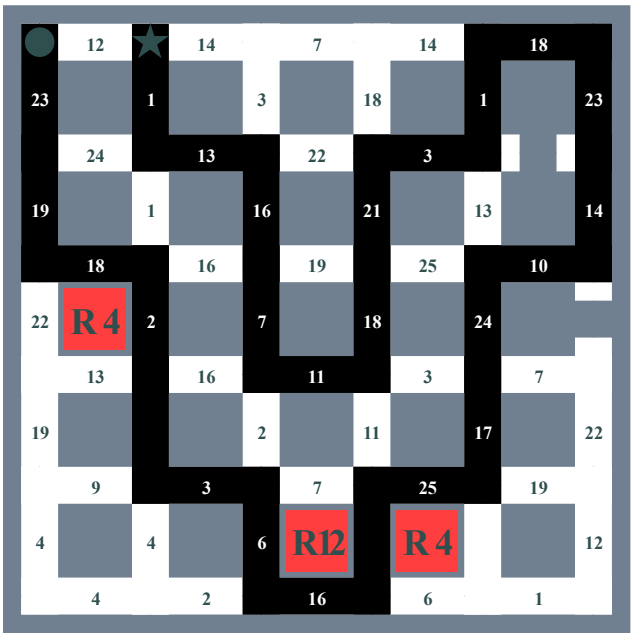


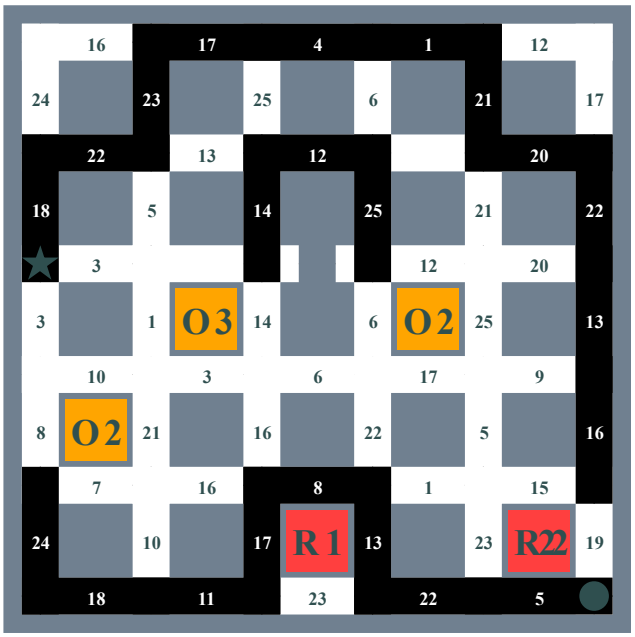
EENPYPSMPPDD

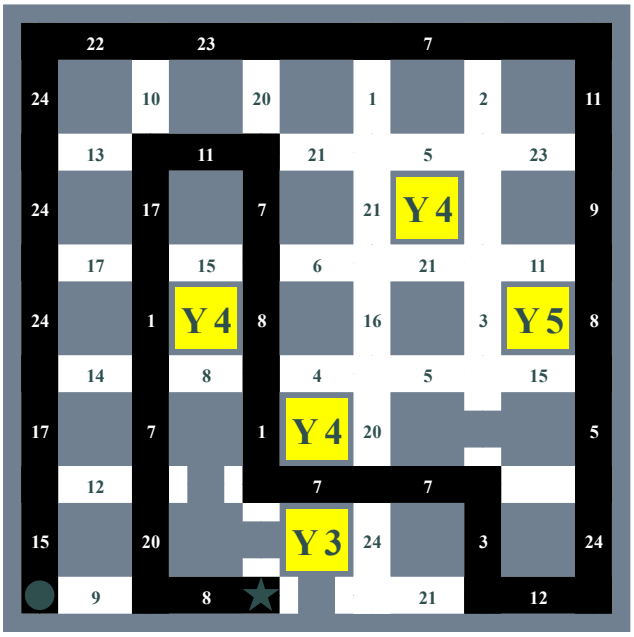


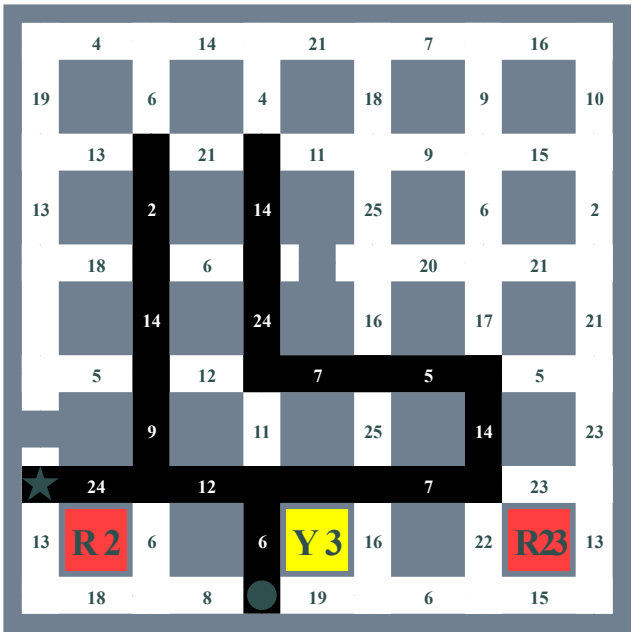
FINALLYCELLEIHOLDSANINE

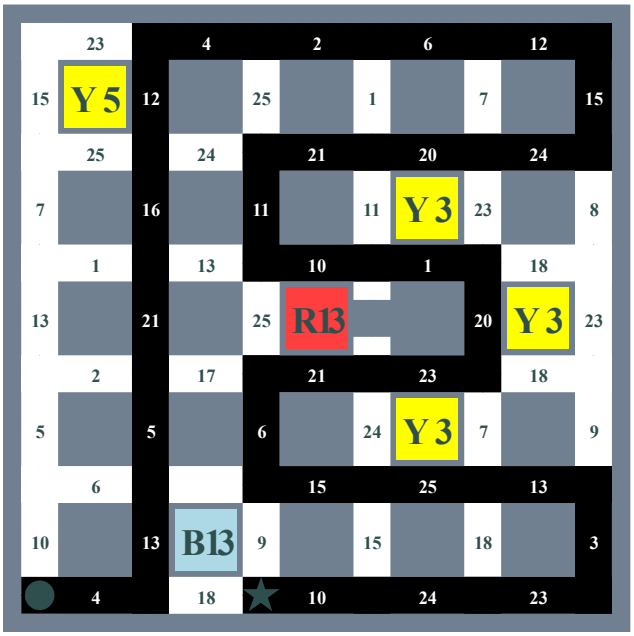
The solution paths for the color metas spell out **VALLEY** visually:

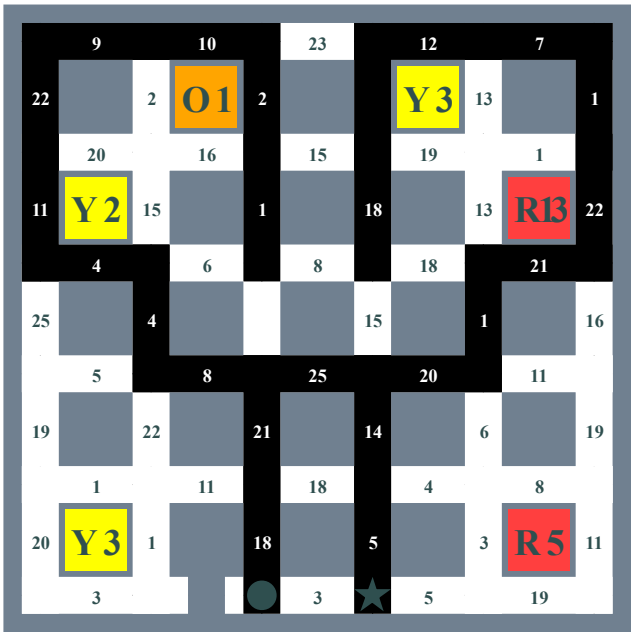








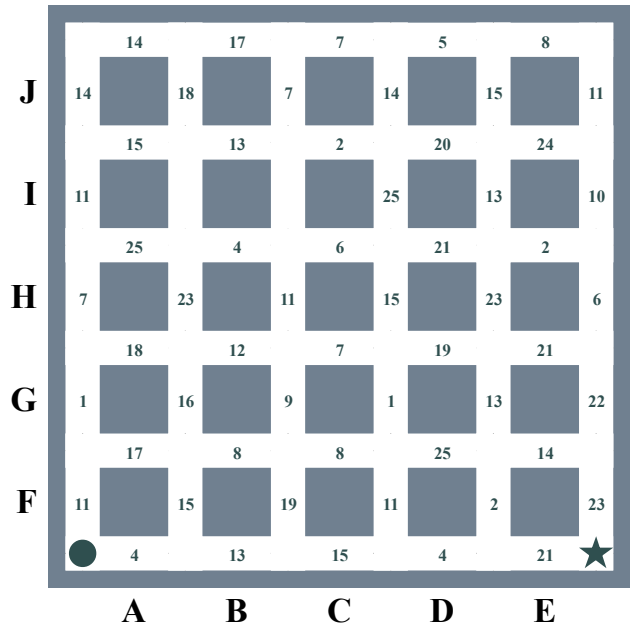

Y 5
Y 3
R13
Y 3
Y 3
B13

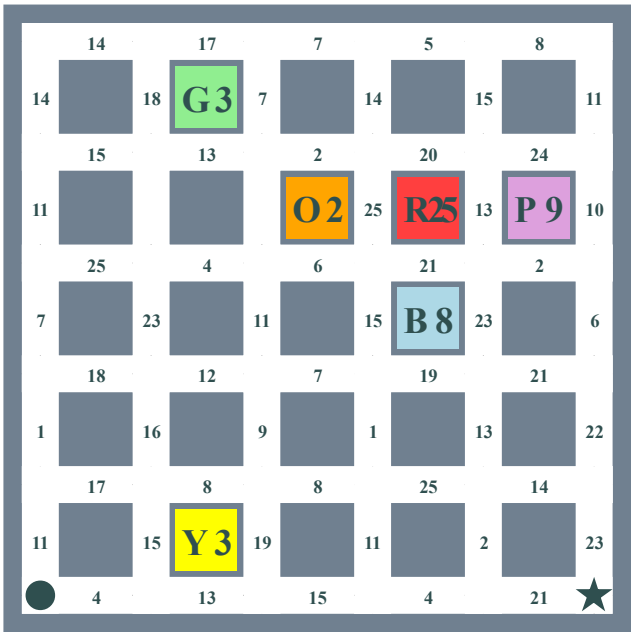

O 1
Y 3
Y 2
R13
Y 3
R 5

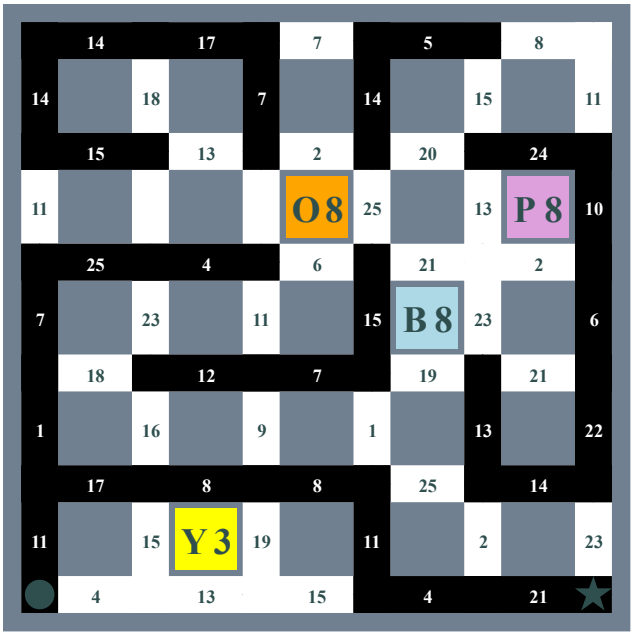
The strings corresponding to each color meta describe numbers in certain cells:

- Red: PLACE TWENTY FIVE IN THE BOX DI
- Orange: BOX CI HOLDS THE NUMBER TWO
- Yellow: CELL LABELED BF HAS A NUMBER THREE
- Green: THREE GOES IN BJ
- Blue: INSIDE SQUARE DH THERE IS AN EIGHT
- Purple: FINALLY CELL EI HOLDS A NINE

Placing the number with the corresponding color in the indicated cell of the blank unlabeled grid yields one final puzzle to solve:







YOUDIDITONEANSWERISFLUORINE

The other answer is **FLUORINE**.