

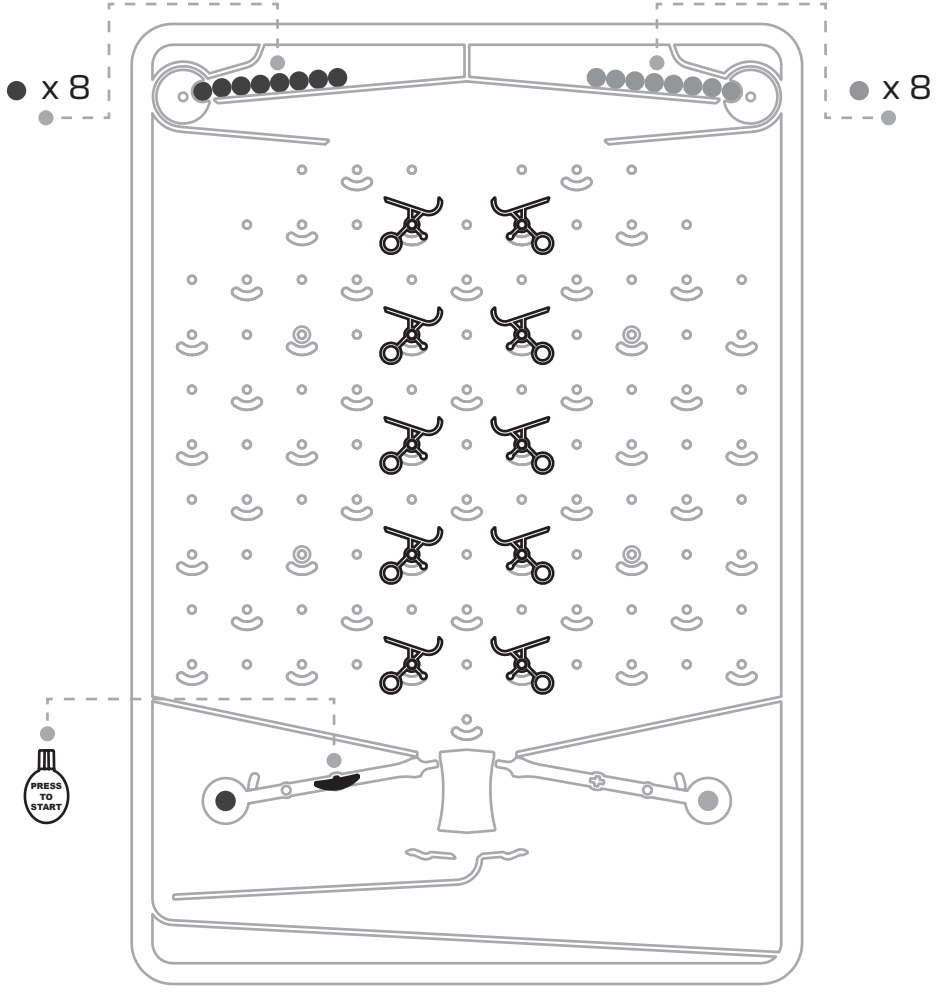
Challenge 6: Total Internal Reflection

Objective: Make the pattern blue, red, blue, red, blue, red...



Required output:



Starting setup



Available parts

-  x 2
-  x 5

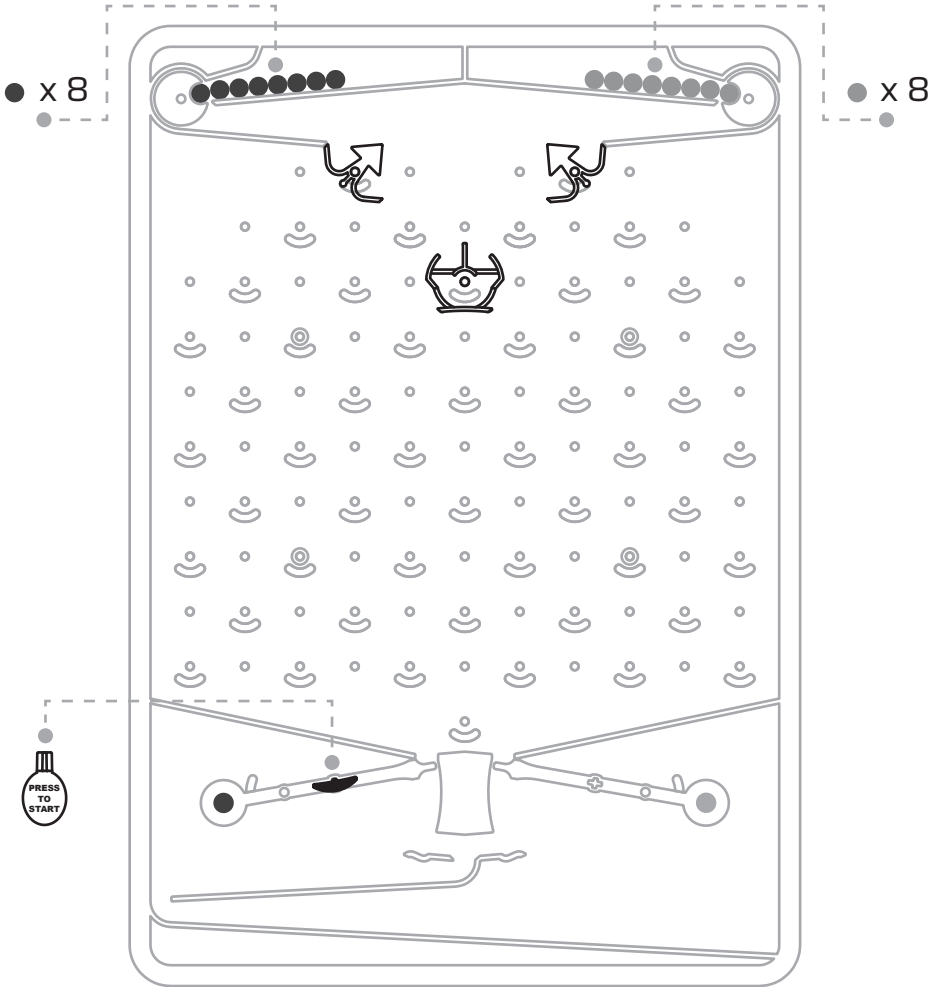
Challenge 10: Double Bond

Objective: Make the pattern blue, blue, red, red, blue, blue, red, red...

Required output:



Starting setup



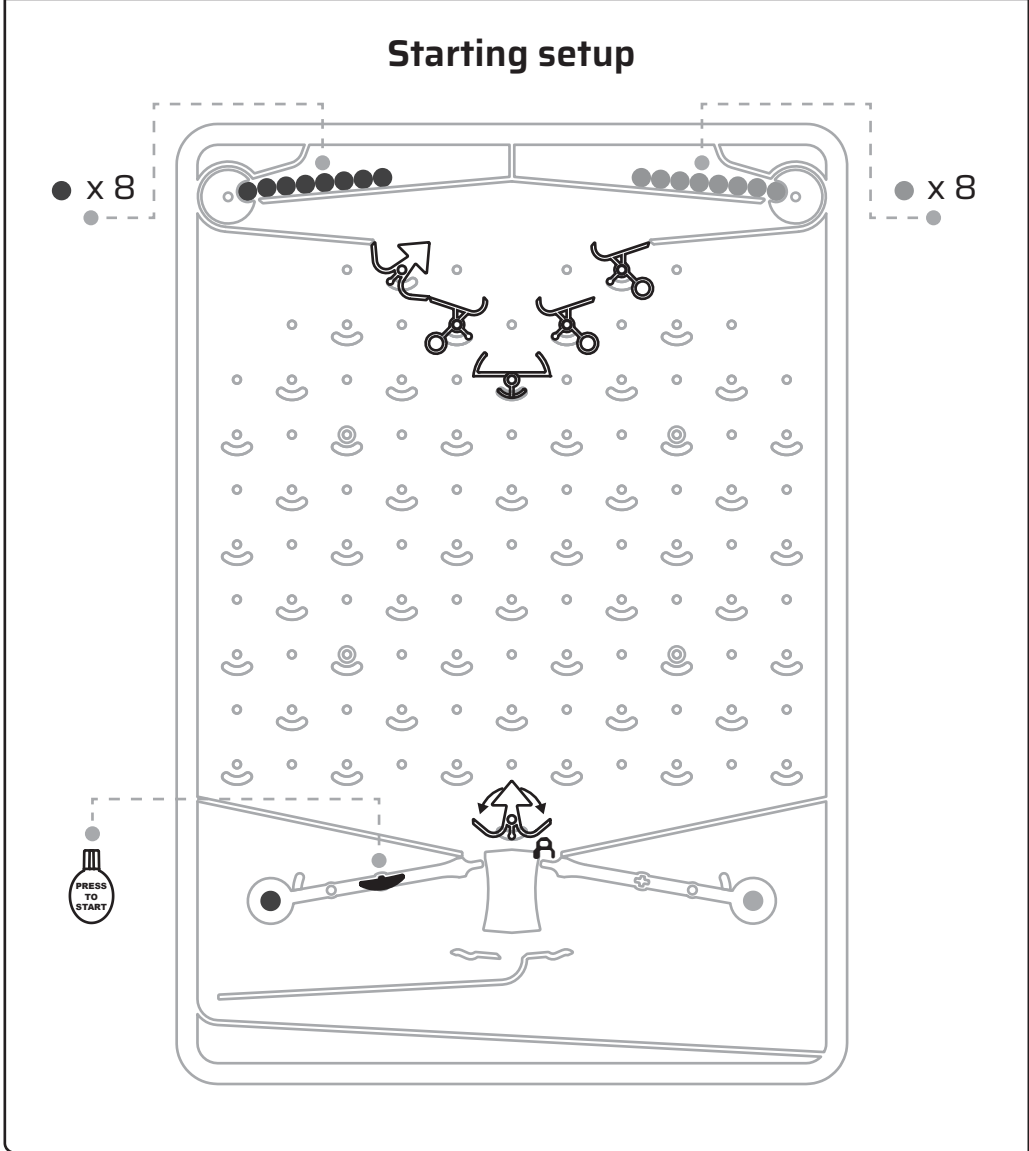
Available parts



Practice Puzzle B for Challenge 15

Objective: If bit A starts to the left, intercept a red ball. If bit A starts to the right, intercept a blue ball.

Examples:



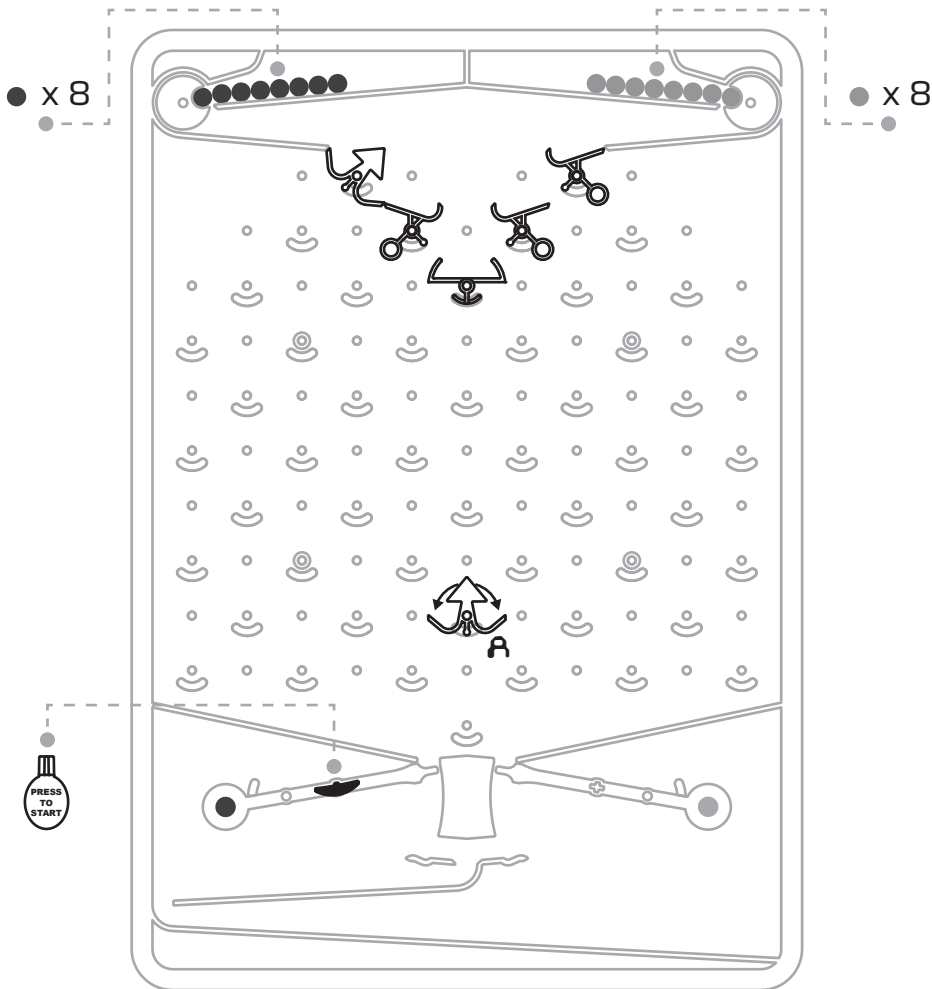
Challenge 15: Inversion

Objective: If bit A starts to the left, intercept a blue ball. If bit A starts to the right, intercept a red ball.

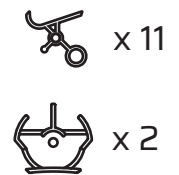
Examples:



Starting setup



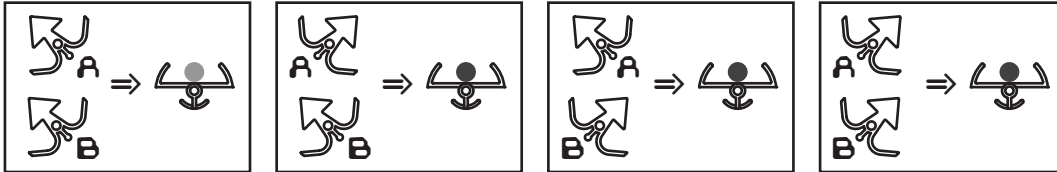
Available parts



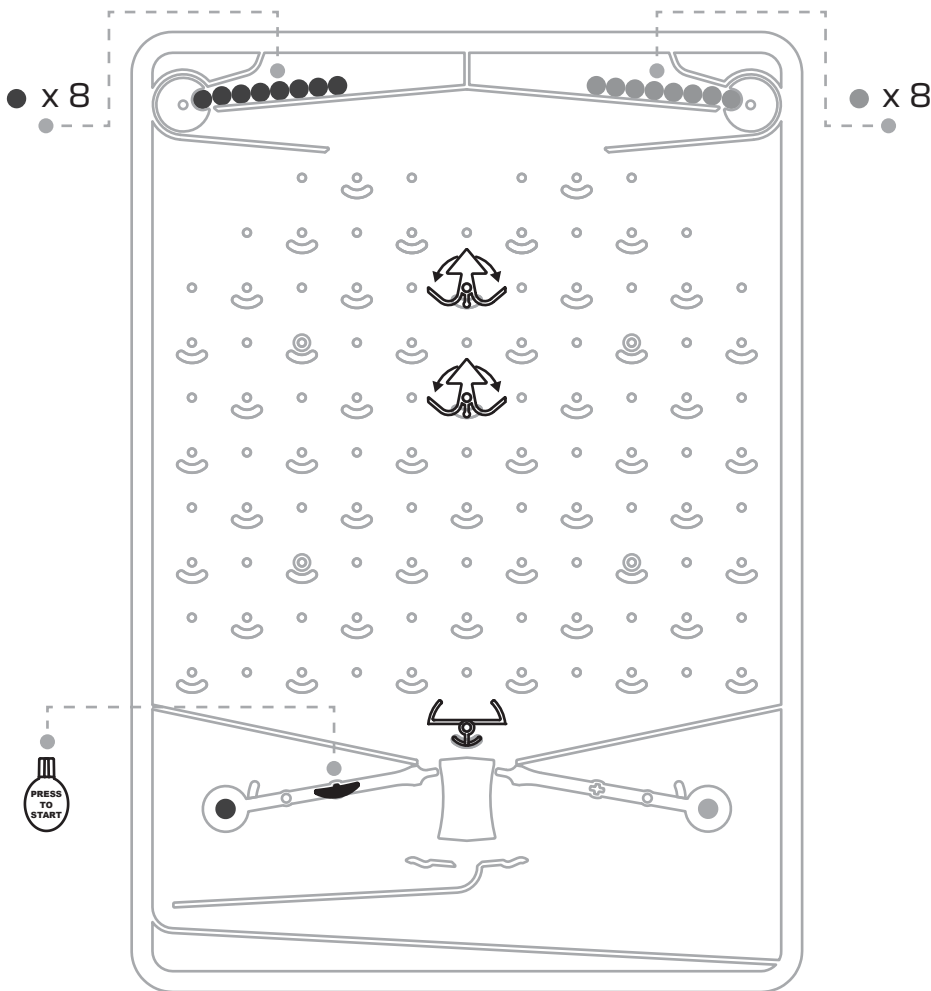
Challenge 20: Symbiosis

Objective: If the top bit OR the bottom bit start pointed to the right, intercept a blue ball. Otherwise, intercept a red ball.

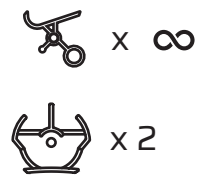
Examples:



Starting setup



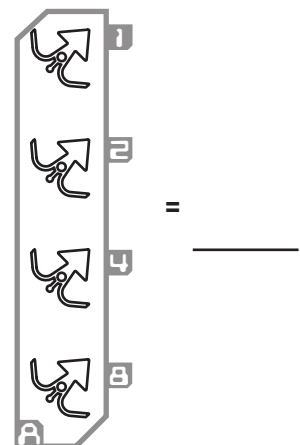
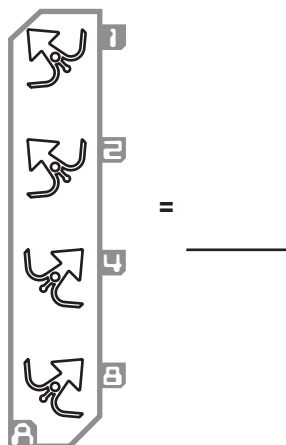
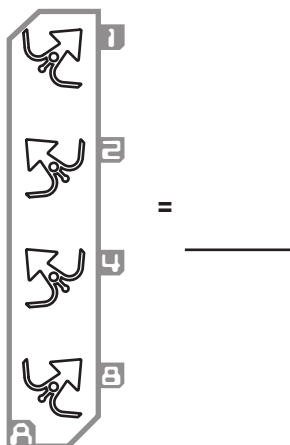
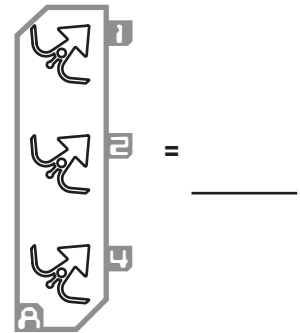
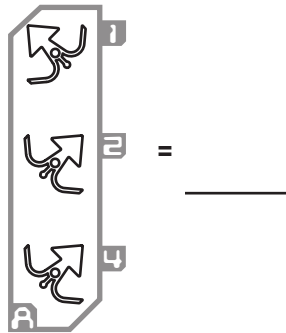
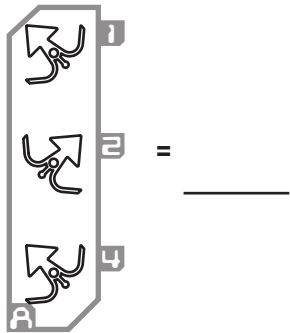
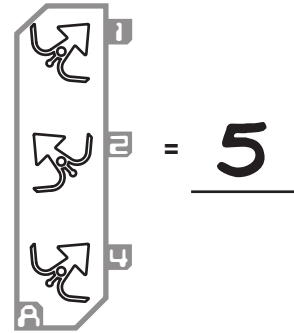
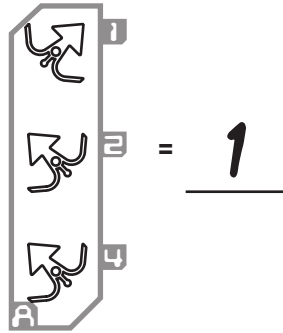
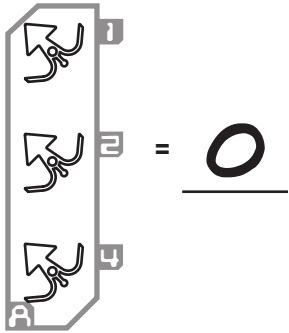
Available parts



Practice Puzzle A for Challenge 21

Objective: Each register below shows a number. Can you figure out what number is shown by each one?

Examples:



Challenge 21: Quantum Number

Objective: Use register A to count the number of blue balls. (Use 15 or less balls.)

Examples:

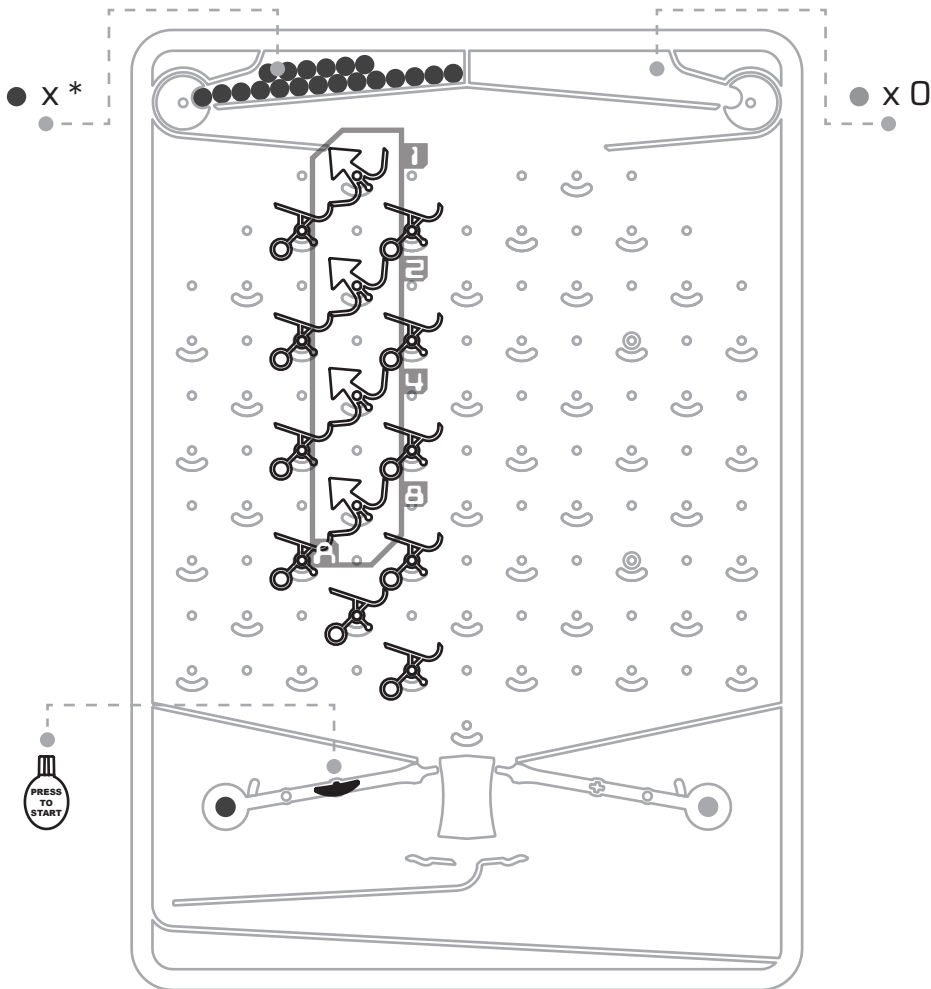
● x 5 ⇒ A = 5

● x 14 ⇒ A = 14

● x 7 ⇒ A = 7

● x 11 ⇒ A = 11

Starting setup



Available parts



Challenge 22: Depletion

Objective: Register A starts at 15. Subtract the number of blue balls from the register. (Use 15 or less balls.)

Examples:

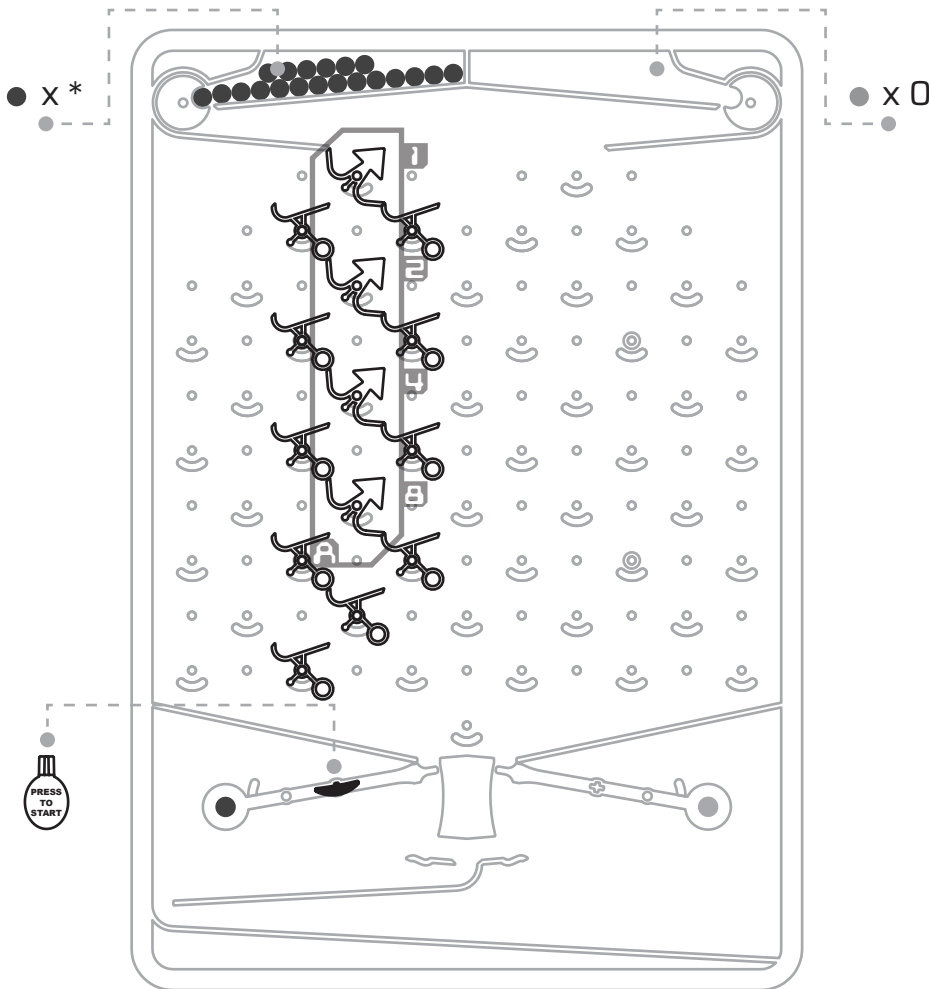
● x 1 ⇒ **A** = 14

● x 4 ⇒ **A** = 11

● x 10 ⇒ **A** = 5

● x 15 ⇒ **A** = 0

Starting setup



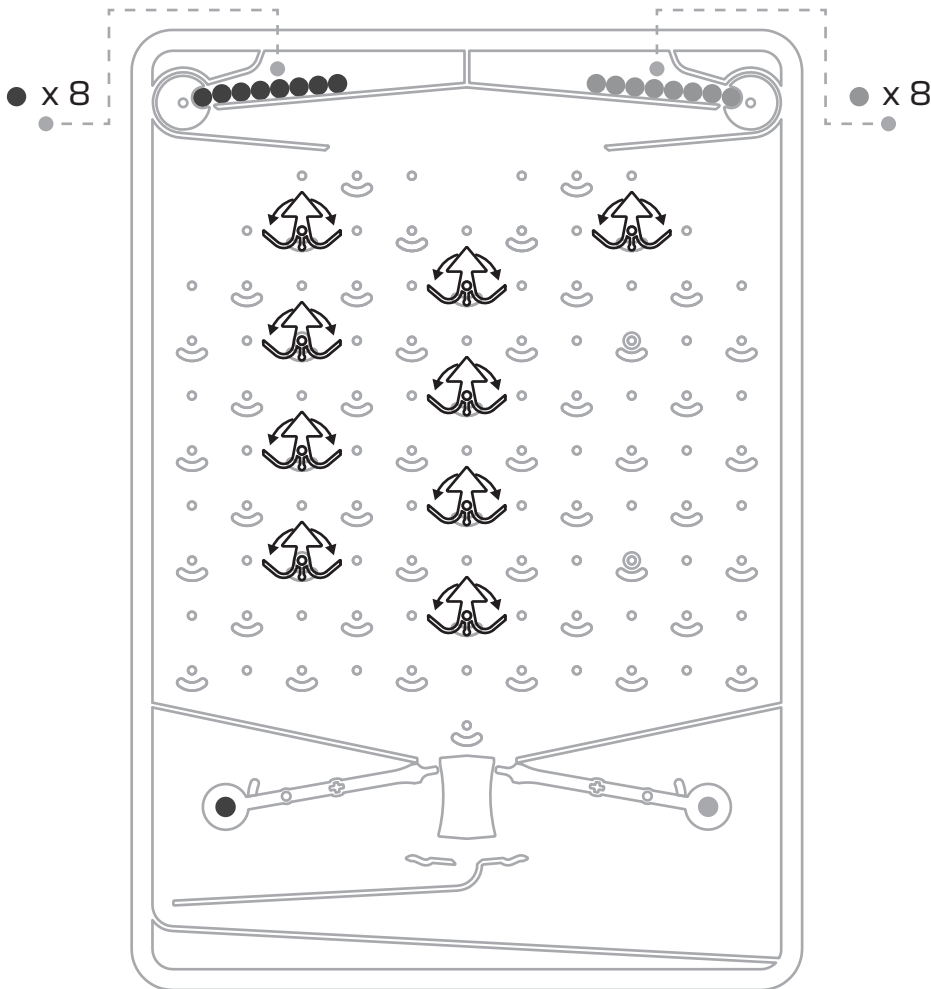
Available parts



Challenge 27: Reflection

Objective: Reverse the direction of each of the 9 starting bits, regardless of the direction they point to start.

Starting setup



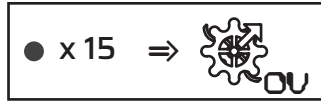
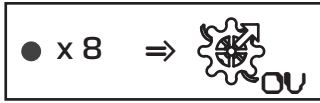
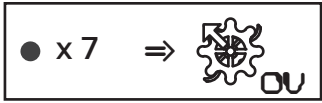
Available parts



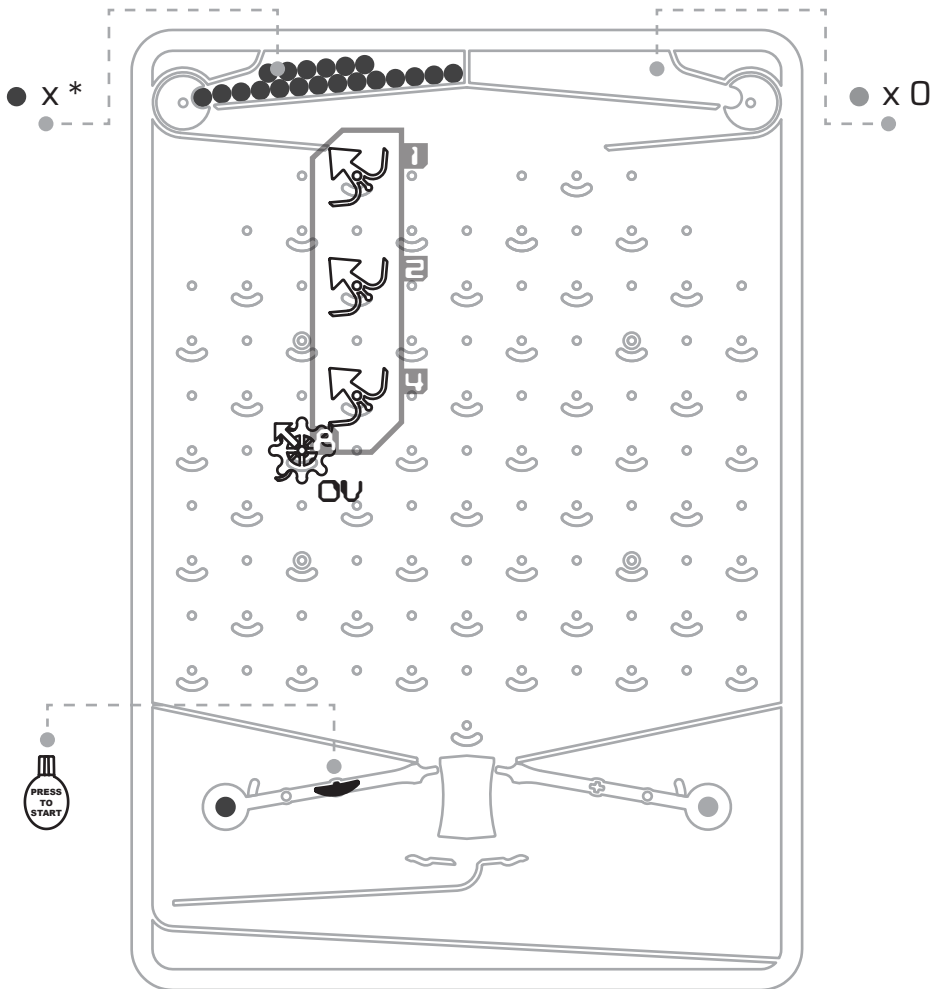
Challenge 30: Overflow

Objective: Count the blue balls in register A. If there are more than 7, gear bit OV must flip right (and stay right) to indicate the overflow.

Examples:



Starting setup



Available parts

