

**Topics:** Logic Games, Patterns, Codes

### Materials List

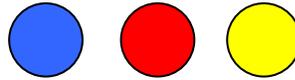
- ✓ Game board (matte board, permanent marker, box lid or other similar barrier)
- ✓ Game pieces of 4 different colors (about 25 of each)
- ✓ Plastic cylinders to create “clue pellets” (about 25)
- ✓ Tiny stickers

This activity can be used to teach:

- Problem Solving and Reasoning (Common Core Math Standards: Mathematical Practices Grades 3-8)

# Break the Code

Using Logic to Figure Out a Simple Code



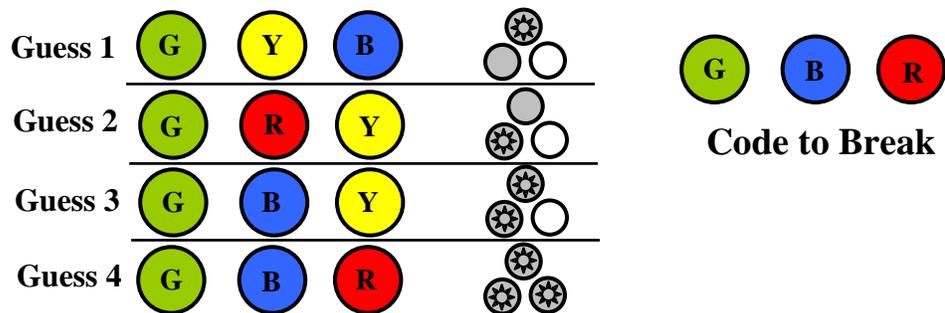
In this logic game, a player uses clues to help them break a hidden code in as few guesses as possible.

### Assembly

1. Create the game board by drawing 10 rows of 3 larger circles about 5 cm (~2”) in diameter and 3 smaller circles about 13 mm (~½”) in diameter onto a large piece of cardstock or matte board.
2. Create the “Code to Break” line on 1 end of the game board by making a row with only 3 larger circles.
3. Create the “clue pellets” by placing a tiny sticker on 1 end of each black, plastic cylinder. (Note: pellets may need to be washed before assembly and play.)

### Playing the Game (for 2 players)

1. While Player “A” turns away, Player “B” creates a code by placing game pieces onto the spaces of the “Code to Break” line. The code may include any combination of colors in any order (e.g. – “blue, green, red”; “green, red, green”; “green, green, green”). Player “B” hides this code from sight using the barrier.
2. Player “A” makes a first guess of the code in the first row of circles.
3. Player “B” responds by placing “clue pellets” in the small circles corresponding to correct guesses. A “clue pellet” placed “plain-end up” indicates that a piece is the correct color, while a “clue pellet” placed “sticker-end up” indicates that a piece is the correct color AND in the correct location. “Clue pellets” do NOT indicate which game piece is correct, but only the total number correct.
4. Play continues until the code is correctly guessed.



### Sample Game:

- **Guess 1:** Green is a correct color in the correct place; Blue is a correct color, but in the wrong place. 2 “clue pellets” are placed: 1 “sticker-end up” and 1 “plain-end up”.
- **Guess 2:** Green is a correct color in the correct place; Red is a correct color, but in the wrong place. 2 “clue pellets” are placed: 1 “sticker-end up” and 1 “plain-end up”.
- **Guess 3:** Green is a correct color in the correct place; Blue is a correct color and now also in the correct place. 2 “clue pellets” are placed, both “sticker-end up”.
- **Guess 4:** Green, Blue, and Red are all correct colors in the correct places. 3 “clue pellets” are placed, all “sticker-end up”. The hidden code is revealed.

**Web Resources** (Visit [www.raft.net/raft-idea?isid=6](http://www.raft.net/raft-idea?isid=6) for more resources!)