

# Snail Simulation Protocol

Crab: \_\_\_\_\_

Timer: \_\_\_\_\_

Recorder: \_\_\_\_\_

Population Control: \_\_\_\_\_

## SET UP

1. Place 15 raisins and 5 M&Ms into the opaque container. This represents the first generation of the snail population.

## PROCEDURE

2. When the **timer** says "Go," the **crab** uses the tweezers to remove snails (raisin/M&Ms) one at a time for 30 seconds.
  - After removing a snail, place it in the discard container.
  - If more than one snail is removed at a time, place one snail in the discard container and the rest back in the opaque container.

The snail hunt ends after 30 seconds when the **timer** says, "Stop."

- The **recorder** determines the number of each type of snail (raisins/M&M) remaining in the opaque container.
3. The **population control** rolls the die to determine how many snails have enough food to survive.
    - Rolls of one, two, or three mean that half the snails die due to inadequate food resources. The **recorder** removes half of each type of snail (raisin/M&M) from the opaque container and places them in the discard container.
      - If there is an odd number of snails in the container, round down and remove half of the snails. (For example, if 7 raisins remain, remove 3 raisins.)
    - Rolls of four, five, or six mean that all snails have enough food and survive. All snails (raisin/M&M) are left in the opaque container.
  4. The **population control** calculates how many snails to add as a result of reproduction among the surviving snails in the opaque container.
    - Since only females reproduce, the number of each type of snail (raisin/M&M) is divided by two. If there is an odd number of snails in the container, round down and divide by two to determine the number of females.
    - Each female can produce 5 offspring, so the number of females of each type of snail is multiplied by five to determine the total number of offspring produced for each type of snail.

The **population control** adds the new snails (offspring) to the opaque container.

5. The **recorder** determines the number of each type of snails (raisins/M&M) in the opaque container and enters them in the data table in the row corresponding to generation 2.
6. Repeat steps 2-5 to collect data for generations 3, 4, and 5.