



# Candy Collector

## Get Ready

- Gather supplies needed for the game. Each group will need the following:
  - 50 M&Ms candies or similar
  - 3 jelly beans
  - 2 plastic bowls
  - Plastic straws
  - A small plastic cup
- Put the M&Ms candies into bowls for each group. Set up stations so that each group will have each of the materials listed above, except the jelly beans. The jelly beans will be passed out later.

## Get Set

- Divide the students into groups of 2-4. Place a group at each station with the materials.
- Explain to the students that the candy in the bowl will represent energy. The empty bowl is their discard bowl.
- Tell students that during the game they will transfer candy from the full bowl to the plastic cup to “consume energy.” However, they may only use the straws to transfer the energy – NO hands allowed!
- Make sure students know they must wait to eat the candy until the end of the game.

## Go

### Part 1: NONRENEWABLES

- Set a timer for 15 seconds.
- Tell groups that when the time starts, they will need to provide energy for their town. They must use their straw to provide suction to extract energy from the full bowl. They must transfer this energy into the cup. They may transfer as many candies as they can before the year ends, but they may not use their hands at all – not even to hold the straw! A year will last 15 seconds.
- After 15 seconds, have students count how many candies made it into their cups during the “year.” Ask students to keep a tally of how much they extracted and how much remains.
- Place any candy in the cup into the extra discard bowl.
- Extract energy for 3 more “years,” following the steps above. Ask students how much energy remains in their bowl (if any). Ask them to predict how many years their energy sources would last.

### Part 2: NONRENEWABLES AND RENEWABLES

- Tell students to place ALL candies back into one bowl. Add three jelly beans to each group’s bowl.
- Explain to students that as time went on their town has become better able to predict how much energy it needs. Explain to them that they will still transfer candy, but each year are only required to get 2 pieces of candy per person.
- Set the timer for 15 seconds. Remind students they may only use their suction – NO HANDS!
- Allow students to extract their energy for 15 seconds, transferring 2 candies per person into the cup. Ask students if all groups met their energy needs of 2 candies per person? How many candies remain in their original bowl?

*Candy Collector is a fun game to introduce students to the terms “renewable” and “nonrenewable”. Students will get a closer look at how long energy sources will last when using only nonrenewable sources, and when incorporating renewable sources of energy.*

### Grade Levels

- Elementary, grades 3-5
- Intermediate, grades 6-8
- Secondary, grade 9

### Preparation

- 5-10 minutes

### Time

- 30-45 minutes

- Ask groups to discard **ONLY** the M&Ms from their cup into the discard bowl. The jelly beans represent renewable resources and may be placed back into the original full bowl to be gathered for future years!
- Complete three more 15-second “years”, each time discarding the M&Ms and returning the jelly beans. Ask students if their energy candy will last longer knowing they can reuse the jelly beans? How many “years” might their candy last?
- Explain to the class the definitions of renewable and nonrenewable energy sources. Ask the class which candies represent renewable energy sources, and which candies represent the nonrenewable energy sources. Discuss as a class how this game is similar and different to using energy sources in the real world.

## Extensions

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- Have students graph their results on a class spreadsheet for each round. Groups can use the graphs to compare and discuss strategies, successes, and challenges experienced by each group, and create mathematical models to predict how long each candy will last.
- Adjust the numbers of candies for each round and the time in a year to suit the coordination of your students.
- Play another round where certain bowls have different numbers of candies of both types. Ask students to describe how this situation might be more similar to the real world.