# Creating Algorithms: Identify, Sort & Categorize Objects

**An algorithm is a repeatable process that delivers an expected result.** One way to use an algorithm is to categorize relationships and characteristics of objects in order to identify them.

## 1 Part 1: Identify Characteristics

Collect the object you want to identify. What do you know about them? Create a data table, list, or chart to help you find similarities and differences. How would you help someone filter through all of the objects to identify a single one?
First, identify a single characteristic that sorts all of the objects into categories of approximately equal size. Then, identify a characteristic in each subcategory that sorts the objects into additional subgroups. Repeat until each object is in a single category. List the characteristics you used to sort each group below.

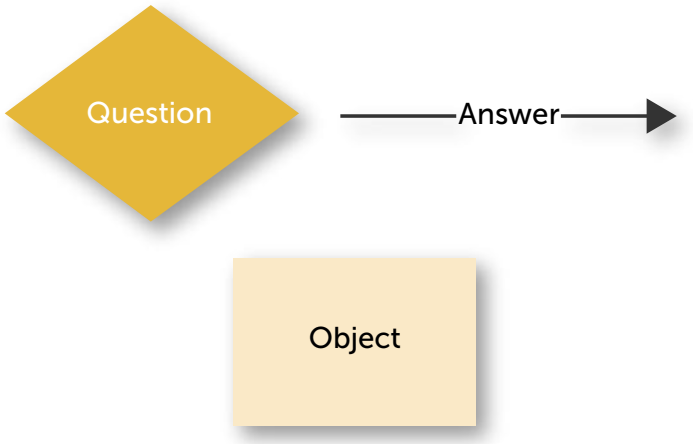
1. _____

2. _____

3. _____

## 2 Part 2: Develop Your Algorithm

Create an algorithm to help someone filter through all of the objects to identify a single one. Use the key below to use the same shapes as the example in your algorithm and create new shapes to show other types of steps. You can also create your own shapes to draft your algorithm on a computer using a tool such as LucidChart, Smartdraw, or Draw.io.



## 3 Part 3: Pair Debugging Algorithm

While completing your algorithm, work with a partner to debug -- which is to find and fix errors -- and improve it: