Assignment 0

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1. I'd explain to the extraterrestrial that humans are relatively symmetric creatures. Then, I'd explain that human eyes are symmetric as well. If I held a flat surface, such as a piece of paper, symmetrically between my eyes, items that appear on one side of the paper is left and items that appear on the other side are right. In order to determine which side is which, the alien should hold their hands out directly in front of them and form and "L" with both hands. The hand that creates the actual "L" shape is considered left along with all the objects aligned on that side and the other hand along with the the items on that side is considered right.

2. I would contact national and local gas station franchises here in the US and ask how many gas stations they have established. Then, I would contact gas station franchises that are located internationally and ask how many gas stations they've established.

3. To figure out which basket has which fruits, using the wrongly placed labels is very helpful. I would choose to have a random fruit from the basket labeled "mix." Then, depending on which fruit is chosen, the label of that basket is the name of that fruit. Then, the basket that had it's label removed is labeled with the label that is on the basket that has been untouched. Finally, the previously untouched basket is labeled with the "mix" label.

4. I tried to reason through this problem by recognizing that depending on whether there is an even or odd number of coins that may be placed, Dylan should go first or second. Therefore, the grandpa whispers, "go first."

5. To find the number of coins that is divvied up, this number has to meet 4 different conditions. It has to be a number between 0 and 1,000, it must have a remainder of 3 when divided by 13, a remainder of 5 when divided by 12, and a remainder of 0 when divided by 11. I wrote a short program as follows:

```
import java.util.*;

public class pirateCoins{

   public static void main(String[] args){

      Scanner input = new Scanner(System.in);

      for(int i = 0; i < 1000; i++){
         if(i % 13 == 3 && i % 12 == 5 && i % 11 == 0)
         System.out.println(i);
      }
    }
}
```

The number I received from this was "341." So, the number of coins the pirates had to divvy up was 341 coins.

6. Computer science can be used in a variety of ways. It can be used to develop software, secure data and databases, analyze small or large quantities of data, control robots, transfer information, and probably countless other things I haven't listed. Using computer science to do these things can be useful for many people in many different ways. Software distributed by companies such as Adobe is very important for artistic fields. The ability to secure data and

databases is important as privacy is something heavily valued by society, as it should be. Being able to analyze large quantities of data is important for places such as medical labs, as being able to analyze data collected from patients to diagnose disease is important. Automation is how many factories are able to function effectively and control of these robots wouldn't be possible without computer science. Lastly, the transfer of information is extremely prevalent in our world today, and this is something that computer science allows for and can improve upon.

7. To me, writing 'good' code means writing code that completes a task effectively without using up to much resource on whatever machine it exists on. It is also troubleshoot friendly, so if a user uses a program improperly, the program can let the user know this. It also means that this code is readable, so collaboration can be more seamless.

8. I've done robotics using Java in a competition called First Tech Challenge. We actually began to use Git Hub the second year I participated since it made collaboration and version control a lot easier. I participated in this competition for a total of three years. I took AP Computer Science A since it was offered by my school. My school has a STEM lab that offered engineering courses. I took these courses up to Engineering 3. I used Arduino UNO in all of my projects in these classes and, with a partner who did much of the design work, coded a 'useless box', an ultrasonic robot, and a robot arm. I've also tried out XCode in my high school's STEM lab, however I didn't have much time to get very far. I have also used Latex to create lab reports for my AP Physics C class and other smaller assignments.