**A Cat a Parrot and a Bag of Seed**

**Defining the problem.**

A man needs to transport 3 items across the river to the other side but the boat only has room for him and 1 item.

My insight is he will have to make 3 trips or find a bigger boat.

The overall goal is to get him and the three items to the other side of the river.

**Break the Problem apart**

The constraints in this situation are that the man has limited space to transport all the items.

Sub goals can be to make 3 different trips back and forth across the river to collect his items or get on a bigger boat.

**Identify Potential Solutions**

He can make 3 different trips and put up each item where it will be safe, but it will require more time.

He can get bigger transportation, which would be a bigger boat, and then he can take all the items at the same time.

**Evaluate each potential solution**

Each of my solutions will reach the goal and the man will have his 3 items with him across the river.

Each of my solutions will work for all cases, one will take longer than the other depending on which solution he chooses to take.

**Choose a solution and develop a plan to implement it**

In this solution lets just say the man can wait and get on a bigger boat and in this case he is able to carry the bag of seeds, parrot and cat all the way across the river to the other side. This will give him a easily way to transport all three items at once.

**Socks in the Dark**

**Defining the problem**

You are selecting socks in the dark and need to know what is the smallest number of socks to select to guarantee getting at least one matching pair and at least one matching pair of each color.

I will start by selecting all 20 pair of socks, that way I will be sure to have one matching pair and a matching pair of each color. I can always put the remaining back. You can count to 20 in the dark collecting the socks.

The main goal is to have at least one matching pair and a matching pair of each color.

**Break The Problem apart**

The constraints are that I don’t have any light to make the exact selections in the dark.

The sub goal is to get enough socks to make the selections of at least one matching pair and one matching pair of each color.

**Identify Potential Solutions**

To me the possible solution would be to grab all 20 pairs while in the dark and then make the proper selections when you get to some light.

**Evaluate each potential solution**

My solution will meet the goal and will work for all cases.

**Choose a solution and develop a plan to implement it**

The solution I choose will be to gather all 20 pair of socks in the dark, then when I get to some light I would make the proper selections of having at least one matching pair and a matching pair of each color.

**Predicting Fingers**

**Define the problem**

A little girl uses her left hand to count with but when she reverse she leaves a finger out, at the manner that she is using determine which finger she will stop on if she counts to 10, 100, 1000.

I clearly see that she does not count the finger that she ends with once she reverse the direction.

The overall goal is to predict which finger she will stop on when she get to 10, 100, and 1000.

**Break the problem apart**

The constraints are a little girl counting using just her left hand instead of both hands. When she reverses her counting she skips a finger.

The main goal is to determine which finger she will stop on counting in this manner.

**Identify potential solutions**

The possible solution to me is to count in her manner on my left hand to determine what finger she will stop on when she get to 10, 100, and 1000.

**Evaluate each potential solution**

My solution will meet the goals of predicting which finger the little girl will stop on.

This same solution will work for all cases of determining which finger she will stop on when counting to 10, 100, and 1000.

**Choose a solution and develop a plan to implement it**

The solution will be to count in her manner using my left hand only and when I reach 10, 100, and 1000, the fingers I land on will be the ones she stops at.