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A Cat, a Parrot, and a Bag of Seed:

A man finds himself on a riverbank with a cat, a parrot and a bag of seed. He needs to transport all three to the other side of the river in his boat. However, the boat has room for only the man himself and one other item (either the cat, parrot or seed). In his absence, the cat could eat the parrot, and the parrot would eat the bag of seed. Show how he can get all the passengers to the other side, without leaving the wrong ones alone together.

**1) Define Problem**

A man has a Cat, Parrot, and a bag of seed that he needs to get to the other side of the river his boat.

He can only seat himself and one other so he must take them over in a specific order or one will do something to the other.

**2) Break Problem Apart**

Cat and Parrot can’t be left alone; Parrot and Seed can’t be left alone.

Cat will not do anything to the Seed.

**3) Identify Potential solutions**

Take the Parrot First because Cat does nothing to the Seed.

**4) Evaluate each Potential solution**

Take the Parrot First, and then take the Seed or Cat.

Drop Cat or Seed off and take the bird back with so it doesn’t bother the cat or Seed.

**5) Final Solution**

First take the Parrot across the river and drop it off on the other side.

Second take the Bag of Seed across the river drop it off and take the Parrot back with you.

Third Drop the Parrot off and take the Cat across the river drop it off on the other side.

Finally go back and pick up the Parrot take it across the river and drop it off with the Cat and Bag of Seed and your done.

Socks in the Dark:

There are 20 socks in a drawer: 5 pairs of black socks, 3 pairs of brown and 2 pairs of white. You select the socks in the dark and can check them only after a selection has been made. What is the smallest number of socks you need to select to guarantee getting the following:

a) At least one matching pair = **11 socks**

b) At least one matching pair *of each color. =* ***18 socks***

**1) Define Problem**

There are 20 socks total. 5 pairs of black socks (10 socks), 3 pairs of brown socks (6 socks), and 2 pairs of white socks (4 socks).

You select the socks in the dark and check them only after your done selecting them.

What is the lowest number of socks you will need to get the following questions right.

**2) Break the Problem Apart**

Get one matching pair of socks.

Get one matching pair of socks of each color.

**3) Identify Potential solutions**

For the one pair of socks I would suggest 9 or more socks because there’s 10 black socks so you’ll have a better chance of getting a pair.

For the one pair of each color I suggest 15 or more socks because the 10 black socks will make it a little difficult to get a matching pair for each.

**4) Evaluate each potential solution**

I believe my suggestions will get the correct answer.

**5) Final solution**

For the one pair of socks I will grab 11 socks because there are 10 black socks so my odds are better at getting a pair.

For one pair of each color I will grab 18 because my odds will be 18 out of 20 so I have a better chance at getting a pair for each color.

Predicting Fingers:

A little girl counts using the fingers of her left hand as follows: She starts by calling her thumb 1, the first finger 2, middle finder 3, ring finger 4, and little finger 5. Then she reverses direction, calling the ring finger 6, middle finger 7, first finger 8 and thumb 9, after which she calls her first finger 10 and so on. If she continues to count in this manner, on which finger will she stop?

a) What if the girl counts from 1 to 10 = **first finger**

b) What if the girl counts from 1 to 100 = **ring finger**

c) What if the girl counts from 1 to 1000 = **ring finger**

1. **Define Problem**

The girl counts 1 – 10 starting on her thumb and ending on her first finger.

If she continues to count in this manner on which finger will she stop?

**2) Break the Problem Apart**

What finger will she stop on if she counts from 1- 10

What finger will she stop on if she counts from 1- 100

What finger will she stop on if she counts from 1- 1000