**Problem Solving**

**Scenario 1 A Cat, a Parrot, and a Bag of Seed**

1. **Define the problem**

a) The problem here is how the man can get the cat, the parrot, and the bag of seed across the river as a whole but he has only room for himself and one of them.

b) The insight I can offer is how the man finds himself in a puzzle because he needs each of them to be whole in order for them to count as a puzzle piece.

c) The over all goals are to get the cat, parrot, and bag of seed to the other side of the river without leaving them unattended together.

1. **Break the problem apart**

a) The constraint is he only has room for himself and either the cat, parrot, or the bag of seed.

b) The sub-goals are he needs to get them over without leaving the cat to eat the parrot, or the parrot to eat the bag of seed.

1. **Identify potential solutions**a) A possible solution to the sub-problems is to take the bag of seed across first, then the cat, then the parrot. But if by doing that, the cat and parrot would be left alone, resulting in the cat eating the parrot. Another solution would be to take the cat over first, but by doing so, it would result in the parrot eating the bag of seed. The third solution would be to take the parrot over first, then the cat or the bag of seed, but if he took the cat over second, the cat would eat the parrot, if he took the bag of seed over second, then the parrot would eat the bag of seed.
2. **Evaluate each potential solution**

a) No, each of the solutions do not meet the goals, the solutions would cancel each other out.

b) Each solution would not work for all cases.

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

a) The solution would be:

* 1. Take the parrot over first.
  2. Come back.
  3. Take the bag of seed over second.
  4. Bring back the parrot.
  5. Get the cat and leave the parrot.
  6. Take the cat over.
  7. Come back
  8. Get the parrot.
  9. Take the parrot over.

b) A little diagram of how the solution works is as follows:

Key:

C=Cat P=Parrot S=Bag of Seed R=Riverbank

O=Other side of river

Solution:

CPSR

P--------------🡪O

CSR🡨----------O

S--------------🡪O

P🡨--------------O

PCR

C--------------🡪O

R🡨--------------O

P--------------🡪O