

PROBLEM SOLVING & COMPUTER SCIENCE

THE WOLF, SHEEP, AND HEAD OF CABBAGE PROBLEM

You are a farmer who wished to bring a wolf, sheep, & head of cabbage items across a river

However:

1. If left together, the wolf will eat the sheep.
2. If left together, the sheep will eat the head of cabbage.
3. You can only carry a single item accross.

THE WOLF, SHEEP, AND HEAD OF CABBAGE PROBLEM

1. Take sheep across
2. Come back empty
3. Take wolf across
4. Bring sheep back
5. Take head of cabbage across
6. Come back empty
7. Take sheep over

WHAT IS COMPUTER SCIENCE

**COMPUTER SCIENCE IS THE STUDY OF
PROBLEMS, PROBLEM-SOLVING, AND THE
SOLUTIONS THAT COME OUT OF THE
PROBLEM-SOLVING PROCESS.**

**GIVEN A PROBLEM, A COMPUTER
SCIENTIST'S GOAL IS TO DEVELOP AN
ALGORITHM**

WHAT IS AN ALGORITHM?

AN ALGORITHM IS A STEP-BY-STEP LIST OF INSTRUCTIONS FOR SOLVING ANY INSTANCE OF THE PROBLEM THAT MIGHT ARISE

BAKING A CAKE (ALGORITHM)

1. Preheat oven to 325 F
2. Gather ingredients
3. Mix ingredients in bowl
4. Pour mixture into baking pan
5. Bake in oven for 50 minutes
6. Wait 10 minutes, for cake to cool
7. Cut cake into 10ths
8. Eat cake ... which is not a lie

**WHAT ARE SOME PROBLEMS THAT
COMPUTERS HELPED US SOLVE?**

1. Sequencing the human genome
2. Increasing the accuracy of pi (3.1415...)