What is Computer Science?

- programming
- designing logic chips
- building computers
- algorithms
- operating systems
- artificial intelligence
- robotics
- human-computer interaction
- making art
- networking
- games
- data bases
- bioinformatics
- networking
- data bases
What is Computer Science?

The study of complexity
identify problems
figure out if processes to solve them exist
design processes that solve them
evaluate the solutions
Algorithm

A set of steps or rules describing a process to achieve some goal
BETTE'S BUTTERMILK PANCAKES

INGREDIENTS:
- 2 cups all-purpose flour
- 2 tablespoons sugar
- 2 teaspoons baking powder
- 1 teaspoon baking soda
- 1/2 teaspoon salt
- 2 eggs
- 2 cups buttermilk
- 1/2 cup milk
- 1/4 cup unsalted butter, melted
- Choice of berries, sliced bananas, raisins or chopped toasted nuts (optional)
- Oil for griddle

An example algorithm:
Recipe for making pancakes

INSTRUCTIONS: Combine the flour, sugar, baking powder, baking soda and salt in a large bowl.

Lightly beat the eggs with the buttermilk, milk and melted butter.

Just before you are ready to make the pancakes, add the liquid ingredients to the dry ingredients all at once, stirring just long enough to blend. The batter should be slightly lumpy.

If you want to add fruit or nuts, stir them in now, or you may sprinkle them on the pancakes while they are on the griddle.

Heat a lightly oiled griddle or heavy skillet over medium-high heat (375 degrees on an electric griddle).

Pour 1/4 cup batter per pancake onto the griddle or skillet, spacing the pancakes apart so they do not run together. When bubbles appear on the surface of the pancakes and the undersides are lightly browned, turn and cook for about 2 minutes longer, until lightly browned on the bottom.

Serve immediately on warmed plates with the topping of your choice. Serves 4 (yields about 24 four-inch pancakes.)
Walk 1.4 miles, 29 min

Use caution - may involve errors or sections not suited for walking

1. Head west on Bicentennial Way toward College St

2. Turn left onto College St

3. At the traffic circle, take the 1st exit onto Main St

4. Turn left onto Park St

5. Take the pedestrian overpass

6. Turn right onto Maple St
   Destination will be on the left

Noonie Deli
137 Maple St, Middlebury, VT 05753
Algorithm
A set of *unambiguous* steps or rules describing a process to achieve some goal
Compiled code [C, C++, Java (sort of), etc.]

Source code -> Compiler -> Application

plain text file -> object code

Interpreted code [Python, Javascript, Ruby, PHP, etc.]

Source code -> Interpreter

plain text file
Python

Modern, general-purpose, high-level programming language
Free, “industrial-strength”

```
a, b = 0, 1
while b < 1000:
    print(b, end=' ')
    a, b = b, a+b
```

1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987
Homework 1

• Download spyder application or use the 505 lab computers (extra help Wed 2/17 2:45-4:00)

• Experiment with Python expressions

• Assignment description on go/cs101

• Submit via online script

• Due Wednesday 2/24 @ 11:59pm

• For help go to MBH 505 Tu/Th 1-4pm, or 12:30-1:30 Wed/Fri, or Sun/Mon/Tue/Wed 7-9pm