

# Methods and Problem Decomposition

1-27-2010

# Opening Discussion

- Minute Essay responses
  - Can we move the person to the house? If so, which will we see?
  - Static methods and calling things in the Greenfoot class.
  - How long should you expect to spend on interclass problems?
  - Does the API vary depending on the program you use? Will `Greenfoot.getRandomNumber` work on other programs?

# More comments

- What is the difference between public and private?
  - Do you work on IcPs before class?
  - Should readings be done before or after the class they are listed for?
  - Could we pull code from Wombats to help make things happen?

# Writing New Methods

- Last time we filled in some code in a method that was already part of the CityScape scenario.
- Today we want to write some of our own methods. What type of functionality should we add to our person or our buildings?

# Problem Decomposition

- One of the main reasons for having methods is that they allow us to break a big problem up into little pieces.
- Computer Science is often about controlling complexity. Big problems are complex and therefore hard to solve.
- You should always take a big problem and break it into pieces such that each piece is easy. Never solve a hard problem.

# Design Approaches

- Top-down vs. bottom-up
- Top-down
  - Start with the big problem and repeatedly break it into pieces.
- Bottom-up
  - Start with little pieces you know how to do and put them together to solve bigger problems.

# Modulo and Integer Division

- When you divide ints you get an int. Any fractional part is thrown away.
- The remainder from division is given by the modulo operator, %.
- We can do some fun things using these operators.
- Let's make our person walk back and forth.

# Minute Essay

- What do you think we should do with CityScape over the next few class meetings?
- Remember that you will be showing off your interclass problems on Friday. If you have to miss class you should e-mail it to me.