

- Questions (quiz material)
- ▼ Questions (homework)
  - files need to be in their own folder
  - gathers up every .py file in the same folder as critter\_main.py to figure out what critters to put in the simulation
  - instance variables are the key
  - only critter that uses fightOver is the Chameleon
- ▼ binary
  - base 10 vs base 2
  - ▼ what is a *bit*?
    - How many bits would be need to represent the numbers 0 to 63?
    - ▼ images we've been working with have been 24-bit (8 bits for each color channel)
      - How many values do we get with 8 bits?
      - all together, 16,777,216 colors
      - progression on wiki article [https://en.wikipedia.org/wiki/Color\\_depth](https://en.wikipedia.org/wiki/Color_depth)
    - low/high order bits, least significant/most significant bits
  - ▼ practice conversions:
    - 9 and 42 to binary
    - 00111010 and 01000011 to decimal
    - add 00001001 and 00001110

## ▼ hexadecimal

- base 16
- ▼ since a single digit in base 16 can be any number between 0 and 15 in base 10, we need new symbols for the numbers beyond 9
  - a, b, c, d, e, f are used for 10, 11, 12, 13, 14, and 15, respectively
  - how many bits per hexadecimal digit?
- ▼ you often see colors written in hexadecimal, with two digits for each color (8 bits)
  - still in RGB order
  - ff0000 is max red, no green or blue
- hand back quiz reflections