Repetition

- Sometimes don’t know exactly how many times a set of instructions are repeated.
- Stopping is based on a condition
- Example:
  - Game of Chess, how many moves until win
  - Stop: when markers are in check mate position

- Indefinite Repetition
  - Where number of repetitions not known in advance
  - Use `while` statement

While statement

- While some condition is true
  - execute instructions

Looping – exact number of times

- Count loop
  - How many steps to get to the panda?
    - 3, 6, 8?

While statement

- While some condition is true
  - execute instructions
General “Rule of Thumb”

• As a general rule, a While loop should be written so the loop will eventually end
  – Requires statements inside the loop change the conditions of the world such that condition for While eventually becomes false
• If While loop never ends
  – Infinite while loop

Compare – What is difference?

• While loop stops when bunny is close to panda
• Count loop bunny just walks three times
What happens when run?

• First loop, falcon moves down until partially in the ground
• Second loop, nothing happens since the condition is never true. The pig is not above ground.

What happens, when does the loop stop?

• They move towards each other repeatedly until their distance is less than 1.0
• They move way to much compared to how close they are suppose to be. This could be an infinite loop!
What happens, when does the loop stop? (numbers different)

- They move way too much compared to how close they are suppose to be. This could be an infinite loop!

What happens when this runs?

- This is an infinite loop! The bunny is never red when the condition is tested. So the condition is always true!

What code could I use to stop this loop?

• Continue while height smaller than some number. Stop when height is bigger.
What code could I use to stop this loop?

- Continue while height smaller than some number. Stop when height is bigger.

Class Today
- Catching dinner

Announcements
- Qz12 and videos for next time