Repetition

• In many kinds of animations, especially simulation and games, some actions happen again and again
  – Example
    • Games where targets randomly appear and are caught or shot down, then appear elsewhere
  • Actions are made to happen again and again by running an instruction or method more than once

More Complicated Loops

• It is possible to place a loop within another loop statement, this is nested loops
• Example: double ferris wheel
Problem

• Given a cow that can randomly appear and disappear.
• Want to add a score to count the number of times user clicks on the cow.
• User gets specified amount of time to click (timer).
• Cow stops moving when time is up.
• User wins if a target number of clicks is achieved in the specified time. Cow tells user if they won or not.
• Start classwork now and I’ll show how to do the score

Solution

• Add a new 3D text object
  – will keep track of times cow clicked on
  – type in “score,” as the name of the 3D text object
  – Then change its text value to 0

Add Mutable Variables

• What does Score need to keep track of?
  – current value
  – final value
  – increment value
• Add three mutable class variables
**Mutable Variables Added**

- Three variables added
- Write method to initialize them
- Call to initialize

**Increment Counter**

- Add an event to increment score's value when mouse is clicked on cow
- Need to write a method to increase the score value
  - both variable and text displaying score must be changed

**First, change score.value**

- Drag value over and set to score.value
- Use math to increase by increment

**Second, display the new text value**

- Each 3D text has a text value
- Drag this field and set
- A world built-in function can be used to display the number value as a string
Almost Done…

• Add another 3D text to just say the word score
  – I named it scoreText
  – Then changed text value to “score”
• Add code to repeat until target is reached
• Cow appears at end

ClassWork

• Start with ClickACow.a2w
• Add a Score
• Add a Timer – similar to score
  – Start at high value (say 20)
  – Count down instead
• Game is over when Timer runs down
  – If Target score is reached – you win