**Walk Cycle Demo Notes**

**Terms**

* Follow Through means that loosely tied parts of a body should continue moving after the character has stopped and the parts should keep moving beyond the point where the character stopped to be “pulled back” - Wikipedia
  + Example: A floppy dog ear will have a lot of follow through as the dog moves.
* Overlapping Action is the tendency for parts of the body to move at different rates. - Wikipedia
  + Example: A baseball pitchers will lunge with their bodies first, then the throwing arm and hand will sweep through afterwards.

**General Tips**

* If you want to move the whole character, don’t Select All Anims and translate them all at the same time. Instead, select the COG, knees, feet, and any other IK anims, then translate them.
* Pay close attention to shoulder and hip rotation. Also pay attention to how your arm swings.
* Work on the bigger body parts first, then work your way down to smaller details like the fingers.
* Change the Multi Switch attribute for the arms and head to topCon space.
* Remember to counterbalance from the front view.
* Work based on your reference, but exaggerate details.

**Blocking**

* 4 Basic Poses
  + Contact
    - The front leg extends and. touches the ground
  + Down
    - Legs bend as the body sinks down
  + Passing
    - Legs are passing each other. Back foot comes off the ground
  + Up
    - The highest point of the walk cycle, back leg fully extended. Back foot is now in the front
* Create these poses for two steps
* In total, you should have 8 different poses. The 9th pose must be the same pose as the 1st pose, but translated over
  + Go to frame 1, middle click and drag to the last frame you want the cycle to loop
  + Key all anims on that frame
  + Move the rig on the z-axis to continue the cycle
* Full-body poses (pay close attention to the feet)
* Add follow through and overlapping motion to the head, hands, and toes.
* Remember weight shifts and counter balance!

**Cycling Animations**

* CRUCIAL: make sure the last pose is EXACTLY the same as the first pose (translate z value should be different)
* Curves -> Post-Infinity -> Cycle with offset
* View -> Infinity
* Clean up tangents where they cycle loops.

**Breakdown**

* Remember to “break” the arm during the swing.
* Sample poses by turning on spline tangents, then find a pose between two keys and middle click the timeline and drag to the frame you want the pose. Key all anims and make adjustments
* You can sample splined poses.
* Make the animation look as perfect as you can without polish: Timing and Spacing
* Editable Motion Trail

**Polishing**

* Make sure the feet are not sliding or going through the ground.
  + If the feet are going through the ground, go into the graph editor and flatten the tangents.
* Pay close attention to the feet. You might want to animate it frame by frame (Reference the article: Put It There)
  + NOTE: If you choose to animate it frame by frame, you *do not* have to Key All Anims. You can simply key the foot. However this will make it difficult to make any changes to the timing and other fundamental principles. So be sure your breakdown is perfect before animating frame by frame.
* Examine the tangents where the cycle loops again.
* Make sure the legs aren’t popping