**Constraints Summary**

* When constraining things, first constrain it to an intermediate object (Locators). Then constrain it to the **joint** of a character, **not the anims**
* Parent constrain the locator to the joint (parent constraint with **maintain offset unchecked**)
* Directly constrain the object to the locator (move the ball into the locator in the **outliner**)
* As long as the blend parent channel in the locator is set to 1, you can freely animate the object as it follows what it is constrained to.
* If you want to break the constraint:
  + Go to the frame you want to stop the constraint.
  + Key a buffer frame (1 frame before) with the **blend parent set to** **1**.
    - Also key a buffer frame for the object
  + Set the **blend parent channel on the locator to** **0**. Key the locator.
    - Also key the object
  + Go to the frame you want to stop the constraint.
  + Select the object, then the locator and run this **Python** script
    - from pymel.core import \*;s=ls(sl=1);  
      move(s[1],xform(s[0],q=1,ws=1,rp=1),rpr=1);  
      xform(s[1],ws=1,ro=xform(s[0],q=1,ws=1,ro=1));
  + Select the object and set the translation and rotation to 0.
  + Animate the object using the locator.
* If you want to start the constraint again:
  + Go to the frame you want to stop the constraint.
  + Key a buffer frame (1 frame before) with the **blend parent set to** **0.**
    - Also key a buffer frame for the object
  + Create a *temporary locator* to keep track of the object’s current location.
    - Parent constrain the *temporary locator* to the object with **maintain offset unchecked**
    - **Delete the constraint via the outliner**
  + Set the **blend parent channel on the locator to** 1. Key the locator.
    - Also key the object
  + Select the *temporary locator,* then the object and run this **Python** script (same as before)
    - from pymel.core import \*;s=ls(sl=1);  
      move(s[1],xform(s[0],q=1,ws=1,rp=1),rpr=1);  
      xform(s[1],ws=1,ro=xform(s[0],q=1,ws=1,ro=1));
    - Key the object again so it stays in place.
  + Delete temporary locator

NOTE:

* Make sure the keys on Blend Parent channels are clamped and stepped
* Make sure to animate the object’s position and rotation using the locator
* If you retime the motion, make sure you move all buffer key frames as well
* If you reanimated your motion, you will likely have to redo constraints