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## **Chapter 10 – Physics**

### **10.1.1 Physics: Space and Engine**

10.2 Physics Toolbar



*Main Physics Tools*



*Physics Move and Start/Stop simulation tools*



Workspace window as it can help to see and manipulate the physics widgets more easily.

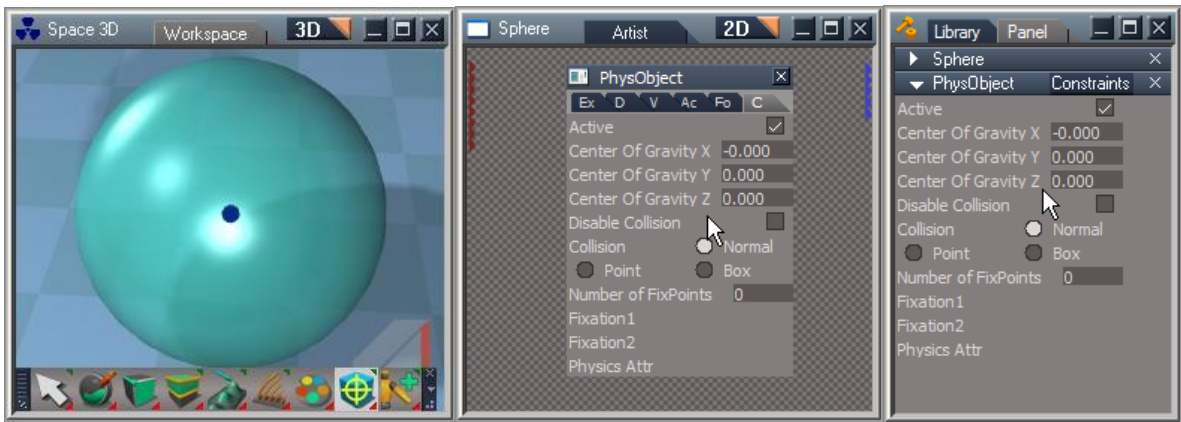
### 10.2.7 Centre of Gravity and Fixation



#### COG and Fixation tools



**Center Of Gravity:** L-Click on the tool shows center of gravity for the object and is adjusted by moving the widget's "blue dot" in the Workspace or by input in the Constraints aspect in the LE, or the panel in the stack.



**Widget for Center Of Gravity in the Constraints Aspect**



**Fixation point 1:** adds fixation point - Green widget can be used to adjust values or values can be manually set in the LE for the PhysConstraint object.



**Fixation point 2:** adds fixation point - Similar to fixation 1 both fixation points can be adjusted by moving the Red widget in the Workspace or by numeric input in the LE for the X,Y,Z attributes of the PhysConstraints objects which are created when the tool is used on an object which has physical properties already assigned to it. The stack does not have access to these objects and only shows the *Number of FixPoints* used.

Every active physical object can be fixed by one or two fixation points called Nails. The position of nail points is handled by the attributes *Fixation1* and *Fixation2* in the PhysObject .



**Physics Constraint Helper:** TODO writeup update icon