

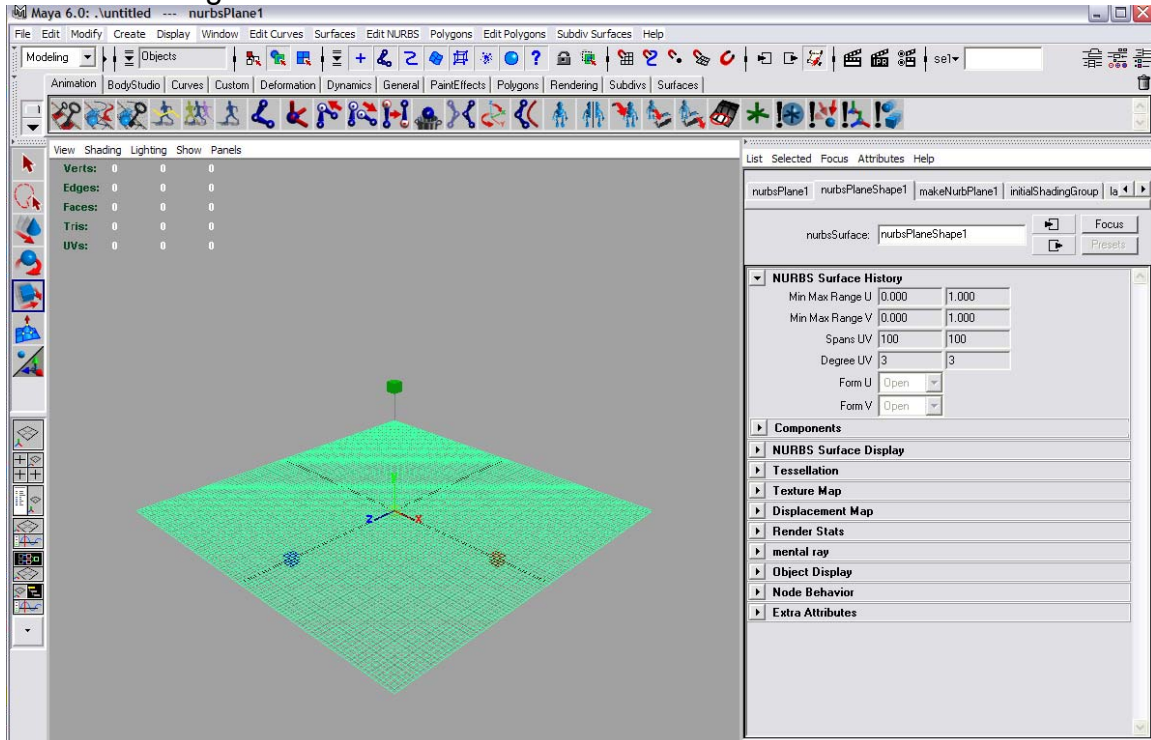
# Dynamics

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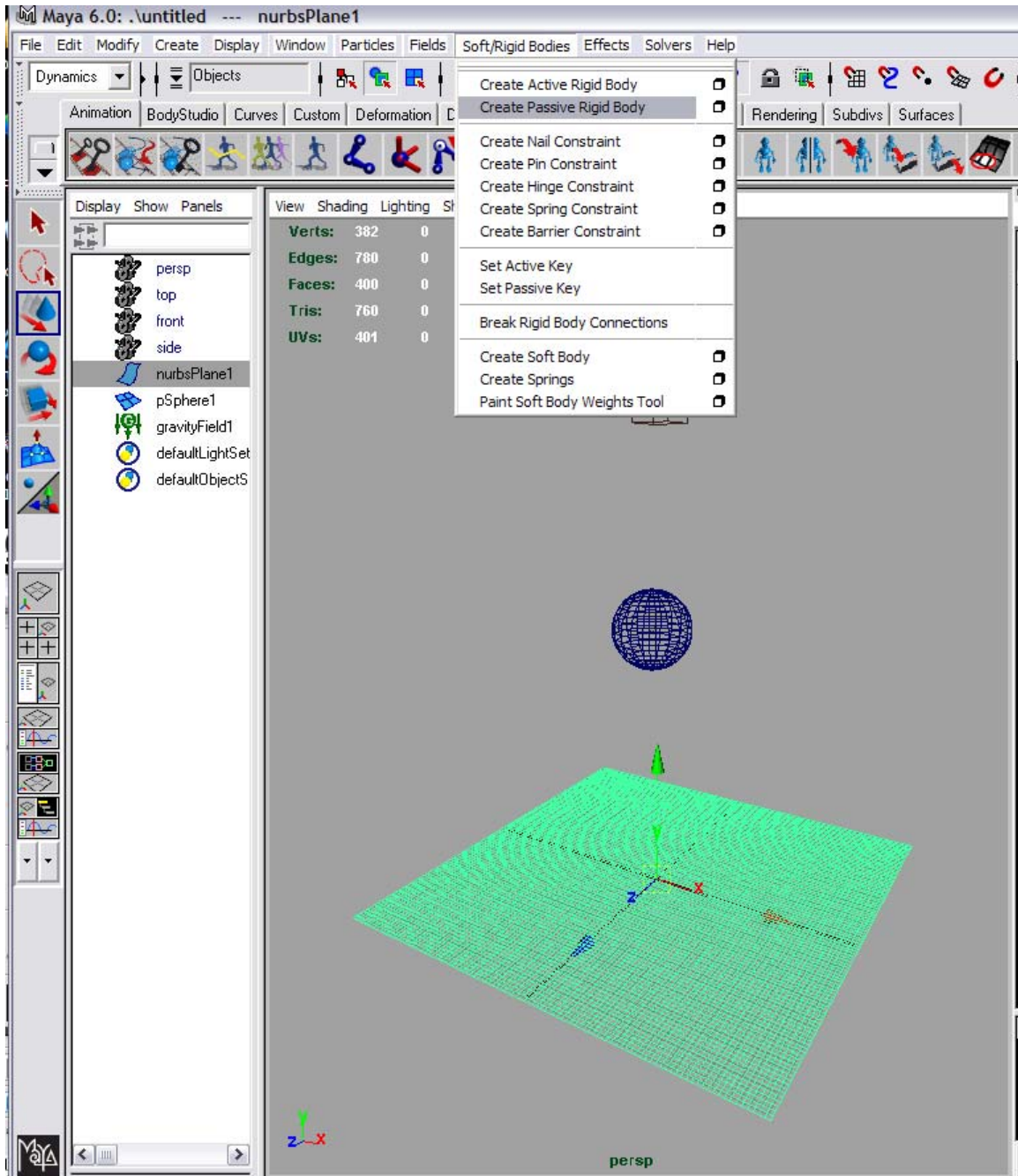
This tutorial shows how to use dynamics with rigid and soft bodies. This example shows two cases: how to setup dynamics with a ball falling on a rigid plane and how to setup a ball in the case of a soft plane. A soft body can be made of viscous liquid or rubber.

## 1 - Ball falling on a rigid plane

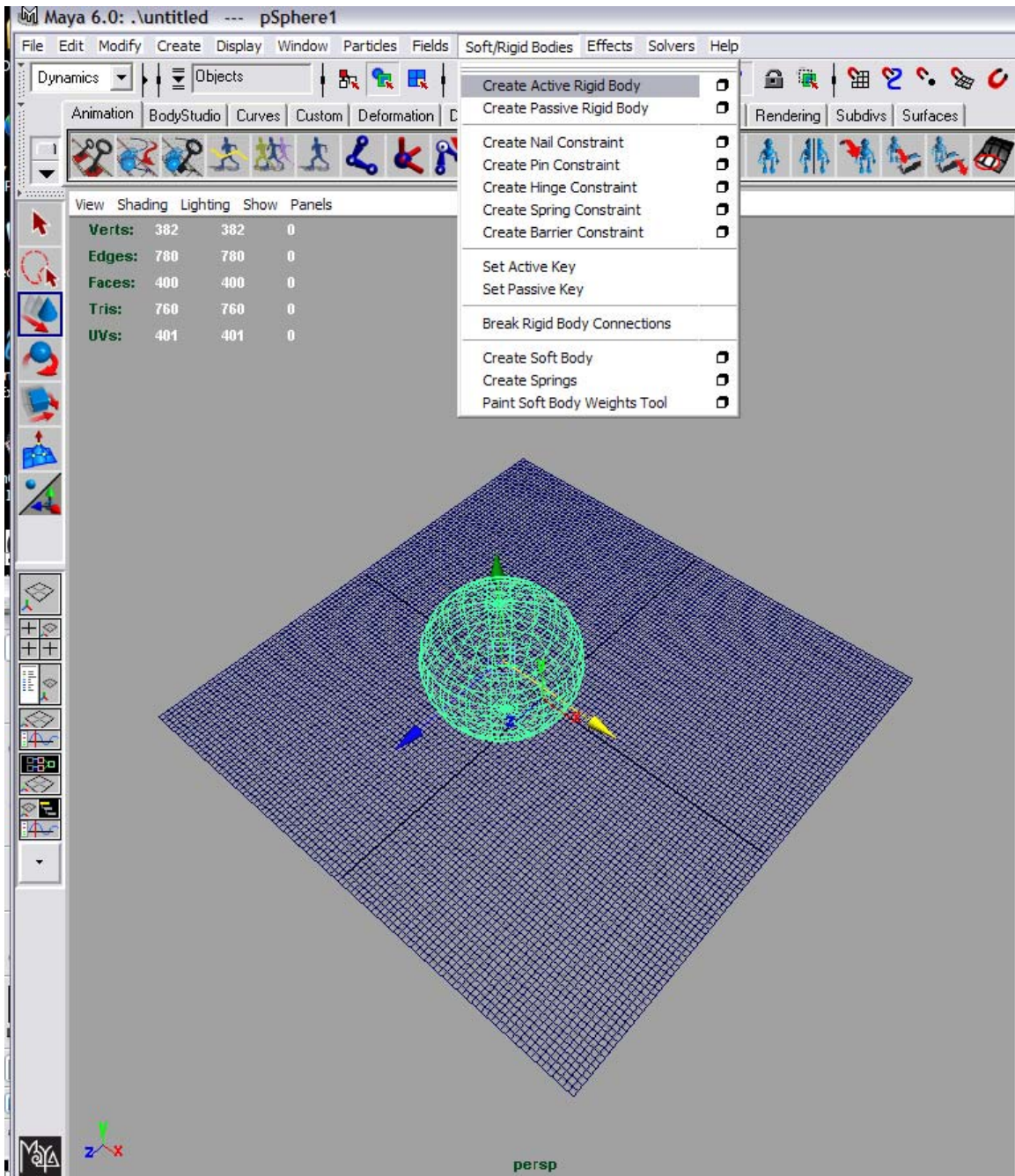
Go to Modeling > Create > Nurbs > Plane



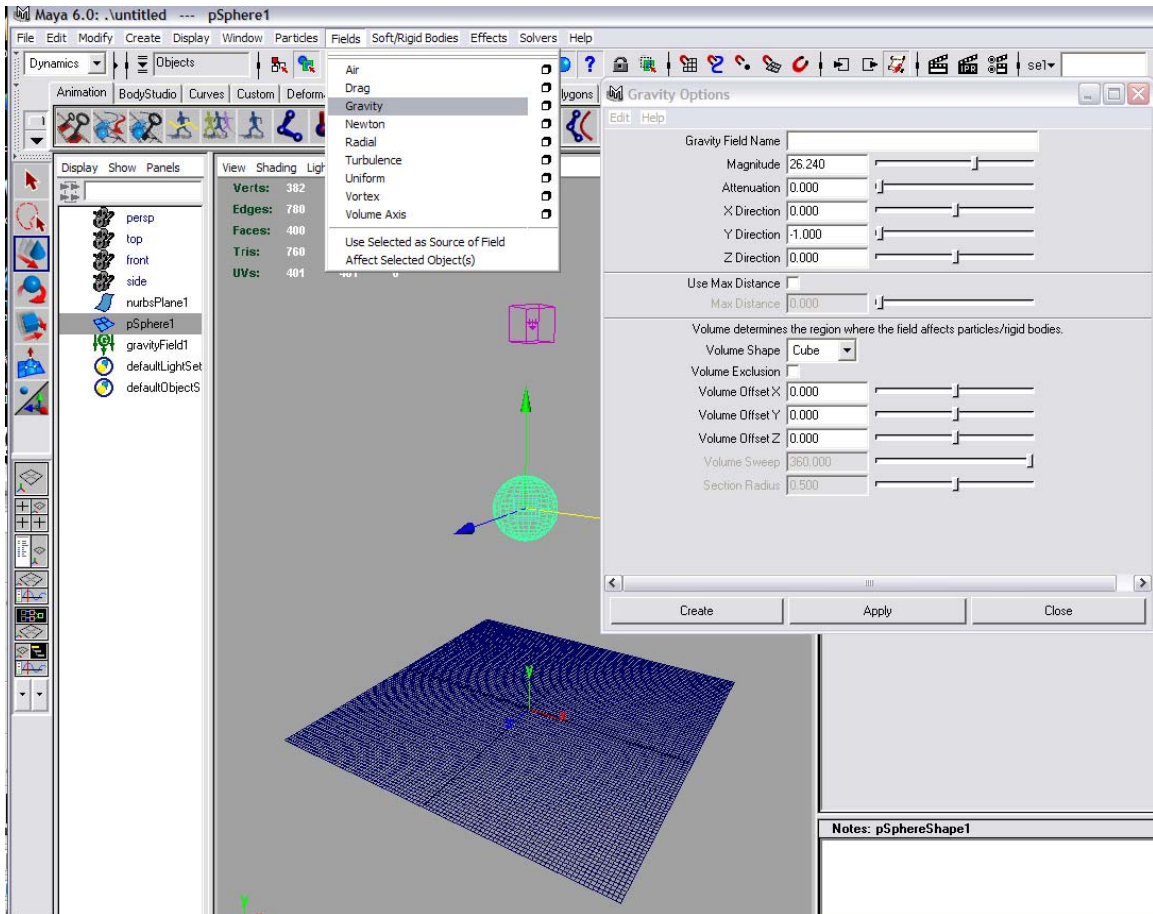
Create a plane for example a Nurbs plane subdivided 100 by 100



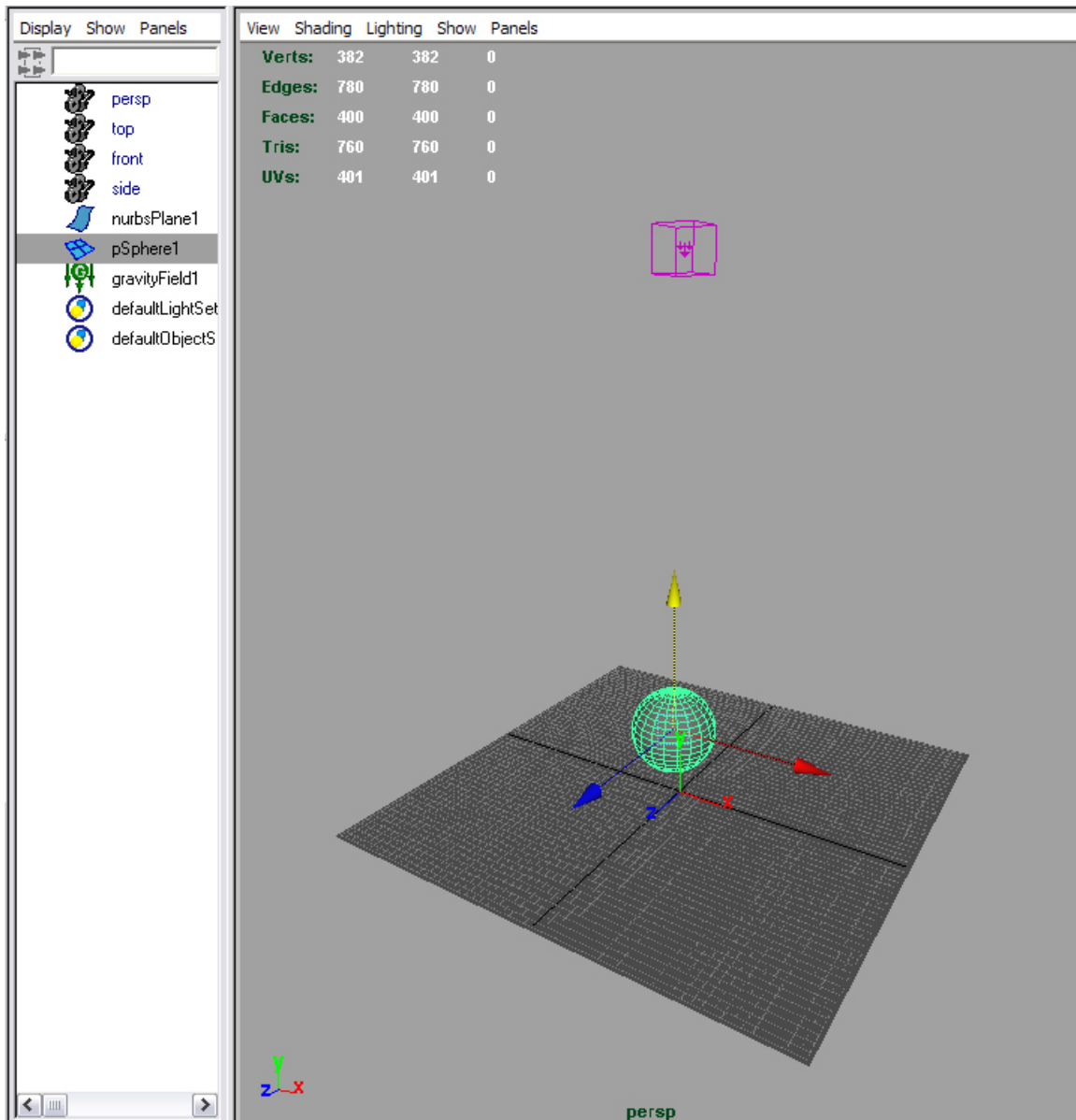
Create a sphere. Go to Modeling > Create > Polygons > Sphere. Place the Sphere above the plane.



Select the Plane, go to Dynamics > Create Passive Rigid Body  
Select the Sphere, go to Dynamics > Create Active Rigid Body

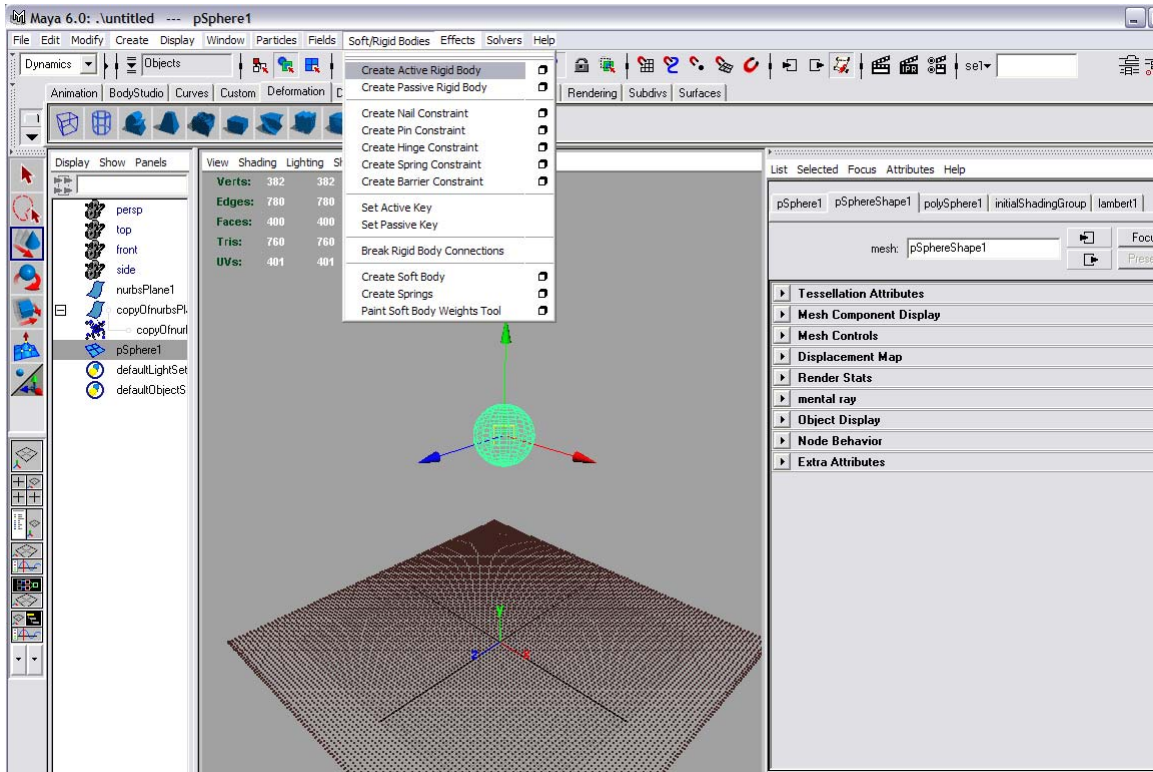


Select the moving object = the sphere and apply a gravity field. Go to Dynamics > Fields > Gravity. In the gravity field attributes, check Volume Exclusion. You can edit the Magnitude parameter in order to increase the Gravity from 10 to 25.

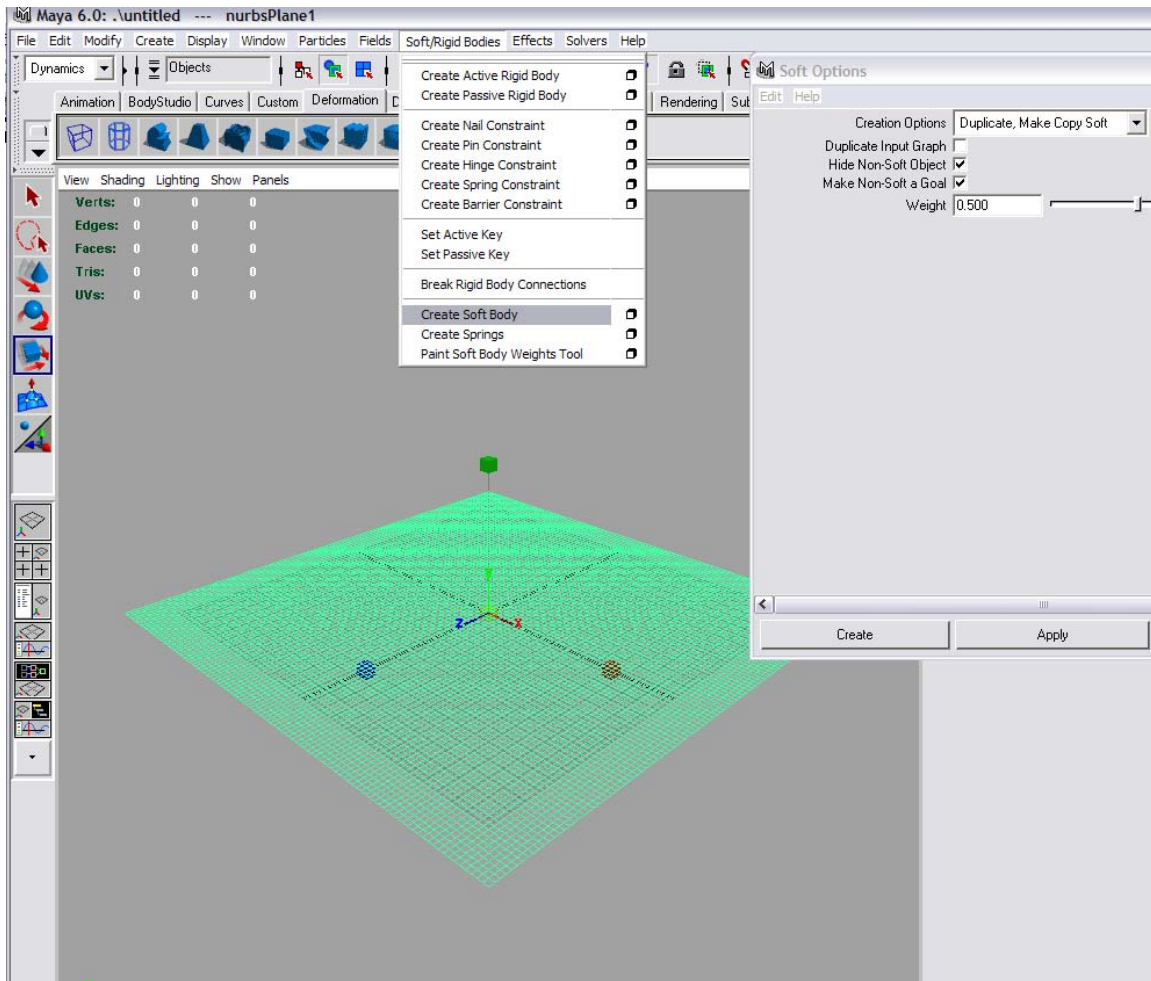


Reset the timeline to at least 500 frames. Set the to keyframe 1 and run the simulation. Please note that you can Playblast the rendering of the simulation , go to Windows > Playblast

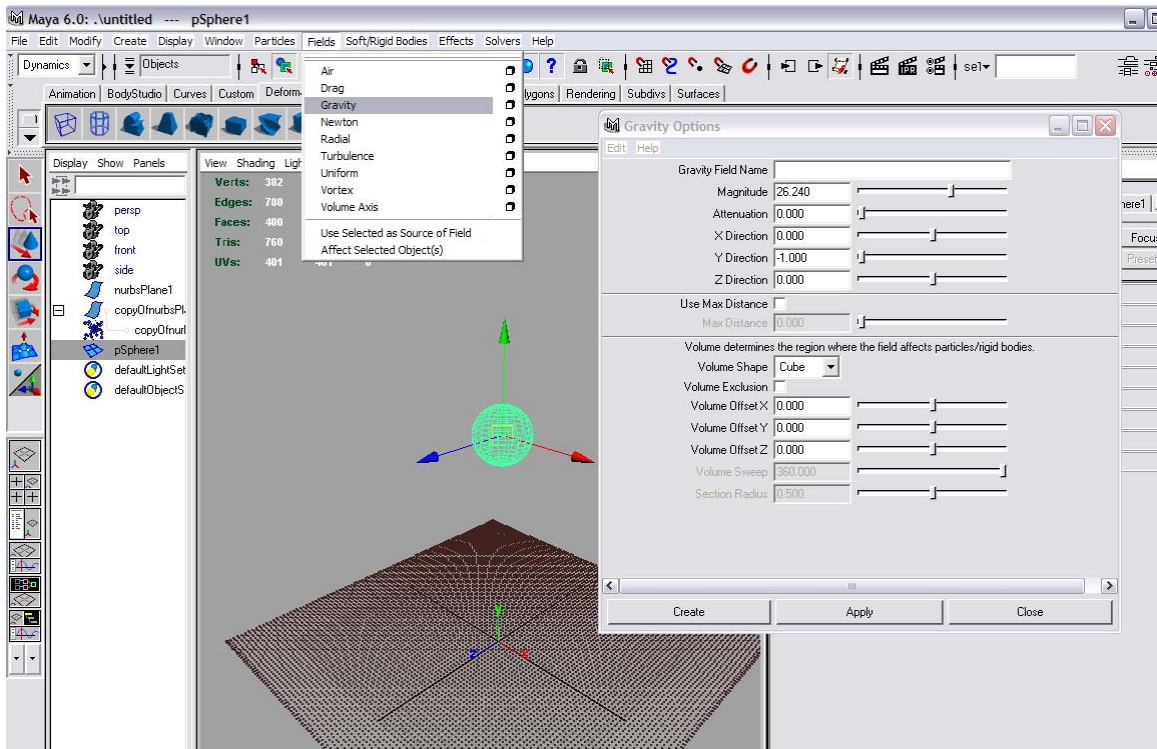
## 2 - Ball falling on a soft plane



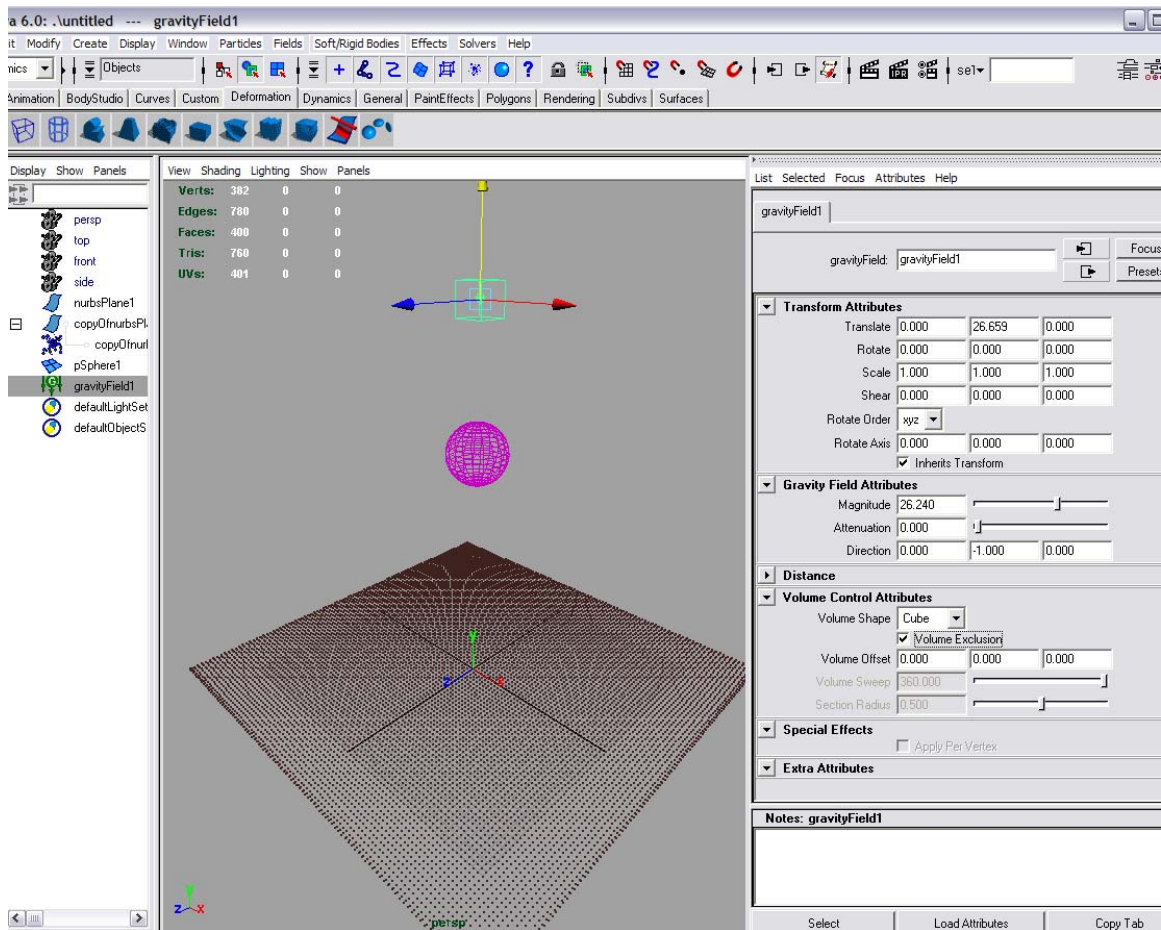
Create a Nurbs plane subdivided 100 by 100.  
Create a sphere. Go to Modeling > Create > Polygons > Sphere. Place the Sphere above the plane.  
Select the Sphere, go to Dynamics > Create Active Rigid Body



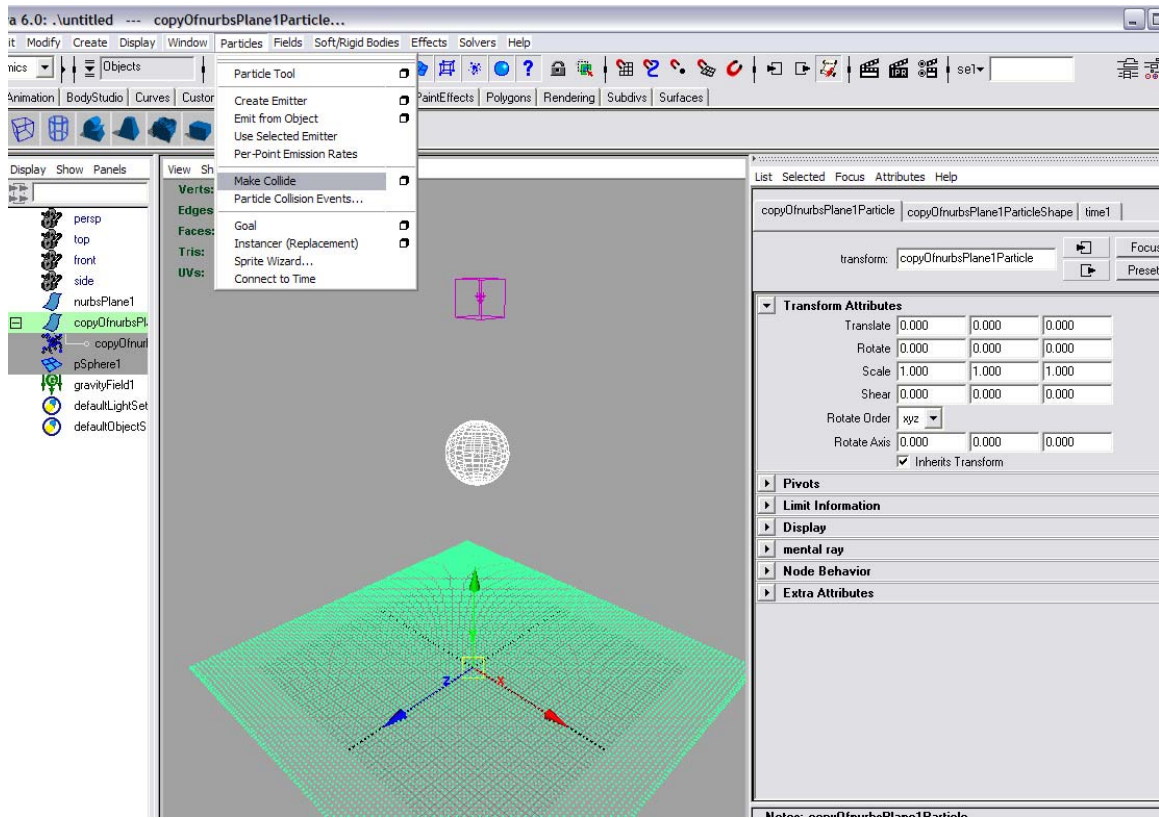
Select the Plane, go to Dynamics > Create Passive Soft Body, check the option Duplicate, Make Copy Soft. This will create an array of particles on top of the plane. We will work with these particles in order to create the soft body simulation. Let's hide the plane and show only the particles, go to Show > uncheck Nurbs Surface.



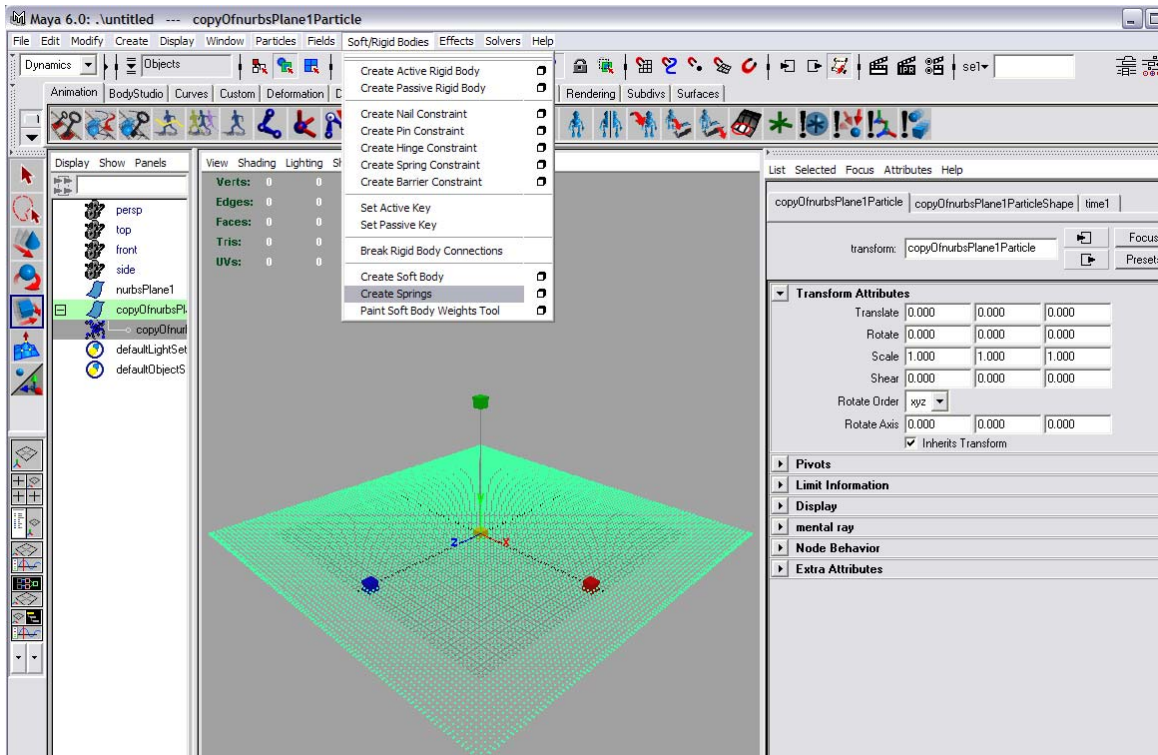
Select the moving object = the sphere and apply a gravity field. Go to Dynamics > Fields > Gravity. In the gravity field attributes, check Volume Exclusion. You can edit the Magnitude parameter in order to increase the Gravity from 10 to 25.



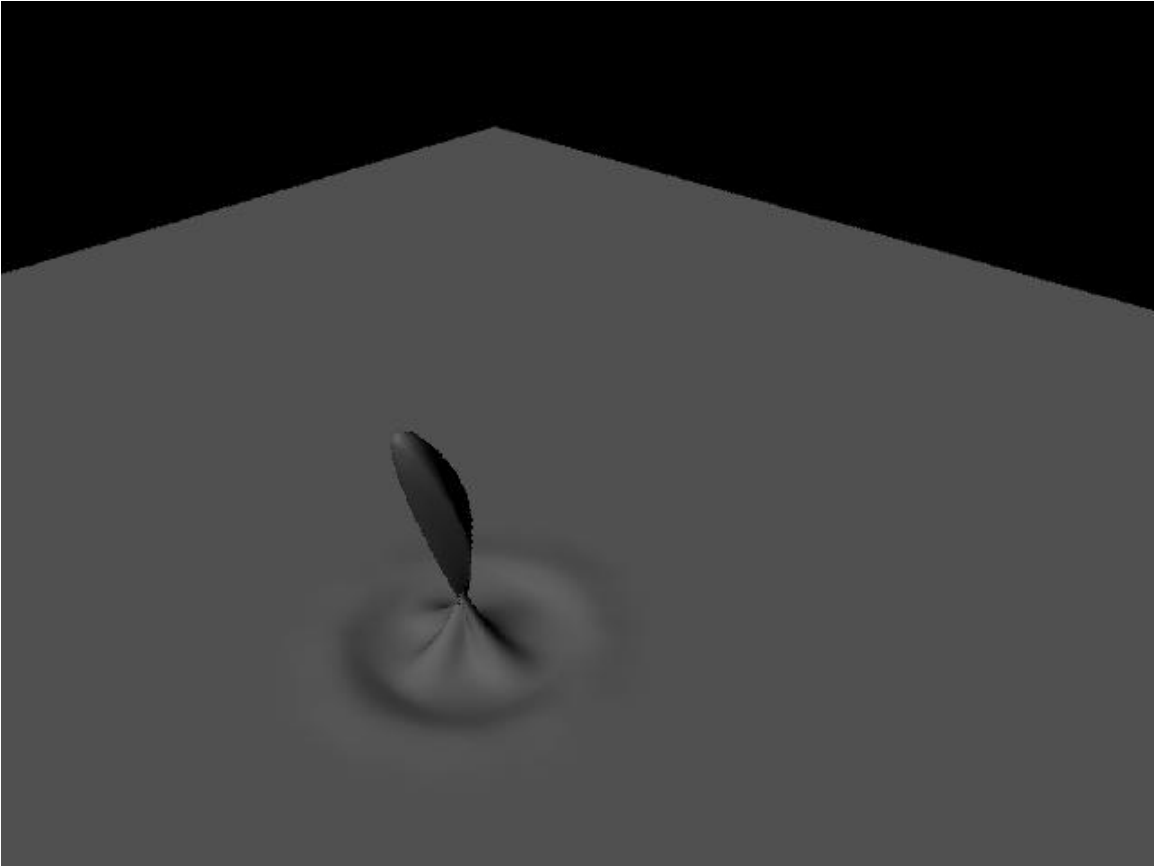
Select the moving object = the sphere and apply a gravity field. Go to Dynamics > Fields > Gravity. In the gravity field attributes, check Volume Exclusion. You can edit the Magnitude parameter in order to increase the Gravity from 10 to 25.



SHIFT Select the moving object = Sphere and the particle of the Nurbs plane, go to Dynamics > Particle > Make Collide.  
 Reset the timeline to - at least - 500 frames. Set to keyframe 1 and run the simulation. When the ball hits the array of particles, you will see particles jumping around



In order to smooth the motion we can create springs between the particles. Select the particles, go to Dynamics > Soft/Rigid Bodies > Create Springs.



Render an animation of your simulation