# Bike Crank - Physics Setup

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## Physics Setup

Recall that during the Start-Up step, we added a material with the desired values of Young's modulus and Poisson's ratio. This just added the material to the list of materials available within this project. We need to assign this material from the material list to the model as shown in the following video. Otherwise, ANSYS will use the Young's modulus and Poisson's ratio for structural steel which is the default. This step is easy to overlook.

Summary of steps in the above video:

1. Under the tree, highlight Geometry and click on the part in interest (Bike Crank)
2. In Details window, under Material, change Assignment to Al 6061

Next, we apply the boundary conditions i.e. displacement constraints at the 3 left holes and traction on part of the right hole. Boundary surfaces where we neither apply a displacement constraint nor traction are assumed by ANSYS to be free surfaces with zero traction.

Summary of steps in the above video:

1. Under the tree, highlight Static Structural
2. Click Supports > Fixed Support
3. Zoom into the region with the three holes and highlight all three holes > apply
4. Now zoom into the hole on the opposite end
5. Click Loads > Force > Highlight the inside facing circular hole > Apply
6. Scroll down to Y Component and enter 100

**Go to Step 5: Numerical Solution**

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