

Turning a sphere.
Dale Larson
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I generally turn spheres between 3 1/2 inches and 5 inches. This is the size that is feel friendly in the hand. Also smaller than that and bigger than that are harder to turn. I also turn most spheres out of burl because I don't have to deal with endgrain. This is especially true if I am going to put beads on the sphere. Turning beads on end grain is tough.

1. Put the piece of wood between center and turn round.
2. true up one end square.
3. take the calipers and measure the diameter
4. Using the calipers mark the diameter along the length of the cylinder measuring from the trued up end
5. true up second end so the diameter and length are equal
6. measure the length of the cylinder and put a pencil mark around the middle of the cylinder
7. turn both ends round without going below round or touching the center line. It is better to leave a little extra wood at this step because you can take it off the next step. Leave a little flat near the points on each end for measuring
8. Take the roughed out sphere off the lathe and remove the extra wood where the points were holding it. Put the cup chucks in the headstock and tailstock livecenter.
9. Looking at the center line of the rough sphere, rotate it 90 degrees and put the line parallel to the bed of the lathe and lightly close the cup chucks to hold it in place.
10. using a small ruler center the sphere in the cup chucks. This is done by moving the tool rest close to the sphere. You have to make the distance from the tool rest to the sphere the same in two ways. Using the flat on the "ends" of the rough sphere, make them equal distance from the tool rest. Then use the two sides of the pencil line and make them equal from the tool rest. This gets the sphere back to center.
11. tighten cup chucks on sphere
12. when you turn lathe on now you will see a shadow and a solid sphere. The solid sphere is round. The out of round is the shadow so turn it off. You have to be nice and use a light touch or you will knock the sphere out of round.
13. mark another line on the new center.
14. Take the sphere out of the cup chucks and put both lines parallel to the bed. You will notice that there are two points where the lines cross from the two pencil marks. These two crosses go into the cup chucks. This puts both lines parallel to the bed.
15. center the sphere again using step 10.
- 16 When you turn on the lathe there will be a small shadow. Turn this off and you now have a sphere.
17. If you do each step correctly, turning on three axis results in a sphere. If you make a mistake and turn it a little small in one area, just mark a new center line and rotate it 90 degrees and turn it again. Repeat this step as many times as needed to get it round.
18. sand the sphere moving it at least twice between cup chucks for each grit.

To see how good you are and how accurate you are with each step, take your calipers from the original diameter and check the finished sphere. The more accurate you are during the process the closer the original diameter and the finished sphere will be.

Turning the sphere can be just the first step. It can then be put in a jam chuck and hollowed out. It can be textured or have a design put on it while in the jam chuck. The possibilities are almost unlimited.
Have fun.