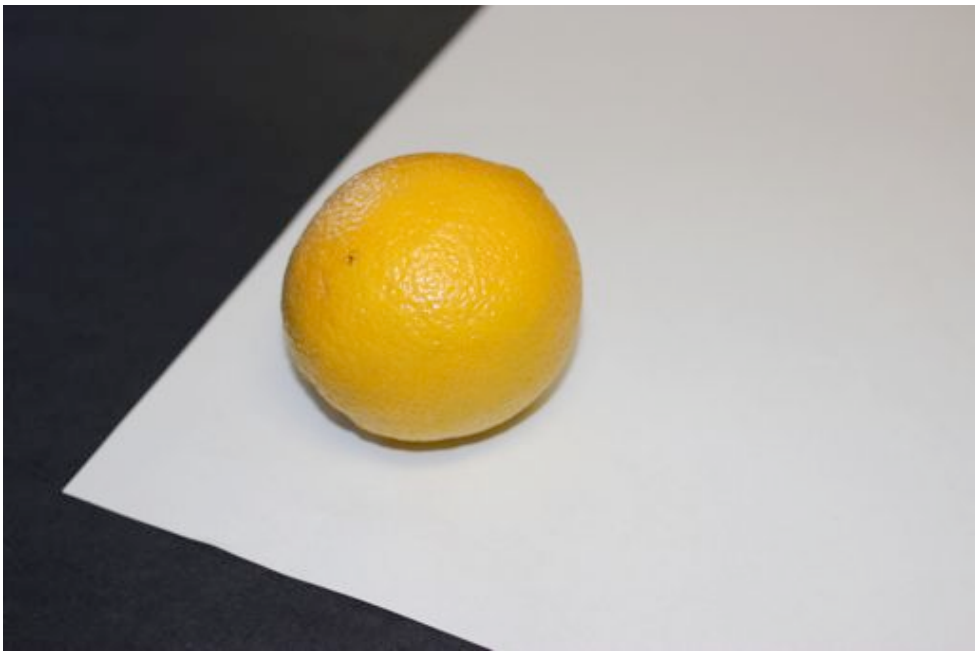
USING AN ORANGE TO DETERMINE THE SURFACE AREA OF A SPHERE

You will need:

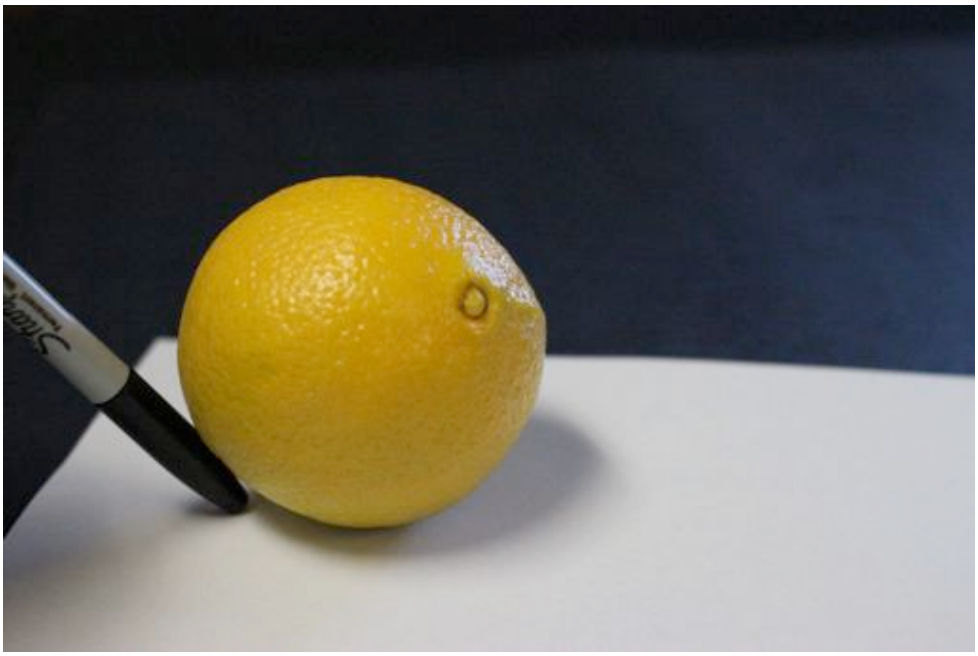
a) 1 piece of ledger size paper
b) 1 orange
c) 1 writing utensil
d) a friend to work with you to ensure accuracy of the procedures.

Take the orange and place it in a corner of the page so that the entire circumference of the orange is on the paper

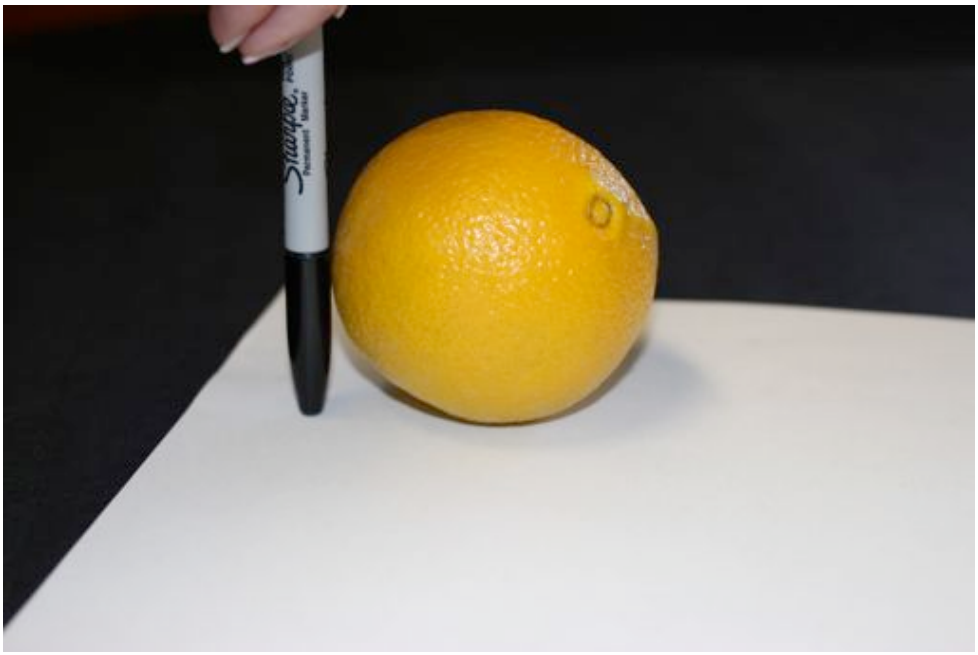


Hold the orange in this spot and slowly and carefully trace around the diameter. This looks easier to do than it seems. You may want to have someone hold the orange while you trace around the orange. Make sure your pencil is tracing the widest part of the orange.

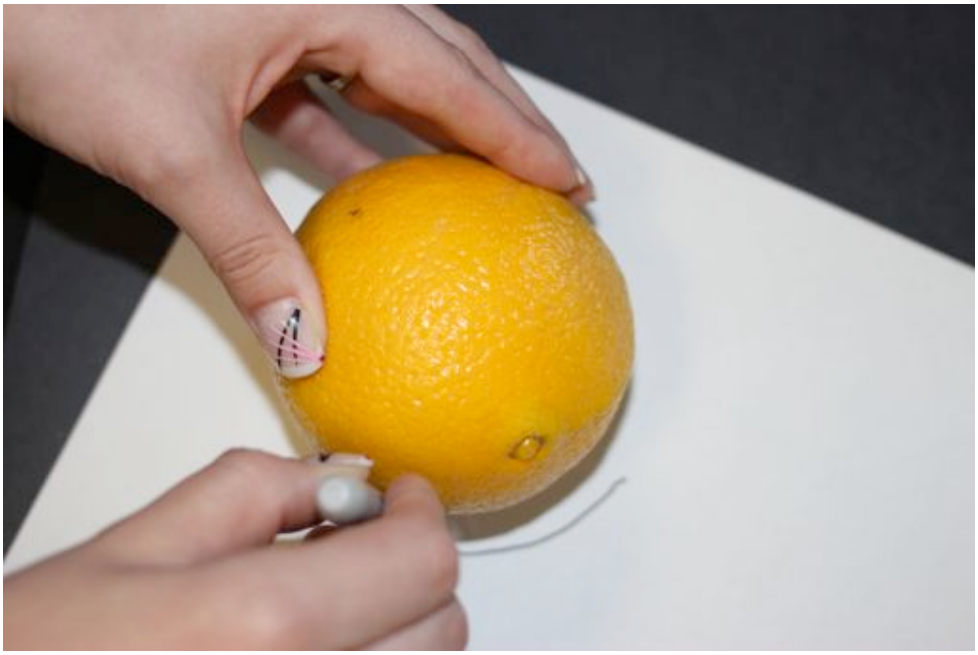
IMPROPER TECHNIQUE:



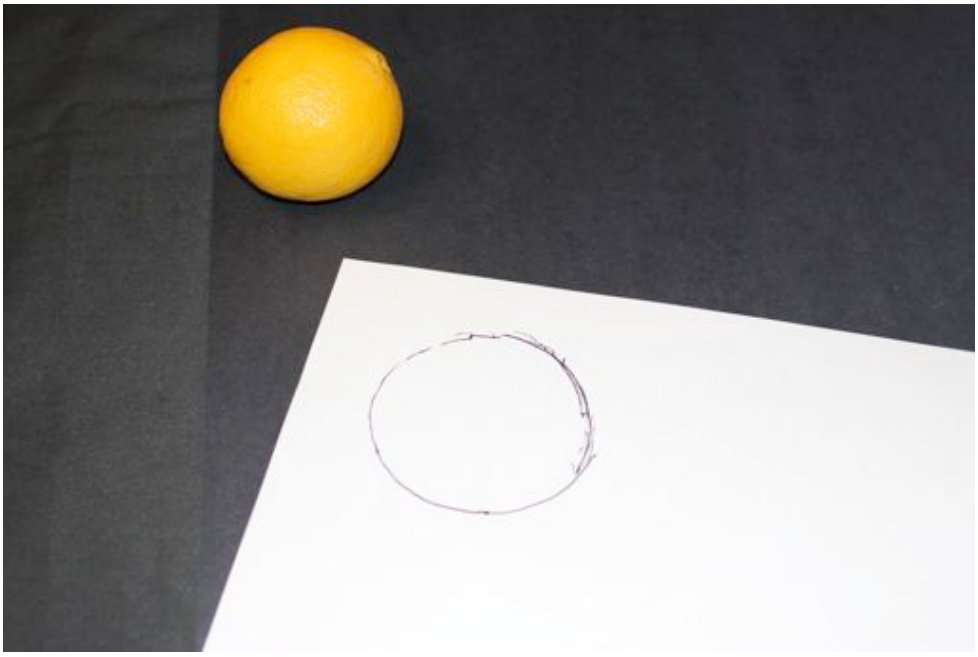
PROPER TECHNIQUE:



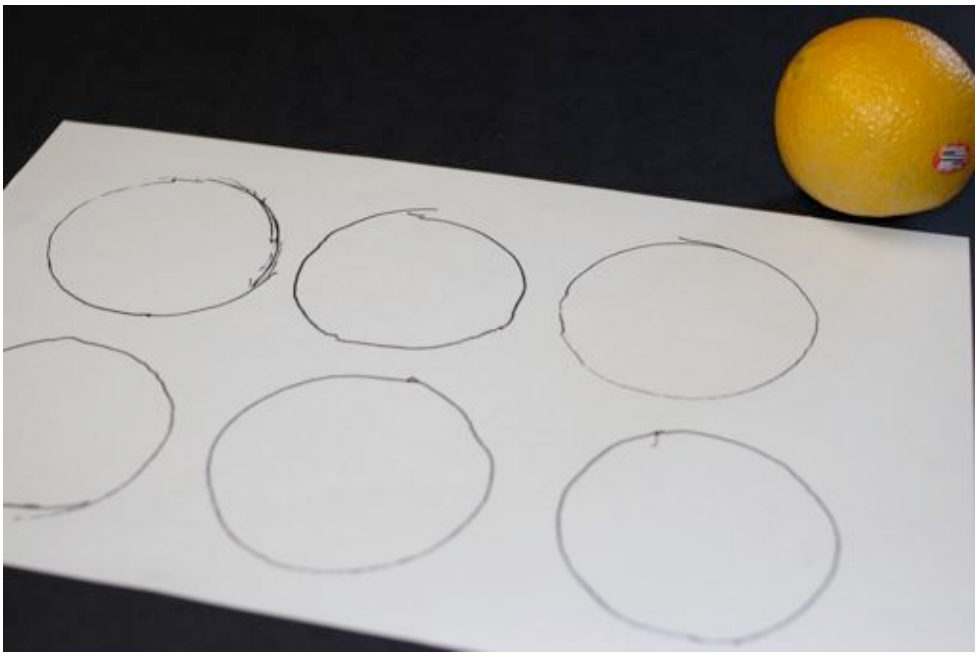
When tracing try to get as accurate of a circle you can. You may want to practice a few times first before committing to paper.



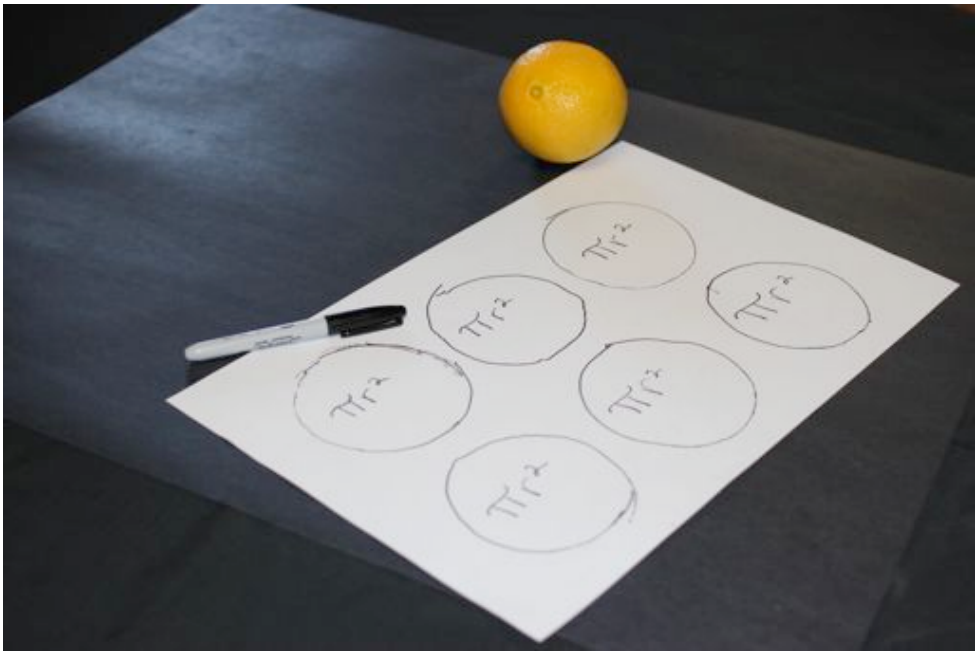
Your circles will not be perfect – it is difficult to control the tip of your writing utensil!



Continue this procedure until you have filled the piece of paper with as many tracings of the orange as possible.



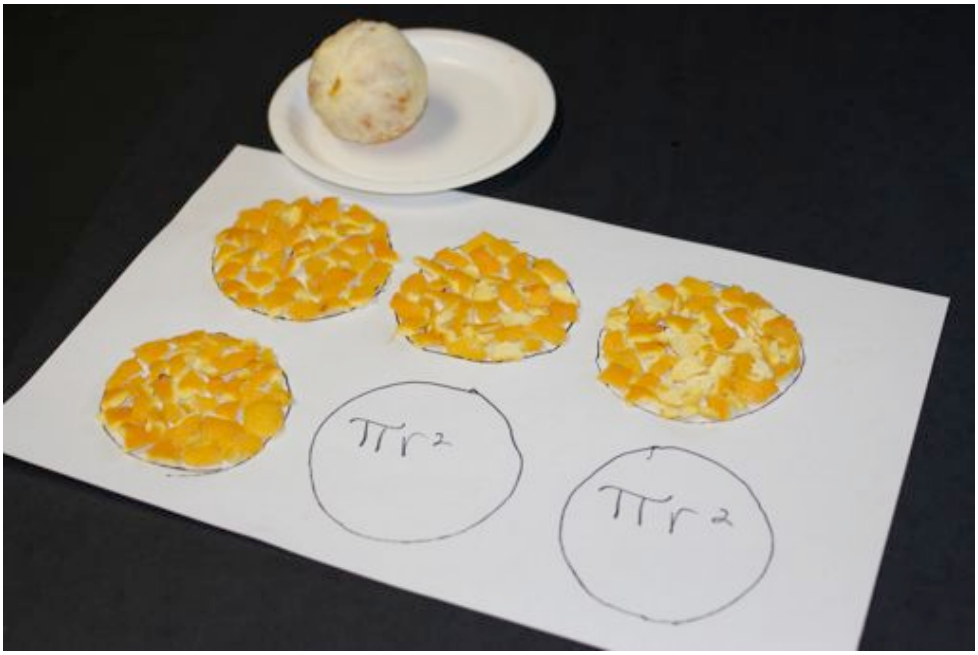
Recall that the area of a circle is $A = \pi r^2$ Write this formula in each of the circles.



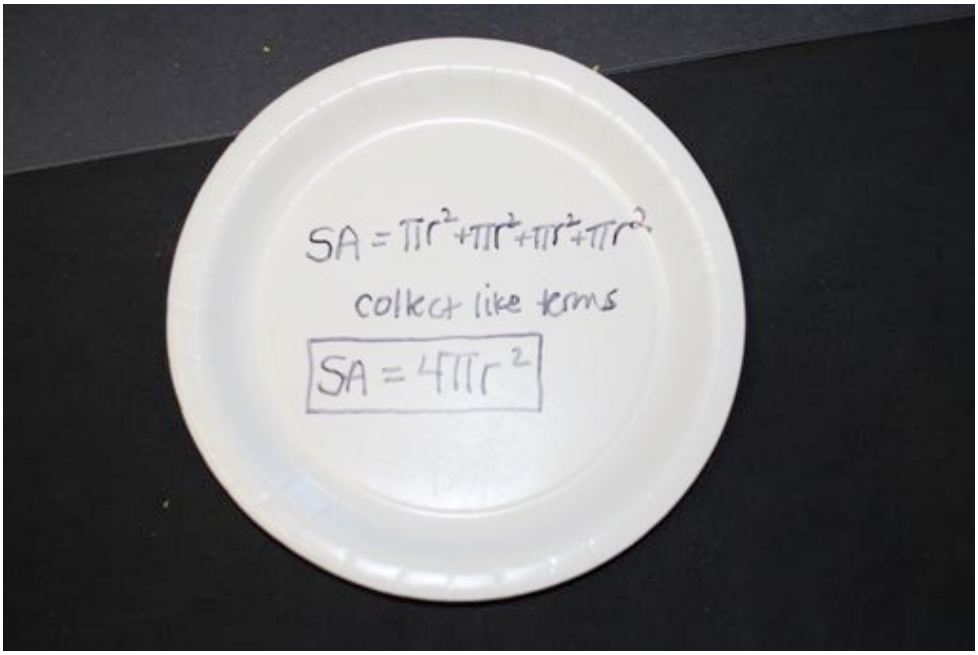
Now peel the orange. Take the orange peels and break them into pieces as small as possible. The smaller the pieces the more accurate your results will be.

Once you have the orange peels broken into pieces, fill in the circles with the small pieces of orange peels. Fill as many circles on the page.

Now count how many circles you have filled. This tells you how many "πr^2"'s you have. How many πr^2's did you fill? This total gives you the formula for the surface area of a sphere.



RESULT: Surface formula for surface area of a sphere!



Last step: eat the orange!