

Question #366

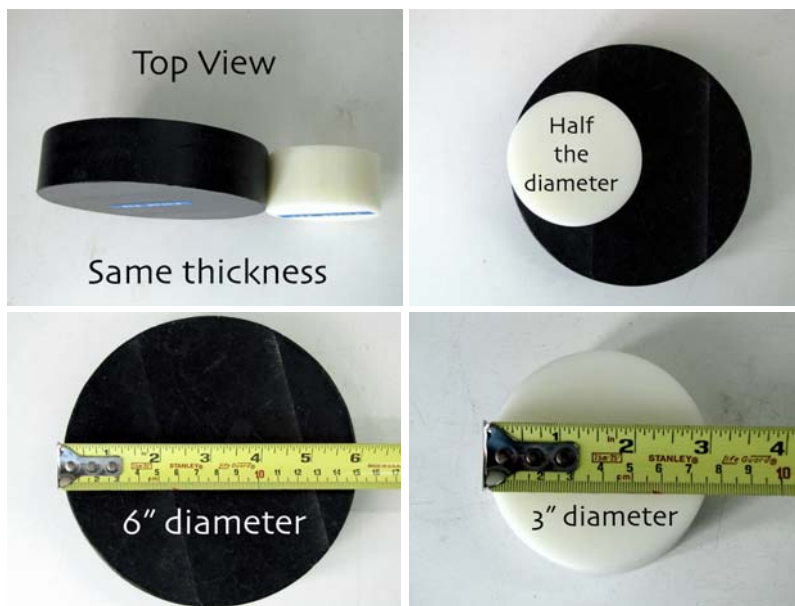
On your mark -- get set -- go! This week we get ultra-practical with a down-to-earth physics race. (Click on any of the photographs to see the image in more detail.)



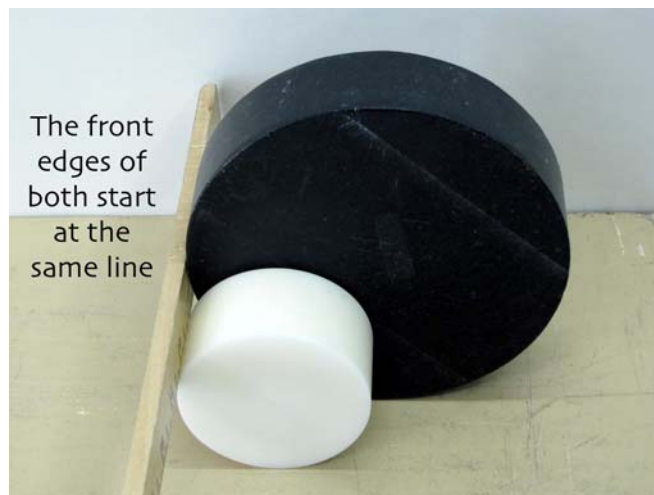
The contestants are two solid discs, one with a mass of 655g and another of 255g. (We had some trouble soliciting applicants.)



Both are of the same thickness, but one is exactly half the diameter of the other. Notice however, that unlike you might expect, the masses are not in a 4:1 ratio -- the densities of the two materials are not the same!



Question: Using all the physics tools you can muster we ask you to respond: which of the two will reach the finish line first?



- (a) The bigger one will, because it is heavier and will pickup greater momentum.
- (b) The little one will, because it is light and travels fast.
- (c) The bigger won't, because it has greater rotational inertia.
- (d) The little one won't, because the ramp will exert less torque on the smaller wheel.
- (e) Etc, etc, etc. (you must explain!)

Click here for [Answer #366](#) after April 12, 2010.

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For questions and comments regarding the *Question of the Week* contact [Dr. Richard E. Berg](#) by e-mail or using phone number or regular mail address given on the [Lecture-Demonstration Home Page](#).

The Great Race




David and the Goliath



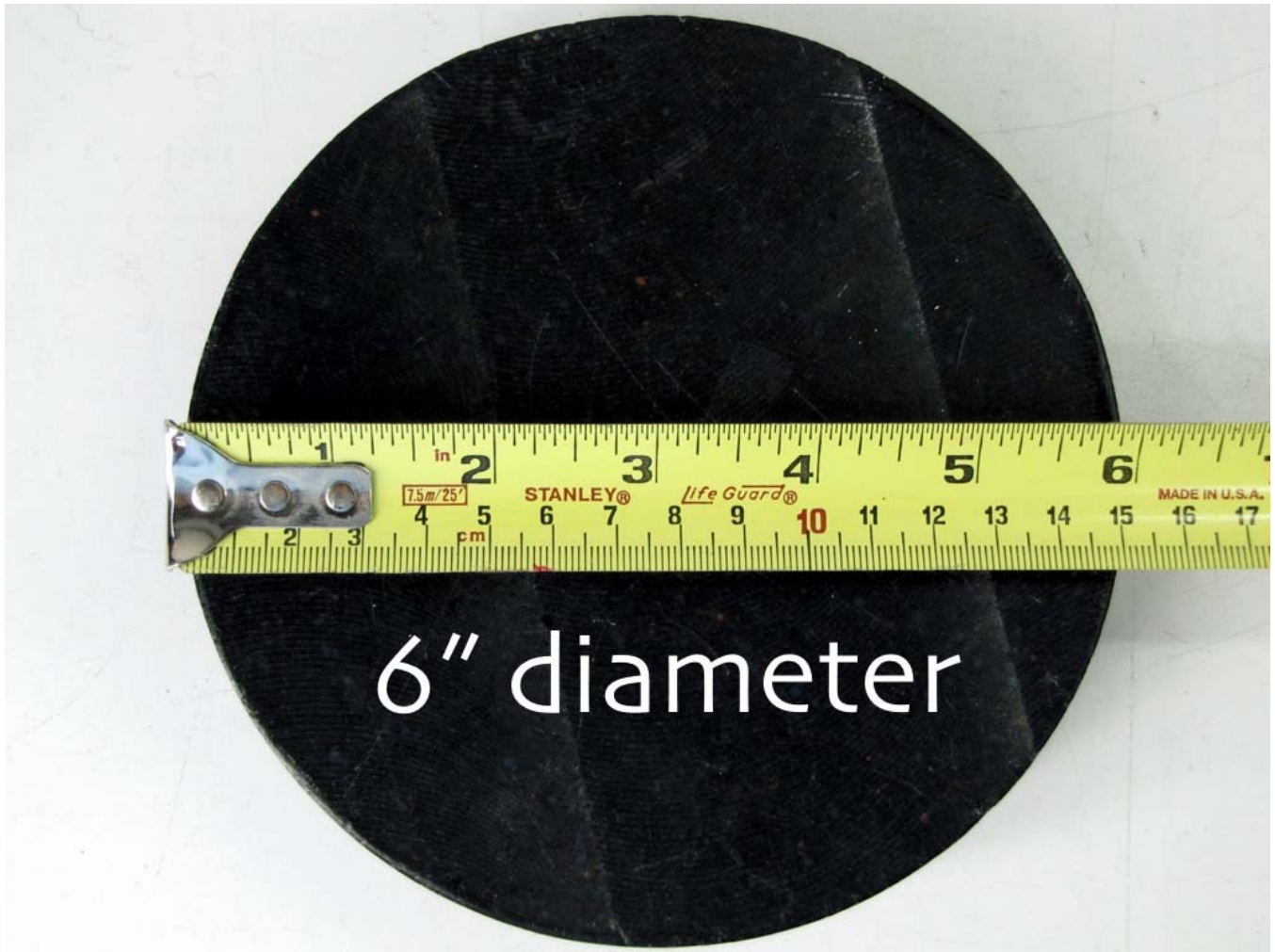
Top View



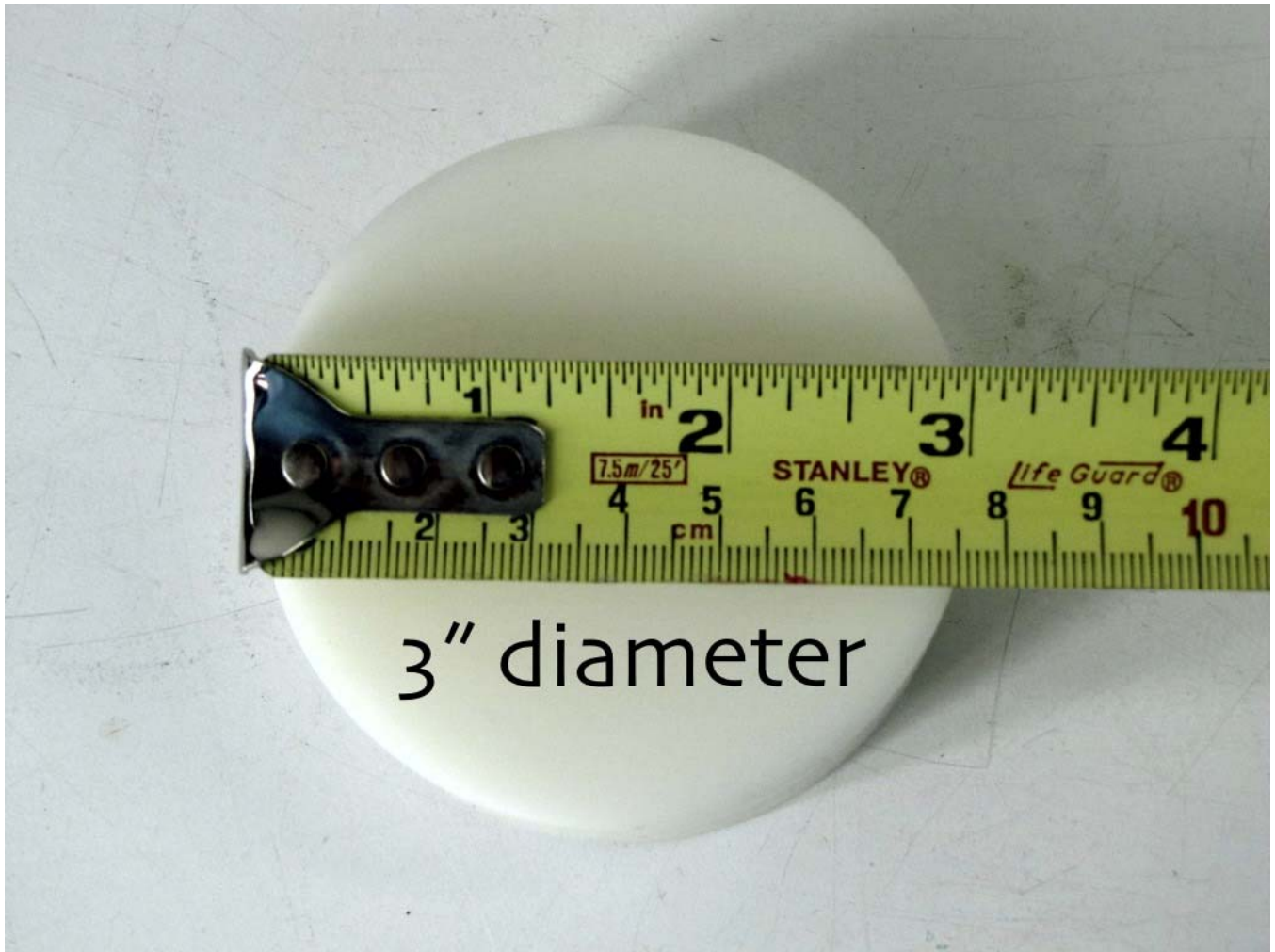
Same thickness



Half
the
diameter



6" diameter



3" diameter

The front
edges of
both start
at the
same line

