Iona Physics
To investigate the acceleration of gravity at different angles.

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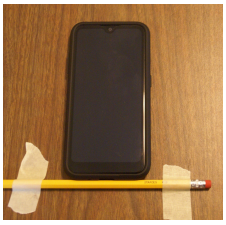
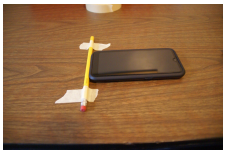
Devise a setup where you can prop up your phone in such a way that the long axis of the phone can be inclined to the horizontal. It needs to be stable, so that you can make two different measurements without having the angle shift. Use your creativity, but these pictures will give you one idea of how to set this up. You may use a different method.

				
The pencil is really not needed yet.	Flat side view. Pencil still not needed.	Now the top is propped up a bit. The pencil prevents the phone from slipping.	Higher angle	Even higher angle

Now starting with the phone flat on the table and using the acceleration with g function of Phyphox, go to the absolute tab, and measure the acceleration. (No, the phone is not really accelerating, this is actually measuring a force and converting it to acceleration.) Read the acceleration in the axis which is perpendicular to the face of the phone. (In most cases that will be the z axis).

Without changing the angle, switch to the Inclination function of Phyphox and using the flat tab, record the Tilt up/down angle.

Now change the angle. You can do that by putting something (a few coins or a small block of wood) under the top of the phone and repeat your measurements. Repeat that at least 5 times, each time at a larger angle.

Record your data in a table like this.

Acceleration (Perpendicular to the face of the phone) (m/s^2)	Inclination (tilt) angle Flat tab. Tilt up/down (degrees)	Cosine of Tilt angle (calculator must be in degrees mode)	Acceleration / cosine of tilt angle (m/s^2)

The inaccuracies probably limit your last column to 2 significant figures. Is the last column consistent?

Now think about vector components, and explain why the last column is consistent.