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Accuracy of an iPhone 12's Accelerometer on Five- and Fifteen-Degree Inclines ERIN SCHRIEVER, Randolph College — Access to tools for taking scientific measurements in high school classrooms is important. New and sometimes hard to grasp concepts are easier for students to understand when a demonstration or lab activity can be completed. Smartphones contain sensors that can provide these tools for a lower cost to classroom settings. When considering use of a specific sensor, something to acknowledge is how accurately it takes measurements. In this experiment, the accelerometer in an iPhone12 and a PASCO Scientific Wireless Accelerometer/Altimeter (PS-3223) were compared. To do this, both were attached to a dynamics cart and sent down an incline of five- and fifteen-degrees to compare measurements of constant acceleration. When comparing the data, a discrepancy was found. Measurements from the fifteen-degree incline were consistent across the devices, however measurements from the five-degree incline were not. The data from the five-degree incline showed the acceleration of the iPhone12 decaying as it went down the ramp. This result indicates that an iPhone12 may not be the most effective replacement to a specialized tool for measuring constant accelerations on small inclines.

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