Acceleration of the elevator at the district office building

Take a spring scale, a large mass (say 20kg) and a video camera to the elevator in the district office building. You may want to pack it all in a bucket and carry it between the two of you. Place the mass on the scale. Push the elevator button to go up a floor. Start filming the scale before the elevator moves. Film until the elevator is going smoothly up at a steady rate. We are trying to see how much higher the scale reads while the elevator is accelerating. F = mass * acceleration, so this type of scale really reads force. Numbers have been placed on the dial to indicate what a mass of 10kg will read on a stationary floor on the earth's surface. (It would not read the same on the moon, since this is actually a force meter, not a mass scale. So a reading of 10kg on earth represents a force of 10kg*10m/s/s = 100 N) While the elevator is accelerating up, the increase in force read by the scale is caused by an increase in acceleration times the mass that is on the scale. Write up a report in word explaining your procedures and calculations, and e-mail that to Mr. Shumway