Audience: Year 7/8 students (11 – 13 years old)

What we need:

IMU’s

iPhone/iPad’s

~~1 m ruler/some sort of measurement tool~~ Infeasible, ruler does not show up well on camera

Stopwatches

Talk about what an IMU is, pass some around for the students to look at. Talk about the advantages of them?

Talk about what they are currently being used for… NBA etc?

Talk about what we want them to be used for

Two options:

1. Split into a number of groups and go over the basic idea with our individual groups
2. Talk to the entire class about the basic idea and then split off to do experiment

Give each student a handout, which they will be able to fill in during the experiment.

Two methods: time of flight and double integration

**Time of flight**

~~1 student to hold the ruler?~~ Infeasible, ruler does not show up well on camera

~~1 student to film?~~ Infeasible, ruler does not show up well on camera

3 students to time?

1 student to jump.

3 jumps each?

Each student fills in the 3 times of their own jump on their worksheet. Calculate the mean to get 1 time (do they know how to do that yet?)

Put the time into the equation to get an estimate of jump height.

Either tell them what we think the height is then or do a reveal at the end.

Both methods get different results, do we average them? Use just one?

**Integration**

Isn’t much extra to do here.

Get students to describe what acceleration, velocity and displacement are?