# ANGRY BiRDS AND PROJECTiLE MOTiON



**(Who says Maths isn't any fun? Can't see any other subject (legally) playing Angry Birds!)**

So here's your chance – you need to play Angry Birds, time the attempt and take a photo of the projectile path.

Make sure you justify your solutions.

1.  Note the time of flight of your angry bird.

Drop your photo into Field Protractor

Assume the pig is 1 metre in width (he's on a good paddock!)

2.  Measure the horizontal range ($x$) that your angry bird travelled (assume that the bird is released when the strap touches the ground).

3.  Measure the maximum height ($y_F$) your angry bird travelled.

4.  Measure the initial angle of projection.

Assume g = -9.81m/s$^2$

5.  Calculate horizontal velocity $V_x = \dfrac{x}{t}$

6.  Calculate initial vertical velocity (V$_{yi}$) using the formula $\left(V_{y_F}\right)^2 - \left(V_{yi}\right)^2 = 2gy_F$

7.  Calculate initial velocity $(V_i)^2 = (V_x)^2 + \left(V_{yi}\right)^2$

8.  Derive the equations of motion.

9.  Calculate the velocity and the angle at which the angry bird hits the ground.

10. When finished, present your solutions (complete with a photo of the flight with angles and measurements) to another member of the class to check.