The Physics of Sports!

READ!

The world’s best runners are Sprinters or Marathon Runners. This is because they are usually either good at speed or endurance (lasting a long time). Scientists study runners to find out why. This is what they know:

1. How fast you go depends on how fast your muscles change glucose into energy to make your muscles contract.

2. How long you stay strong depends on how good your muscles are at stopping lactic acid from building up inside them.

Scientists also know that Sprinters have fast-twitch fibers in their muscles which are good at converting glucose, but not good at stopping lactic acid build-up.

Marathon runners have a lot of slow-twitch fibers in their muscles which stop lactic acid build-up, but convert glucose in a slower way to keep them going for a long time.

TEST YOURSELF!

Choose an activity below to do with a partner. See which of you can do the activity faster & which can do it for longer.

A) Jumping Jacks – find a clear area & jump up & down

B) Makahiki Finger-Pull – pull against any resisting force with your index finger (do with partner, or with tied up string)

MAKE A CHART!

Show your results on the back of this sheet - include the number of times you & your partners did the test, how long you did it for, & how many times you contracted your muscles in the activity you chose.

QUESTION: Are your muscles the fast-twitch or slow-twitch kind? Why?

Write your answers on the back of this sheet under your chart.