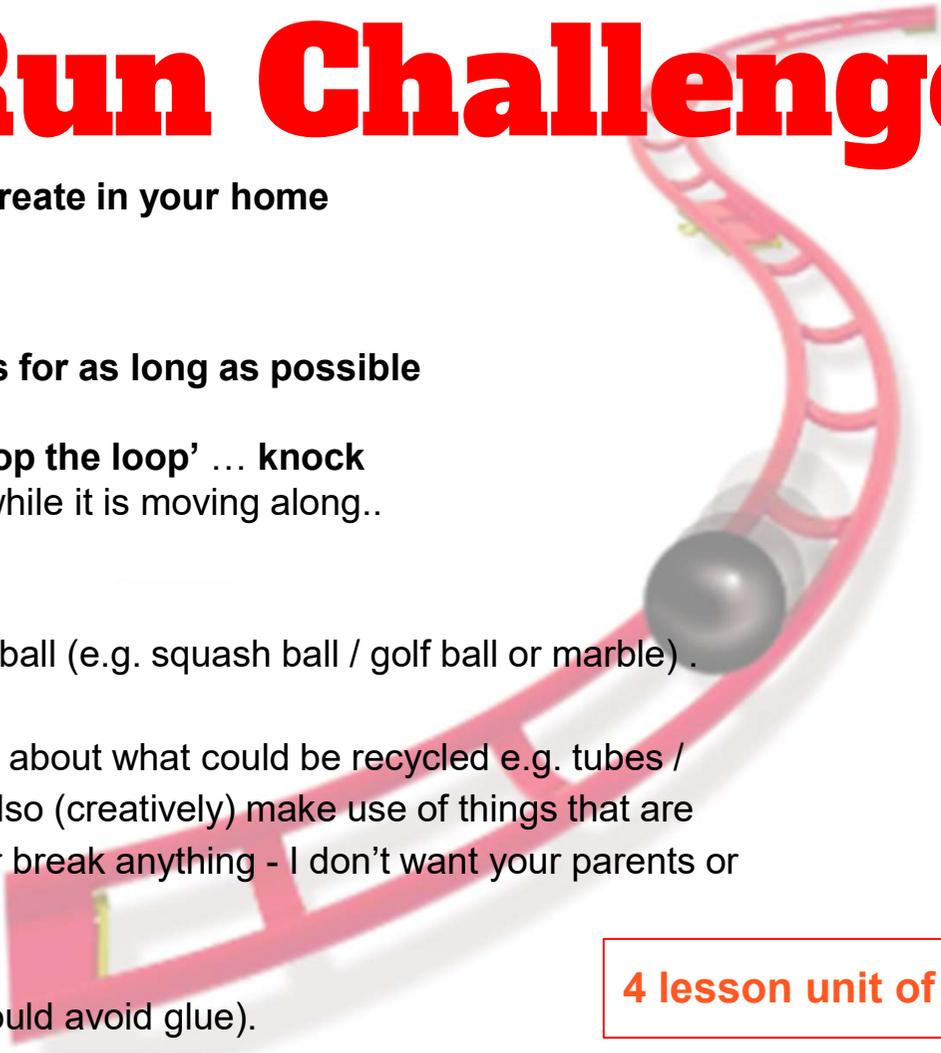


Marble Run Challenge



Only do this if it is possible for you to create in your home

Create a marble run that includes;

At least **one jump... an incline.. and lasts for as long as possible**

Extra house points if you can make it 'loop the loop' ... **knock something over** or **activate something** while it is moving along..

Equipment:

To do this challenge you will need a small ball (e.g. squash ball / golf ball or marble) .

You would need access to materials (think about what could be recycled e.g. tubes / cardboard / packaging etc) or you could also (creatively) make use of things that are already in your home (but don't damage or break anything - I don't want your parents or siblings to get angry with you).

You may well need some sticky tape (I would avoid glue).

4 lesson unit of work

Virtual Marble Run - let's start with this

To get you into the creative mindset - why don't you have a go at doing a virtual marble run. This little 'on line' application allows you to make something in 2D . there are a other ones already done you can look at.

<https://www.marblerun.at/tracks/new>

(10 minutes max)



This could be cropped out of the webpage and kept safe till the end of this unit of work.

Then you could paste it onto a small part of your named hand in slide - more information on this given during lesson 3 of challenge week

Video Inspiration



The science behind it



How does it work?

To help you to control the time your marble takes to run its course you'll need to consider a few factors:

Potential energy = mass x gravity x height

The heavier your marble and higher your slope, the more energy your marble will have.

Friction

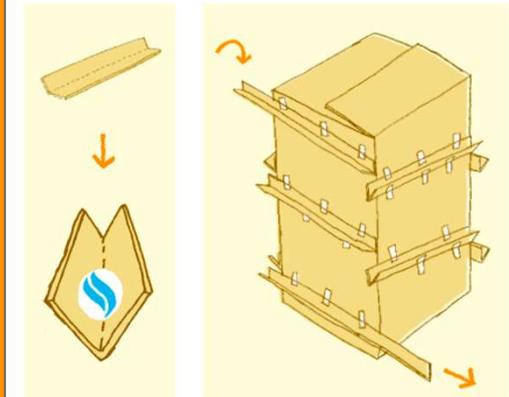
The rougher or stickier the surface, the slower your marble will travel.

Angle of the slope

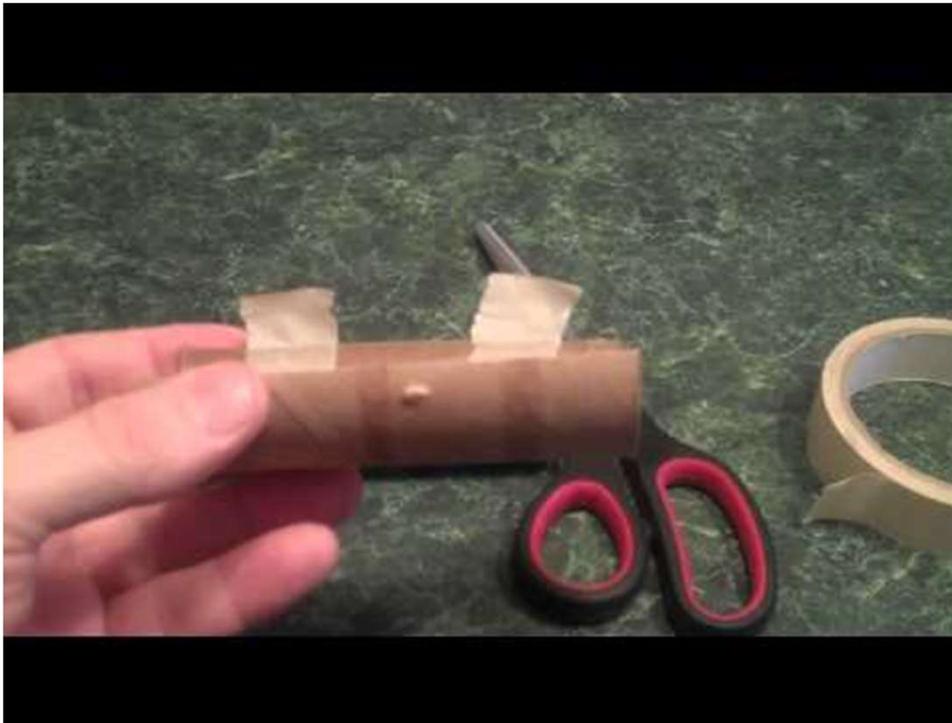
The less steep the angle of the slope, the longer the marble will take to reach the bottom.

Top tip

If you can't find cardboard struts, make your own by folding four inch wide strips of cardboard in half to create a V shape.



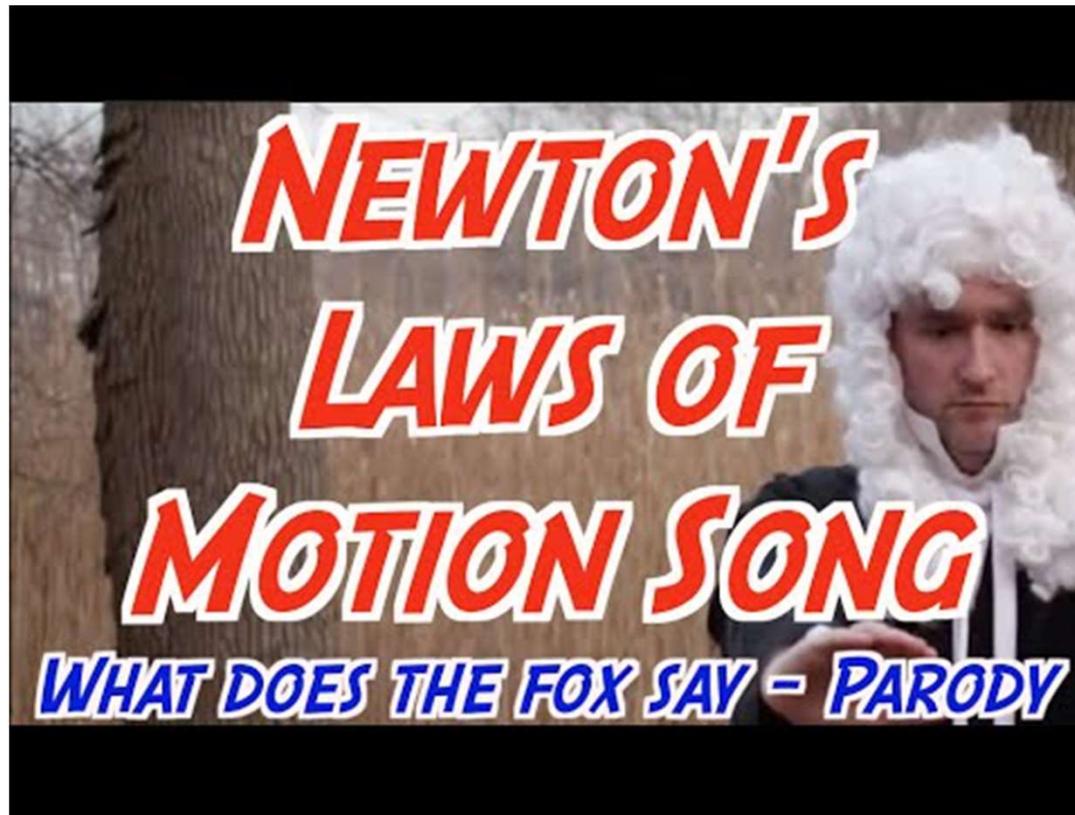
More Video Inspiration



<https://docs.google.com/file/d/0BylquDNaX1PRZm00d2RjdGVnb0k/view>

A short movie made by Prep students who made a marble run in their school

What do Newton's laws say..



So how will you evidence this work

Please take some **photos** of what you have made.

You should also upload a **video** of it being tested...

Note> if you are going to be using anything hot (like a glue gun) or potentially sharp / dangerous please make sure your parents are aware and happy for you to use this equipment.

A **postcard** for anyone who can keep their marble **moving for 60 seconds**.

I will give you access to a hand in folder during lesson 3 - you will name one slide and upload your evidence **to that slide only. (do not share or turn anything in earlier).**