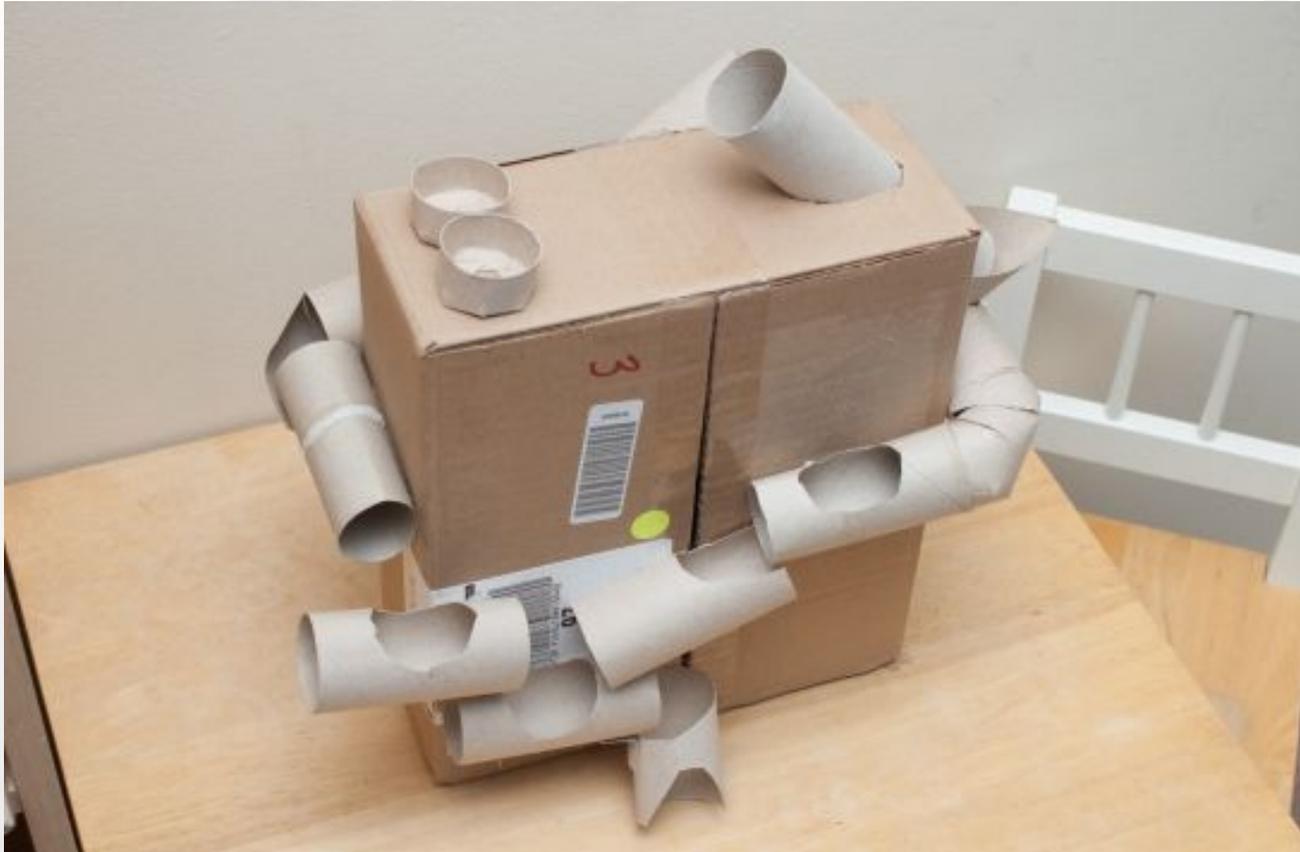


Design a marble run



Learning Intension

To investigate how forces and the properties of materials affect the behaviour of a product or system.

Success Criteria

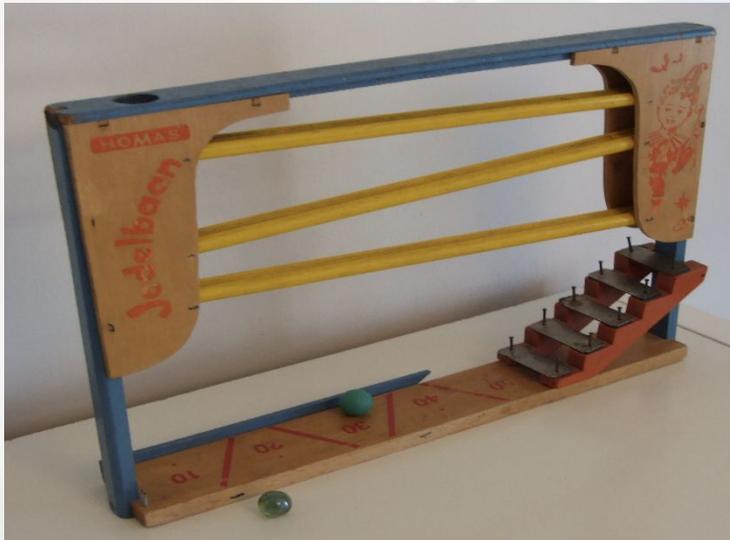
I can design a marble run and select appropriate materials.

I can record my design and testing process, using a device.

I can evaluate my design and make improvements where necessary.

What Is a Marble Run?

A marble run is a structure that allows a marble to travel along a pathway, avoiding or using obstacles to navigate its path.



Watch a Marble Run In Action

Watch this video of a marble run that Brianna made with her dad.

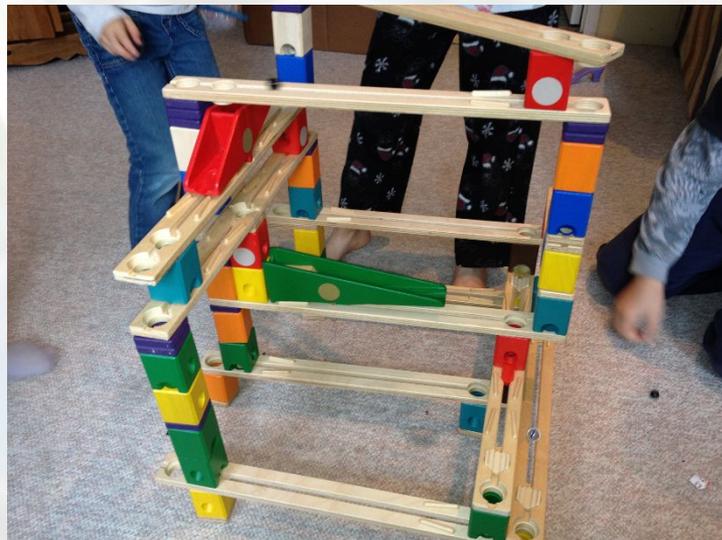
<https://vimeo.com/85119932>



Design a Marble Run

Your task is to design a marble run. First, you will need to investigate which materials to use to construct the marble run. Then, decide what features the marble run will need for the marble to navigate the pathways.

Share: Discuss with someone at home which materials you might use to create your marble run.



Design a Marble Run

Consider which materials would be best for your marble run. Decide whether these materials are suitable or unsuitable for your marble run. Explain your answers (even if you're unsure).

Material	Suitable	Unsure	Unsuitable
plastic			
sandpaper			
bubble wrap			
paper and cardboard			
carpet			

Features of a Marble Run

Funnel – A funnel will lead your marble to the centre and then drop it through a central hole.

Catcher - Where the marble will be caught at the end of the run.

Bends – A bend will add a challenging obstacle to your marble run and will slow the marble down. Be careful your marble doesn't fly over the side as it takes the corner!

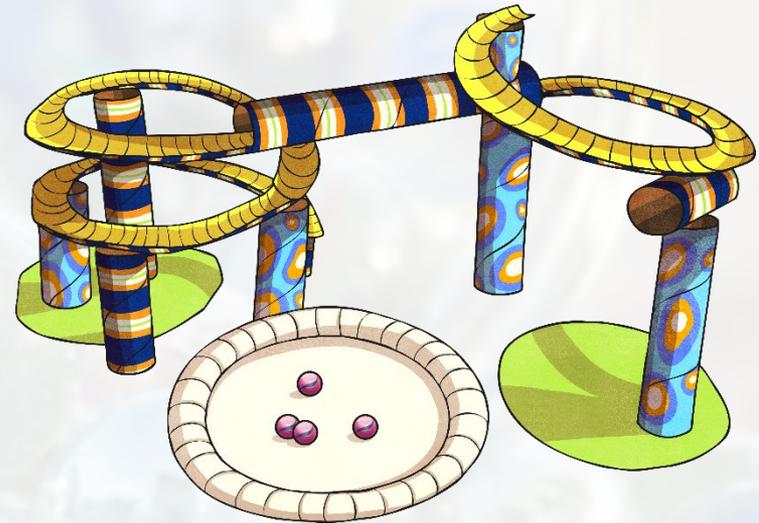


Features of a Marble Run

Slanted tracks- When a track is slanted downwards, the marble will travel at a faster speed. When it is slanted upwards, the marble slows.

Fixings and support structure – The various features of the marble run need to be fixed together securely to allow it to function correctly and to withstand repeated use. Strength and sometimes flexibility is important for these features.

These features will help you to control the speed, direction, durability and interest of your marble run.



Marble Run Design Process

Draw a design of your marble run. Choose which materials you will use for each section. Your design should take into account whether you want the marble to go slowly or quickly.



Marble Run Design Process

Create and construct your marble run. Remember to work to your design. Did you change your mind during construction?



Marble Run Design Process

Test your marble run.
Record the time it
takes for your marble
to get to the bottom of
the run. Record a
video of your tests
with a mobile device.



Marble Run Design Process

Evaluate your marble run. Did you change your mind about the design during construction? Do you need to make any changes or alterations for it to work better? What improvements or modifications could you make? Think about the advice you would give to someone else designing a marble run.



Sharing your marble run design

At the end of the week we will all be sharing our marble runs on Webex.

Things to remember:

- Plan
- Set of materials
- Drawing of your design – Labelling all features
- Creation of your marble run – decorate it (paint, pencils)
- A video filming your marble run
- Evaluate your marble run