



# YOU DID IT! #BYOMarbleLabyrinth YOU'RE A BYO STEM-gineer! FINISH

Place your marble at the **START** point. Now push and pull the **TABS**, tilting the labyrinth to navigate the marble to the **FINISH**. But beware of the traps! If your marble drops into one of the holes, you must go back to the **START** and try again.

You will need practice and a steady hand. Take your time and before long you'll be a master!

Want a new challenge? Try designing your own labyrinth by moving the walls around. You can even

rearrange the base boards to really mix things up. For more ideas on layouts, scan the QR code SCAN HERE to download a PDF.



#### How to use your Marble Labyrinth



Pushing and pulling the **LEFT HAND TAB** to tilt the labyrinth side to side.



Pushing and pulling the **RIGHT HAND TAB** to tilt the labyrinth front to back.



Marble Frenzy combines the skills you've learnt from mastering the labyrinth with the craziness of four marbles!

Replace the labyrinth boards with the Marble Frenzy board **G1**. Tilt the frame down in the top right corner and place four marbles in the START area. Now use your skills to get each of the marbles into the scoring holes. But mind the trap holes Deduct 5 points for every time a marble drops through.

#### What is a Labyrinth?

A Labyrinth is a **complicated maze-like** structure, normally underground, as referenced in Greek mythology (see below to find out more!) Labyrinths have appeared in many ancient cultures including **Equpt** and **India**. Although normally used interchangably, there is sometimes a **difference** drawn between mazes and labyrinths:

**Maze:** a puzzle with multiple branching paths and a choice of direction

Labyrinth: a puzzle with one path to the centre

To the **right** is an example of a laburinth with one path:



#### Theseus and the Minotaur

In Greek Mythology, the Minotaur was a **half man half bull**, who fed on human flesh. To keep the Minotaur trapped, King Minos of Crete ordered an elaborate prison to be built. It was known as the **Labyrinth** - a vast underground maze of narrow passageways. It would be impossible for the Minotaur to leave, and for anyone inside to find their way out. King Minos' son was killed by soldiers from **Athens**. As revenge, King Minos ordered 7 young men and women from Athens to be fed to the Minotaur each year. Theseus, son of the King of Athens, decided to put an end to this and vowed to kill the Minotaur. He came to Crete and found his way through the Labyrinth, unwinding a red thread as he went, so that he could find his way out. He killed the Minotaur in a violent battle and saved the sacrificed children.

#### Marbles on a slope

When you use the pull-tabs to tilt the floor and move the marbles around the Labyrinth you can control the **speed** of the marble by changing the angle of the floor.



Weight is the force on the marble due to gravity, which always acts straight down. As the slope is angled, part of the downward force acts in the direction of the slope, accelerating the marble.

#### **Guroscopes** [jahy-ruh-skohp]

The mechanism used to tilt the table in your Marble Labyrinth is very similiar to another mechanism called a Gyroscope.



A Gyroscope is a device used to maintain orientation and angular velocitu. The rotation of the outer rings (Gimbal) does not affect the central Rotor. As shown above, however the outer rings are rotated, the rotor will always stay stable. Gyroscopes are used to stabilise cameras, on compasses on ships and even electronic versions in smartphones.

## RUILD YOUR OWN MARBLE LABYRINTH

### INSTRUCTION BOOKLET (2

Recommended age 8+

WARNING! Not suitable for children under 3 years. Small parts. Choking Hazard

WARNING! Choking Hazard. Contains marbles. WARNING! Do not leave the marble labyrinth unattended, especially with younger children who may not be familiar with the risks mentioned abo Always count and pack up the marbles after us To be used under adult supervision

Retain this packaging for future reference.



If the slope is steeper, the **speed** will increase, even though weight stays the same:











76 D3)

D3

78



MECHANISM.

Place the four sections gently into the **LABYRINTH** 

D2 02 OD. 04 03

D4 )

75 D2

77

Marble Labyrinth Wall Construction

Press out all the **EI** & **E2** parts. These are the walls for the

maze. Build one section at a time, starting with **DI**, making sure you have it with the blue side facing up. Then add the

long **EI** and short **E2** wall sections into the postions shown.







