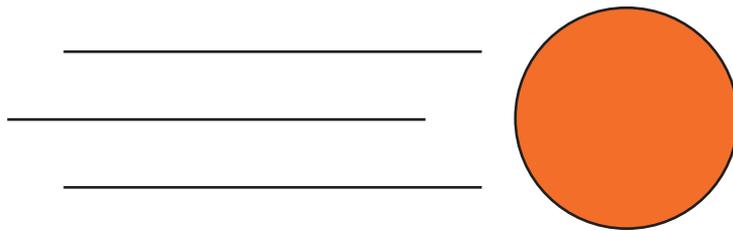


# S.T.E.A.M.

## Forces Handbook



Name:

Date:

# Activity 1 - Make it Move Challenge

In the table below, sketch to show each way you made the ball move and write a written description of what caused the movement and how the ball moved.

	Sketch how the movement was caused.	Explain the cause of the movement and what the movement was like (distance, direction etc).
Movement 1		
Movement 2		
Movement 3		
Movement 4		

# Activity 2 - Defining Key Terms

After watching the video [Pushing and Pulling - Force, Work and Energy](#) and discussing it with the rest of the class, write definitions for each of the terms below.

Force	
Push	
Pull	
Friction	
Gravity	
Energy	

# Activity 3 - Identifying Forces

After watching the video [75 Rube Goldberg Ideas & Inventions](#), record an example of a push, pull and the force of gravity by sketching or writing a description in the table below.

Push	
Pull	
Gravity	

# Rube Goldberg Design Challenge

## THE CHALLENGE

Create a Rube-Goldberg inspired system to complete a simple task.

## CHALLENGE DETAILS

- You may work alone or with a partner.
- Your system must include a push and pull and use of gravity and friction.
- Your system must go for no longer than 30 seconds.
- You may use any of the materials provided to you by your teacher and are free to use your own belongings (e.g. stationery, books, lunch boxes, etc).

## POSSIBLE PURPOSES

Some examples of tasks your system may complete include:

- Closing a door.
- Passing a pencil to another student.
- Placing an item in your tub.
- Opening a lunch box.
- Emptying a cup into a sink.
- Putting a toy/item back into its box.

## ASSESSMENT RUBRIC

Your teacher will assess your contraption using the rubric below. Refer to this when creating your design.

	Great - 3 points	Good - 2 points	Not Yet - 1 point
<b>Forces</b>	The student has effectively used all four forces discussed in the lesson (push, pull, gravity, friction).	The student has attempted to use all four forces discussed in the lesson (push, pull, gravity, friction).	The student has attempted to use 1-3 of the forces discussed in the lesson (push, pull, gravity,
	The student is able to explain each of the four forces discussed in the lesson and identify how they have been used in the system they designed.	The student is able to explain each of the four forces discussed in the lesson.	The student is able to recall each of the four forces discussed in the lesson.
<b>Purpose</b>	The system effectively achieved its intended purpose.	The intended purpose of the system is clear without explanation being required.	The student can explain the purpose of the system they have created.
<b>Timing</b>	The time kept within the 30 second limit.	The time exceeded the 30 second limit.	The system was unable to be timed.

# Rube Goldberg Design Challenge

## Summary Task

Explain the purpose of your system:

Give one example of how you used each of the following forces (you can write or draw a simple labelled diagram).

Push	Pull
Gravity	Friction

Was your system effective? Explain.

If you made your system again, what would you change? Why?