THE **MACHINE** CHALLENGE

Core Competencies:
Scientific Thinking and Logical Thinking

Core Skills:
Grit and Problem Solving

BEFORE YOU START

Choose a quiet place, curl up on a chair and take some time to read the whole challenge

Then – do a quick check in on your emotions – what are you feeling right now…and put that down in your diary/book/board – with the time and date!

Now-make a quick timeline for the challenge – are you going to do it all at once – will you set aside some time daily for this – will you wait and do it later? There is NO right answer for this – its your journey – its your discovery. After you have decided- make your timetable and put it up where you can see it. As you go through the challenge – check if you are maintaining the timetable, or do you change it – add the changes when you do it.

Now – Get, set….Grow!! ☺

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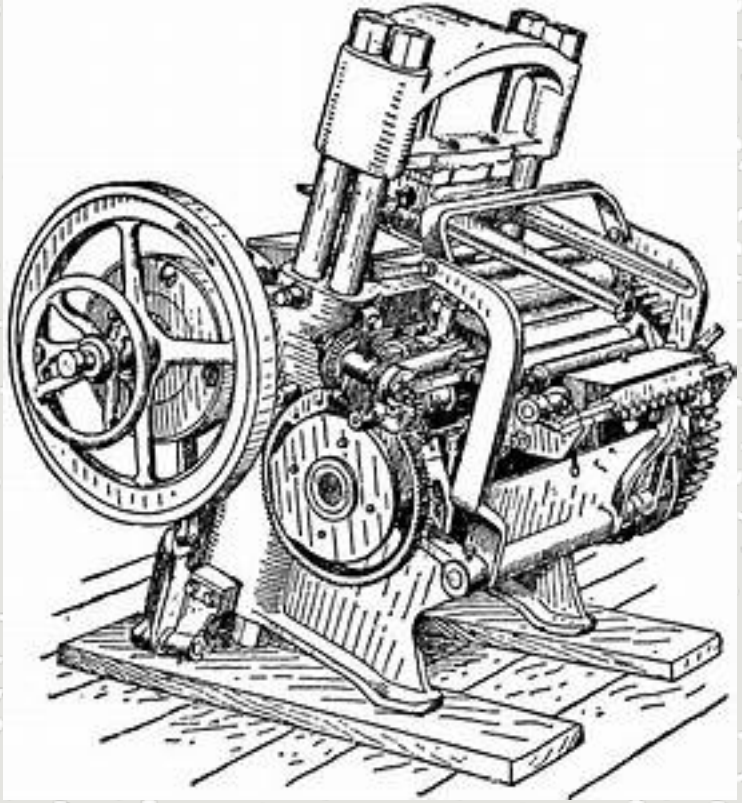
WHY THE MACHINE!

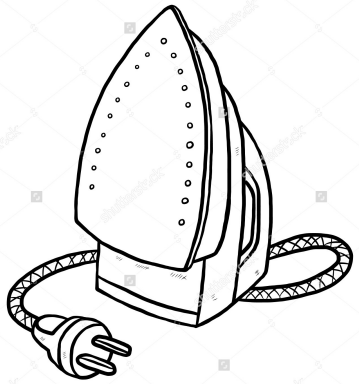


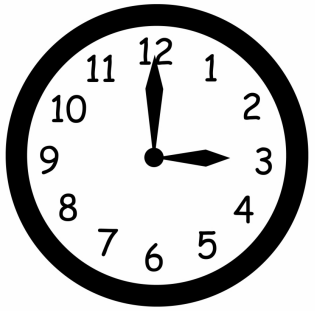
Dear Creative Thinkers!!

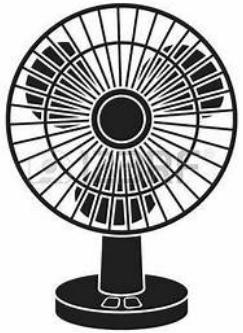
Machines are all around us and it makes our life easier by reducing human effort. It enhances our creative and logical thinking. At last but not least, opening up one and exploring what is inside is just so much fun!!

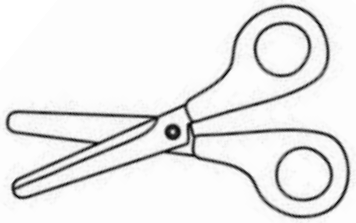
Through the week, enjoy the company of the Machines. And while you will learn the secrets of the Machines, don't be surprised that you will learn some secrets about yourself!!

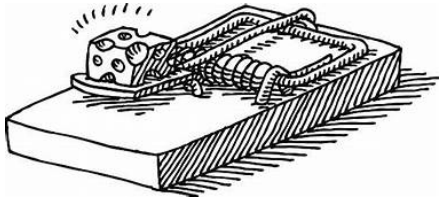
Be a simple machine in someone's life!!

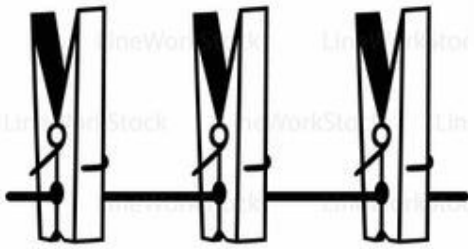












Step 1

Choose from any of these or your own choice!

1. The Iron
2. Wall or alarm clock
3. The Mop
4. Table fan
5. A torch (flashlight)
6. A pair of scissors
7. A rat trap
8. Clothes pegs

Any other which is easily available at your house.

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LEVEL 1

Inside out!

It might look simple – but unscrewing or opening a Machine is an art and a science!

1 hour | With Machine | Self directed

Activity steps

1. **Observe** the chosen machine carefully. Sketch the machine and label the parts *(if you don't know the names – be creative and imagine names by seeing the function of the part!)*

2. Now – the fun starts – **Dismantle** the machine to understand its internal parts. Write down **all your steps** of opening the machine. It will help when you have to assemble it back *(time how long it takes for you to open it)*

1. Observe each part of the machine and try to understand the **function** of each part and the role it plays to make the machine work - make a note of it.

2. Well done! You are now a young Engineer!!

Submission : *Post pictures of the machine dismantled with the labels.*

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Uncovering the secrets!

30 mins (please write your responses and upload the scans for the submission)

About the journey

1. What did you find most challenging - opening the machine or keeping your patience?

2. Have you ever done this before? What surprised you most about what you found inside the machine? Why?

3. If a simple machine is a device that makes work easier –then, who (according to you) is the 'simple machine' in your family? Why?

Have you ever been a simple machine in any ones life? When and How?

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Booster Challenge

At your time

TREASURE HUNT :

How many types of ‘Simple Machines’ you can find in your house?

How do each of these machines make our lives easier? Choose one from each room of your house and share with us!

Good to know

Which was the first simple machine ever invented? (you get 20 min on the internet to find out)

If you can, do ask your grandparents what simple machines did they have during their time – and see if it has changed over time!

Level 2

Assembling the Machine!

A perfect Machine needs the perfect Fixing – making it is no less than ‘art’.

Only the bravest, most creative people can master this skill – that is YOU☺

Are you ready for this next level?

Lets grow!

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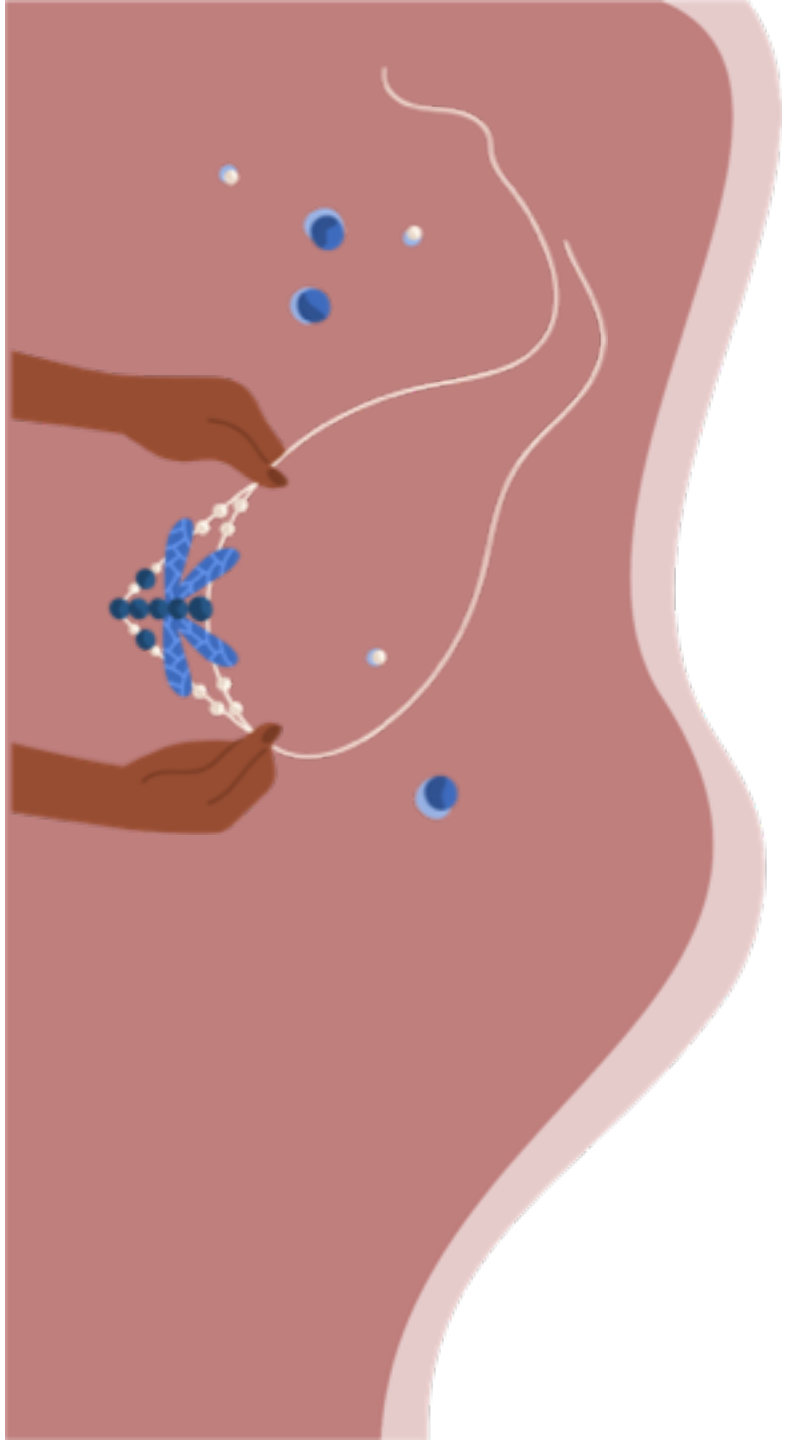

Action point: remember to time yourself

1. Revisit the steps you have written in the beginning – when you dismantled the machine.

2. Now – its your turn to be an Engineer and fix the machine! Start assembling it! GO STEP BY STEP! BE PATIENT ☺

3. Now – TEST whether its working like before! If not – try and try again!

4. Now it gets interesting – Did you see the Logical Mathematical thinking in this challenge?

5. **BOOSTER** : What math concept it being used here? Can you create a word problem of the steps that you have written for opening the machine

Submission: *A small tutorial on reassembling the machine*

THE SCIENCE BEHIND THE Machine

exercise the mind now

What Are Simple Machines?

Pretend that you are living on this world thousands of years ago as a caveman. There is no technology. There are no modern appliances. In fact, there are little to no inventions whatsoever.

You have a job to do today: you need to get something that is stuck under a big rock. The rock is so heavy that it is difficult to move it on your own. There's nothing around to help you, except a stick. **What would you do?**

The easiest thing to do would be to put the stick under the rock, push down on the end of the stick to move the boulder and retrieve the stuck object. Well, some scientists believe that this is how simple machines got started.

Simple machines have few or no moving parts. Just like the stick, they use energy to work with one movement. **Work** is the amount of energy that is needed to move an object across a distance. ***Basically, when you pull, push or move something, you are performing work.*** The further you push, pull or move an object, the greater amount of work is needed.

There are six different types of simple machines: the inclined plane, the wedge, the screw, the lever, the pulley, and the wheel and axle. Each simple machine has a special way to make work easier for humans.

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LEVEL 3

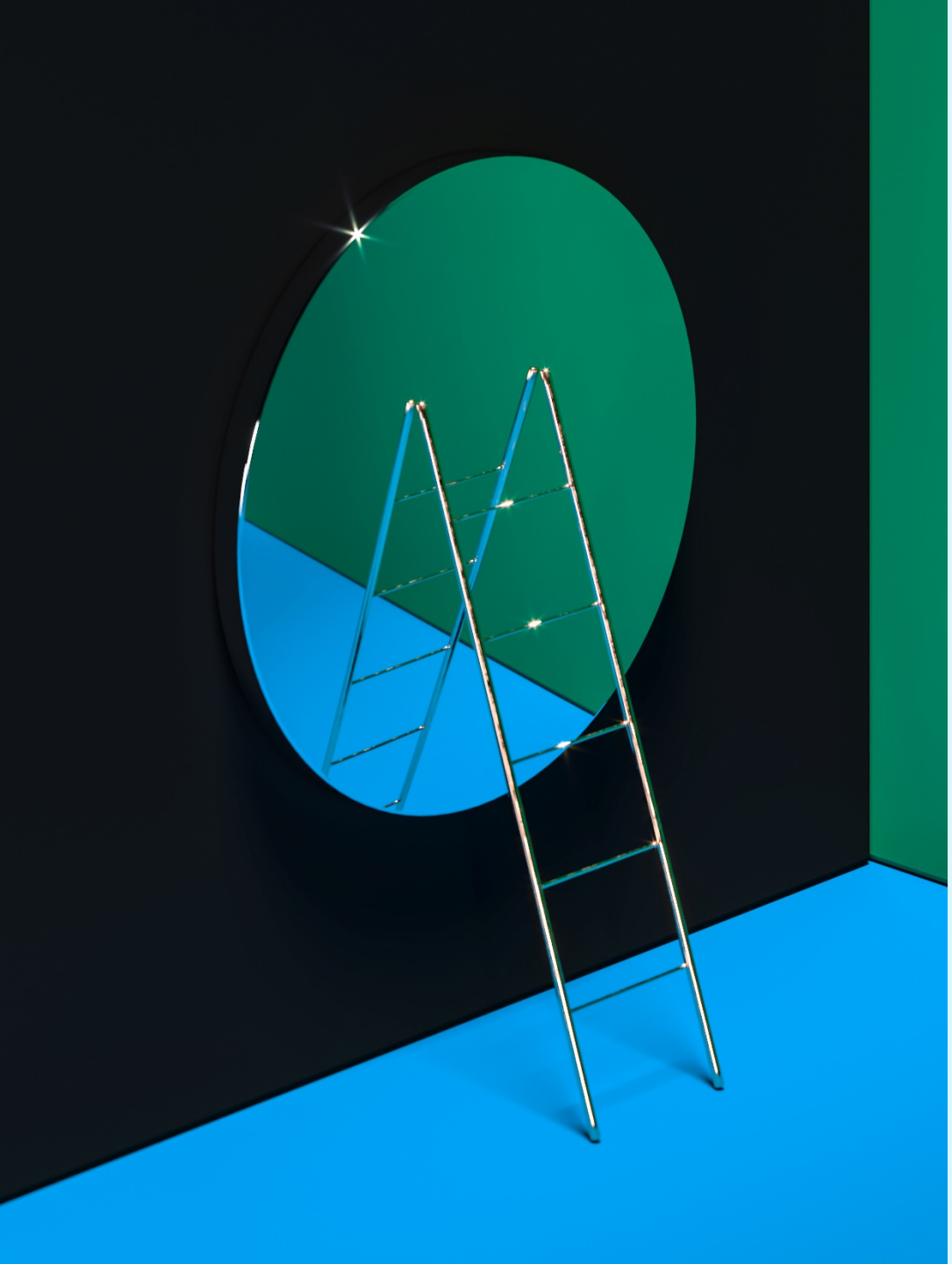
DESIGN CHALLENGE :

Design a simple machine with only the resources at home!

Hello engineers! Here is your challenge!

Make a **creative broom/brroms** which can be used to sweep all the areas that are typically hidden, under cupboards, behind cupboards, over cupboards!

Submission: *Send us a labeled illustration /protoype of the machine-and you using it - or any other way to share your wonderful design!*



FINAL REFLECTIONS

1. Why do you think we created this Machine Challenge?

2. What has been the 5 greatest insights you have had during this journey - about what is learning, about yourself, about Machine's ☺

1. What did you learn about '**Not giving up'** ?

2. How and when will you use all you learned through this challenge?

3. And finally - how do look at Machine's now ☺

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Reflections for the challenge

	Pause Point 1 (opening the machine) OPEN	Pause Point 2 (Reassembling) RE-ASSEMBLE	Pause Point 3 (Creating a Machine) CREATE
Was the task difficult? How many times did I want to give up?			
What have I learnt ?			
Where do I go from here?			

"Everything you can imagine is real."

Have a great time !

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