Gamification

In order to facilitate an innovative teaching methodology for the online classed during Covid-19, Gamification is implemented for the my subject ME18201 – Engineering Mechanics and for the subject ME18304 – Mechanics of Solids.

The following Rules was been followed for the Gamification is as follows:

AWARDS FOR THE POINTS

- Boost Assignment marks to 100 % - 40 points
- Can Attend missed assignment of your choice – 50 points
- Can skip one Assignment of your choice – 50 points
- Get additional 5 marks in CAT exam (out of 50) – 75 points

PROCEDURE TO REDEEM POINTS

- Go to the Assignment / Test in google classroom which u want to Boost / skip.

Type in the comments and mention it as " I want to skip/boost this Assignment". Once it is updated, it will be intimated accordingly.

Sample points was attached with ppt


911
Whole Class


33
METHUN
R042


11
MONESH_...
R043


29
MONISH
R044


41
MUGUNT...
R045


16
MUTHU_S...
R046


16
PALANIVEL
R047


17
PARTHAA...
R048


44
PASUPATHY
R049


2
PRADEEP
R050


4
PRADEP_...
R051


16
RAAGHAV
R052


14
RAHUL_A...
R053


26
RAHUL_K...
R054


0
RAMESH_...
R055


6
RAVI_SAN...
R056


24
RAVIRAM
R057


0
RISHAB_S...
R058


34
ROSHAN_...
R059


38
SACHITHA...
R060


36
SAI_SURYA
R061


5
SAIKUMAR
R062


34
SANDEEP...
R063


32
SANJAY_...
R064


23
SHAMEER...
R065


30
SHASHANG
R066


0
SHREERAM
R067


30
SRINATH
R068


12
SRIRAM
R0691


47
SUBASH_...
R070


37
SUBHIKSH...
R071


26
SURYA PR...
R072


1
SYLENDR...
R073


19
THARUN
R074


24
THARUN_...
R075


34
TUSHIT_D...
R076


48
VARADHA...
R077


37
VASANTH
R078


33
VIGNESH
R079


12
VINISH
R080


20
VISHAL_B...
R081

Add students

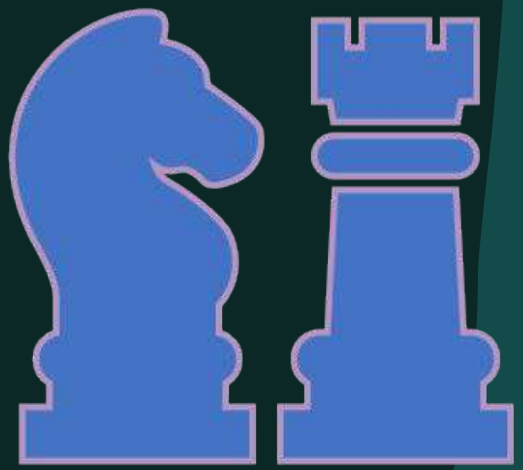
Toolkit Attendance Select multiple Random Timer 1 Big Ideas

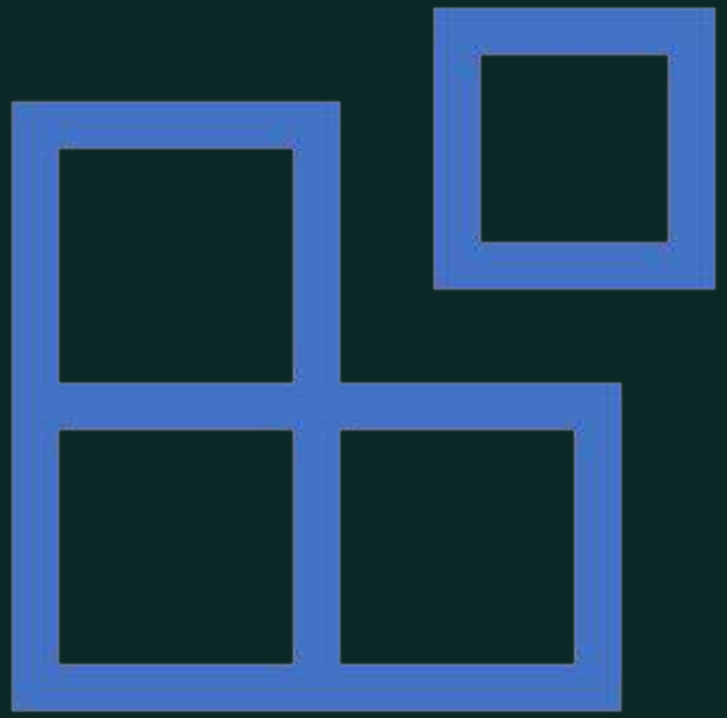
GAMIFICATION IN EDUCATION

Prepared by
M.Maheswaran, AP / MEC

What is Gamification

- Gamification is the use of Game / fun elements in an non-game context to:
  - Engage People
  - Motivate action
  - Promote learning
  - Solve Problems, etc.





Game Elements

Why Gamification ?

- https://www.youtube.com/watch?v=2lXh2n0aPyw&feature=youtu.be

RULES FOR GAMIFICATION

Fixed Rules

No changes in rules till the end

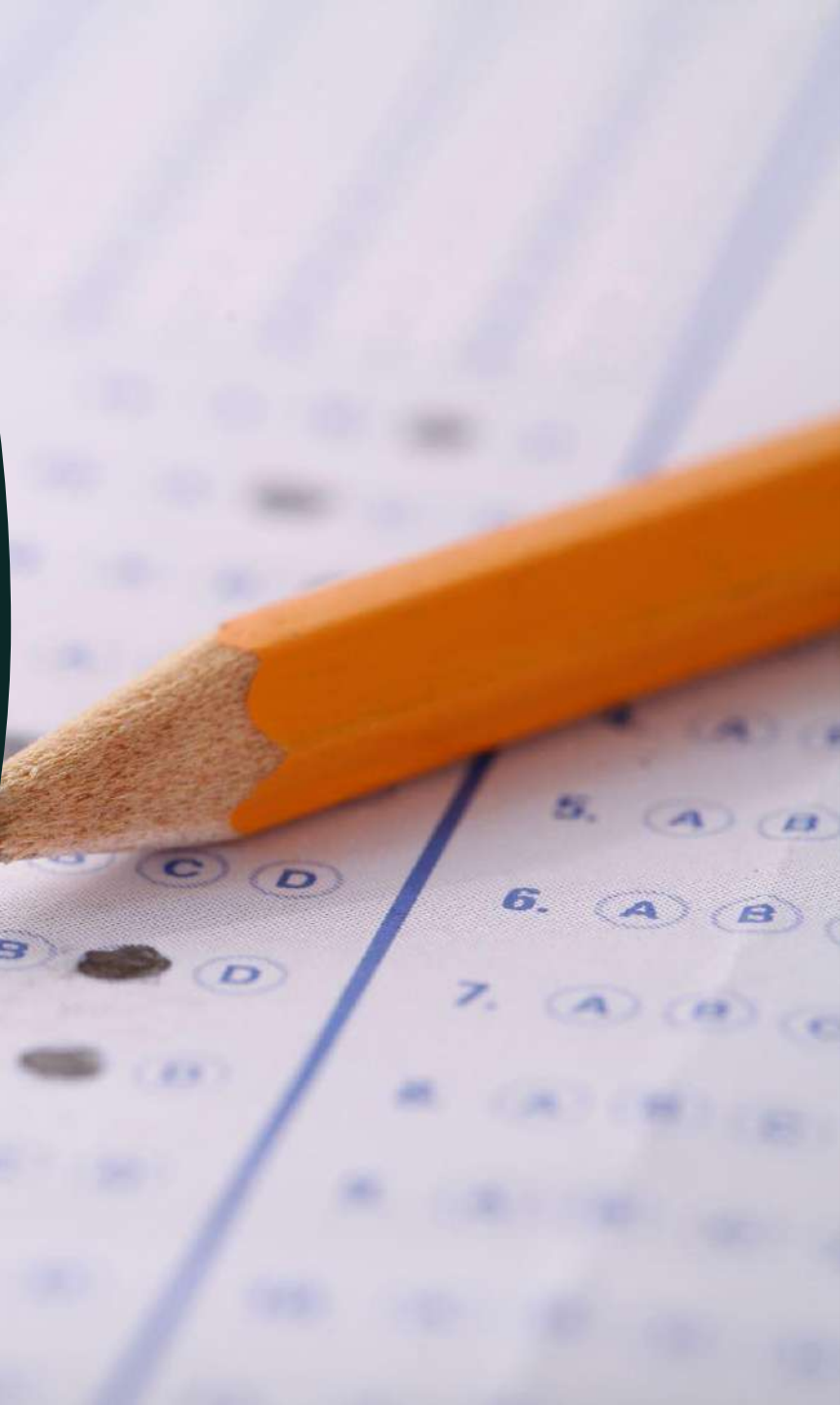
Flexible Rules

Additional rules based on Students performance / action

It may be removed if necessary

Teacher's Expectation from Students

- To attend class
- To join the class early.
- Should ask questions / doubts in the class at the end of session
- To respond to answers / solution when prompted
- To be in class (online) till the end of the session
- To complete the Assignments in Time
- To score good marks in Test



Setting Expectation as Rules (Flexible)

Expectations	Points
✔ To attend class	Daily Attendance - **1 point**
✔ To join the class early	Joining class 2 minutes before - **3 points**
✔ Should ask questions / doubts in the class at the end of session	Clearing doubts - **5 points**
✔ To respond to answers / solution when prompted	Answering questions - **5 points**
✔ To be in class (online) till the end of the session	Attending class till end - **2 points**
✔ To complete the Assignments in Time	Completing Assignments in 24 hours - **7 points**
✔ To score good marks in Test	Getting more than 80% - **10 points**

Student's Need

TO SCORE GOOD MARKS

TO SKIP ASSIGNMENTS IF POSSIBLE, BY ANY MEANS

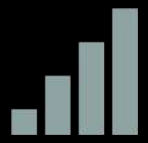
TO BOOST THEIR INTERNALS, BY ANY MEANS

TO BE RECOGNIZED AS AN ACHIEVER IN THEIR CLASS

TO GET REWARDS/PRIZES FROM TEACHERS

Setting Student's Need as a Rule (Fixed)

Skipping Assignments – achieving **100 points** - may skip 1 Assignments



Boosting Internals – achieving **100 points -** may boost previous Assignments

Appreciation - Providing certificates/Rewards for achieving **350 points**.

Note: Target to be set such that it is not too easy or very difficult to achieve.

Online Tools for Gamification

- ✔ Classdojo - https://classdojo.com/
  - ✔ Cartoon character based
- ✔ Quizizz - https://quizizz.com/
  - ✔ Best for live quiz – Integrated with Google Classroom
- ✔ Classcraft - https://www.classcraft.com/
  - ✔ Story based Assignment – Integrated with Google Classroom

Virtual Tools for Engineering Drawing

- Online
  - Class flow – Best when used as an app in google chrome
- Offline
  - Class flow
  - Open board

Activity Problem:

Take 3 photos in your house which can be analyzed as Plane stress, Plane strain and Axi-symmetric problem. Upload the Photos and explain Why and how you will consider that as Plane stress/ Plane Strain / Axisymmetric.

Mark distribution:

Legible Photos indicating Plane stress/ Plane strain / Axisymmetric example - 50 marks.

Explanation - 50 marks

FEA ASSIGNMENT

NAME :RAMANATHAN K
ROLL NO :78
DEPT :MECHANICAL B IV YEAR

PLANE STRESS

- ✓ Plane stress is defined to be a state of stress in which the normal stress and the shear stresses directed perpendicular to the plane are assumed to be zero.

- ✓ That is, the normal stress σz and the shear stresses τxz and τyz are assumed to be zero.

EXAMPLE

- It is a tool used to pick up hot utensils where the stress acts along the thickness of the material
- So Stress along the length of the material is neglected or assumed to be zero
- So it is an example of plane stress problem

PLANE STRAIN

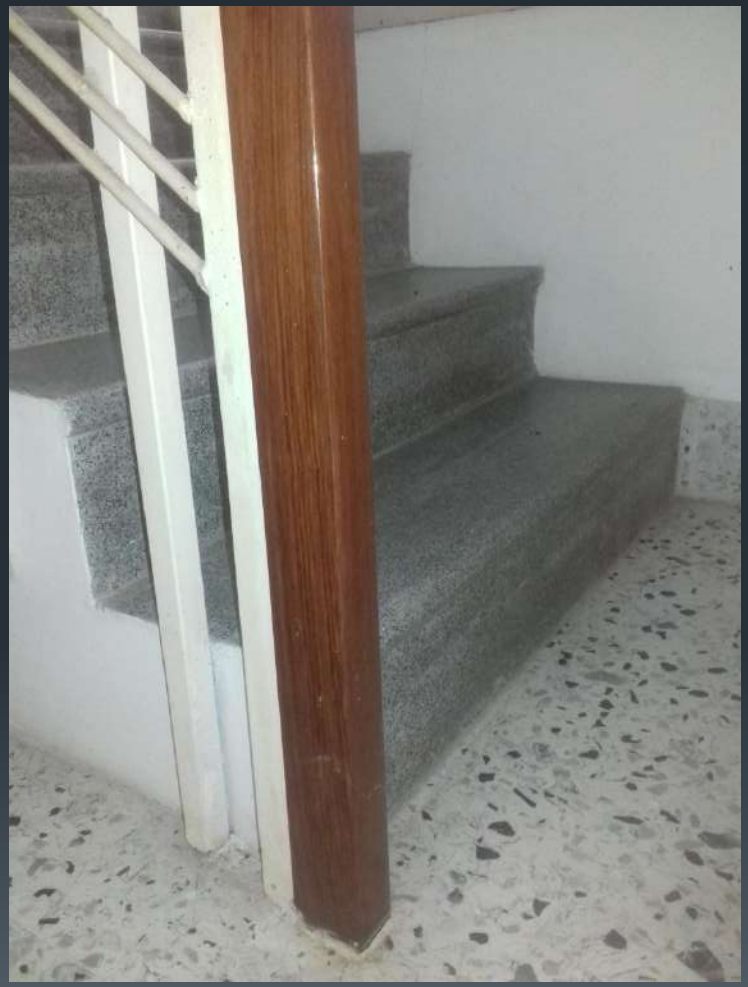
- Plane strain is defined to be a state of strain in which the strain normal to the x-y plane ε_z and the shear strains γ_{xz} and γ_{yz} are assumed to be zero.

- The assumptions of plane strain are realistic for long bodies (say, in the z direction) with constant cross-sectional area subjected to loads that act only in the x and/or y directions and do not vary in the z direction

EXAMPLE

- It is the pillar used in handle for steps
- The strain along z axis is constant
- Radial strain is very much low
- So we can consider it as an example

of plane strain problem



AXISYMMETRIC ELEMENTS

- ✓ Axisymmetric objects are objects which can be obtained by revolving a cross section about a particular axis.
- ✓ So we can consider only one half of the component for stress analysis since it is same as for another half

EXAMPLE

- ✓ In this example the cross section triangle is rotated about the z axis
- ✓ Stress also acting inside the water bottle which is also symmetrical about the axis of object
- ✓ So it is enough to analyse only one half of the object and so we can replicate the other half

Problem 1

Take two photos to do the Activity in your Home. The details of the Photos should have the following requirements:

PHOTO 1:

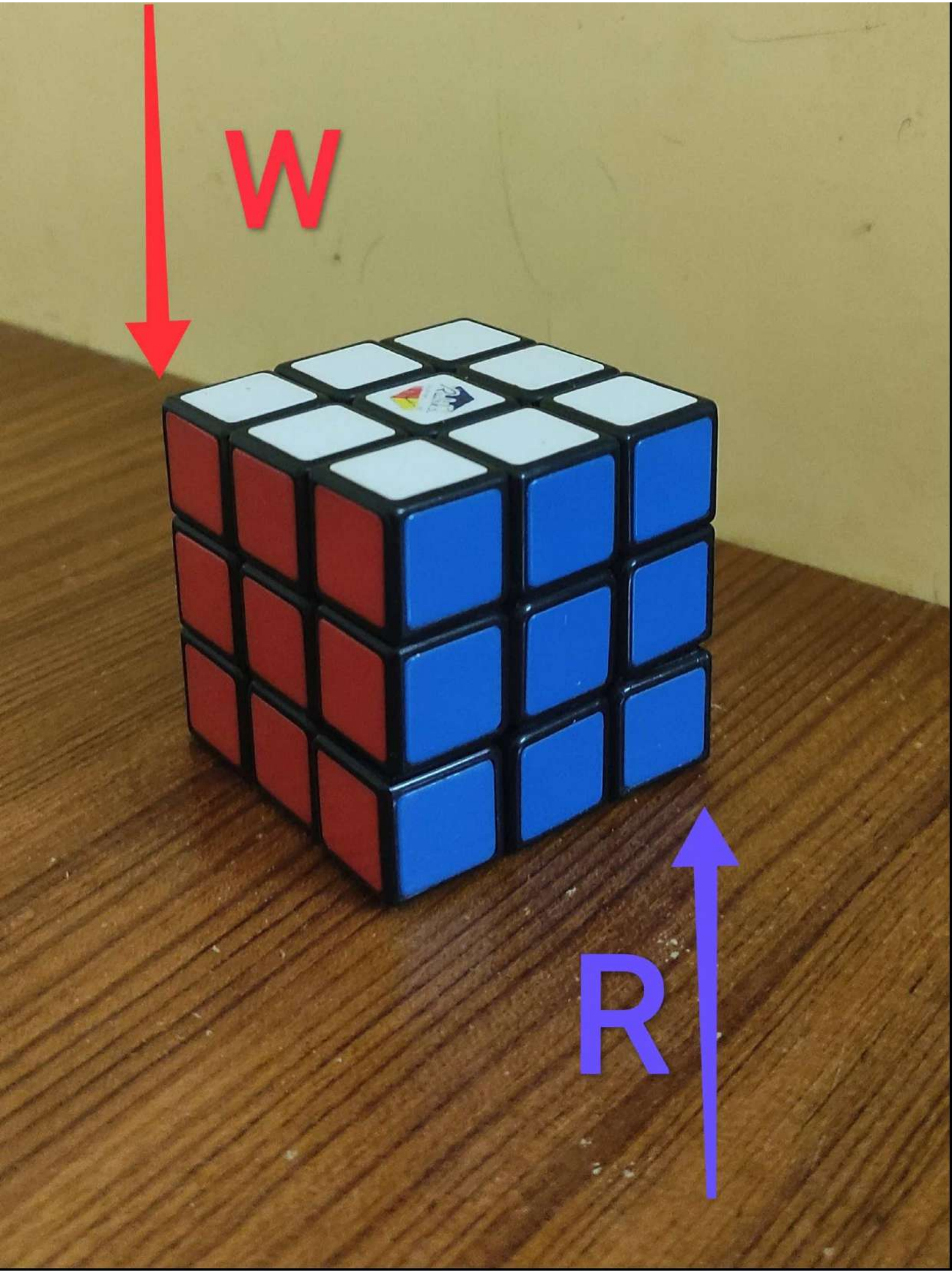
Should have only Two forces (including reaction force). Indicate the forces by editing your photo

PHOTO 2:

Should have more than two forces (including reaction force). Indicate the forces by editing your photo. Make the picture is clear. Also attaching a sample photo showing two forces for your reference. Need to complete the activity by adding two photos in it.

Problem 2

Take a photo of any door with handle. Indicate its distance from the hinge point and the handle of the door. Find its Moment with respect to the hinge and the door handle. If the door handle has a horizontal force of 20 N. Justify the result, if the Handle distance is reduced?


W
R

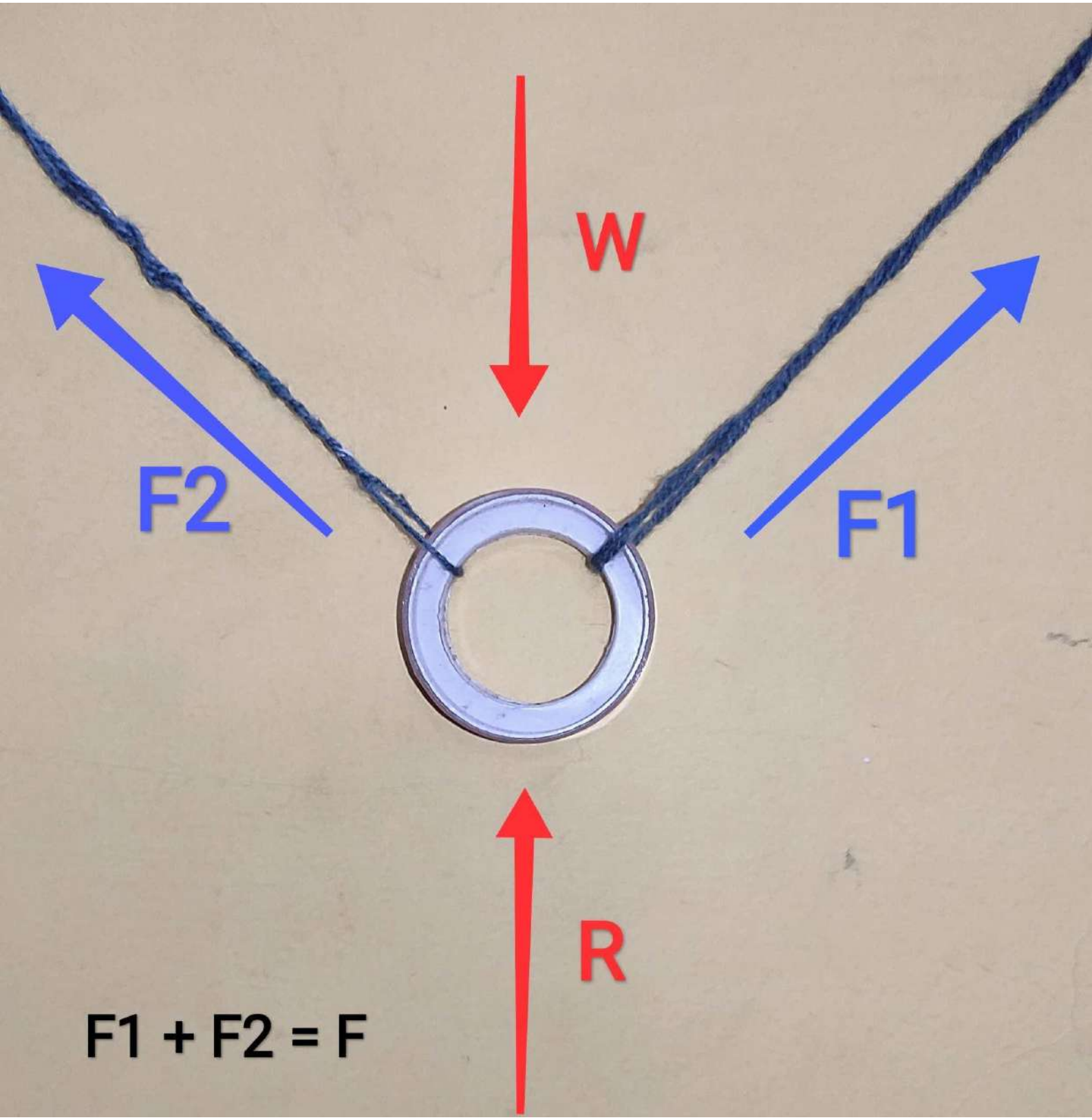

W
F2
F1
R
F1 + F2 = F

PHOTO 1

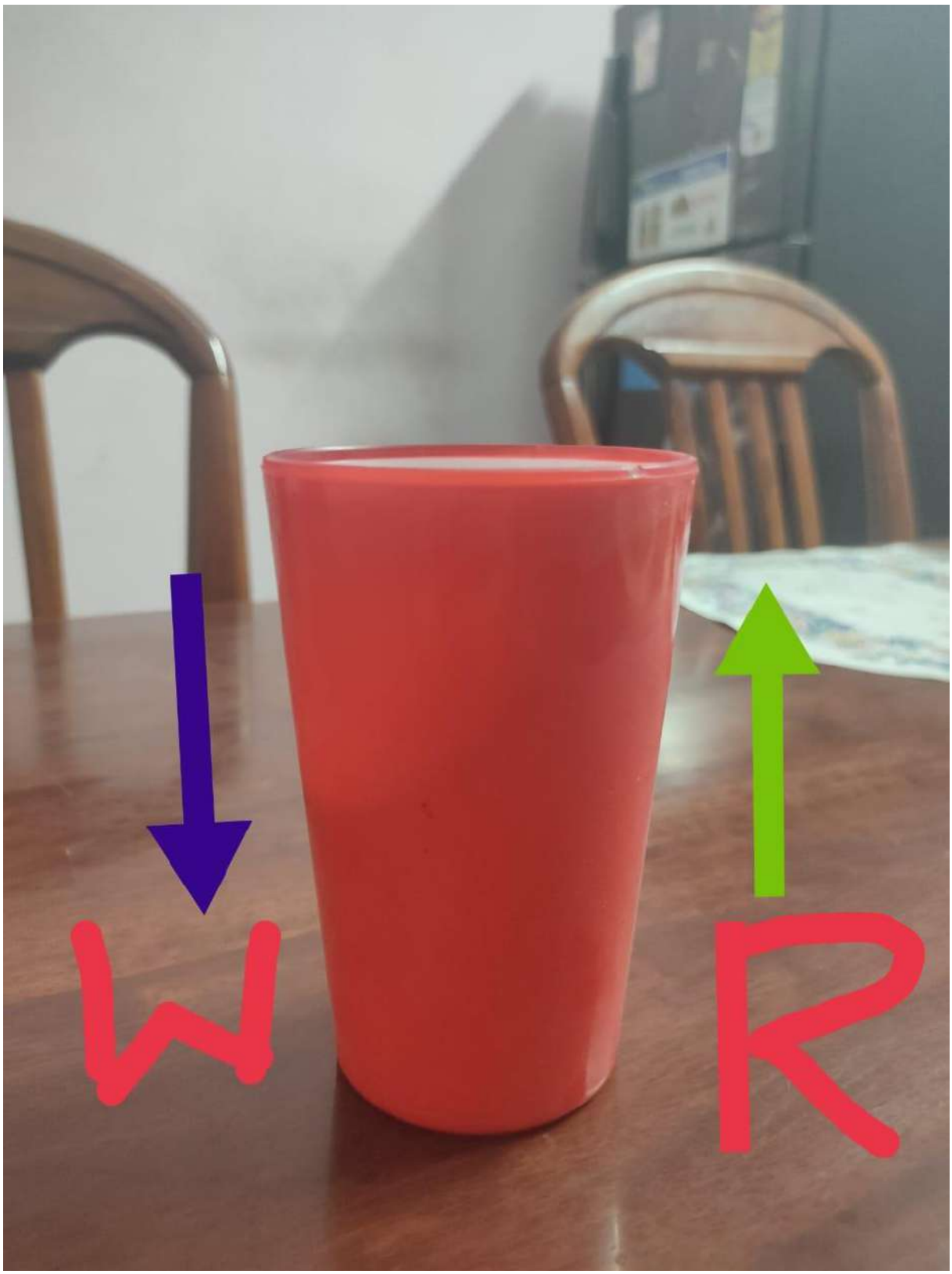
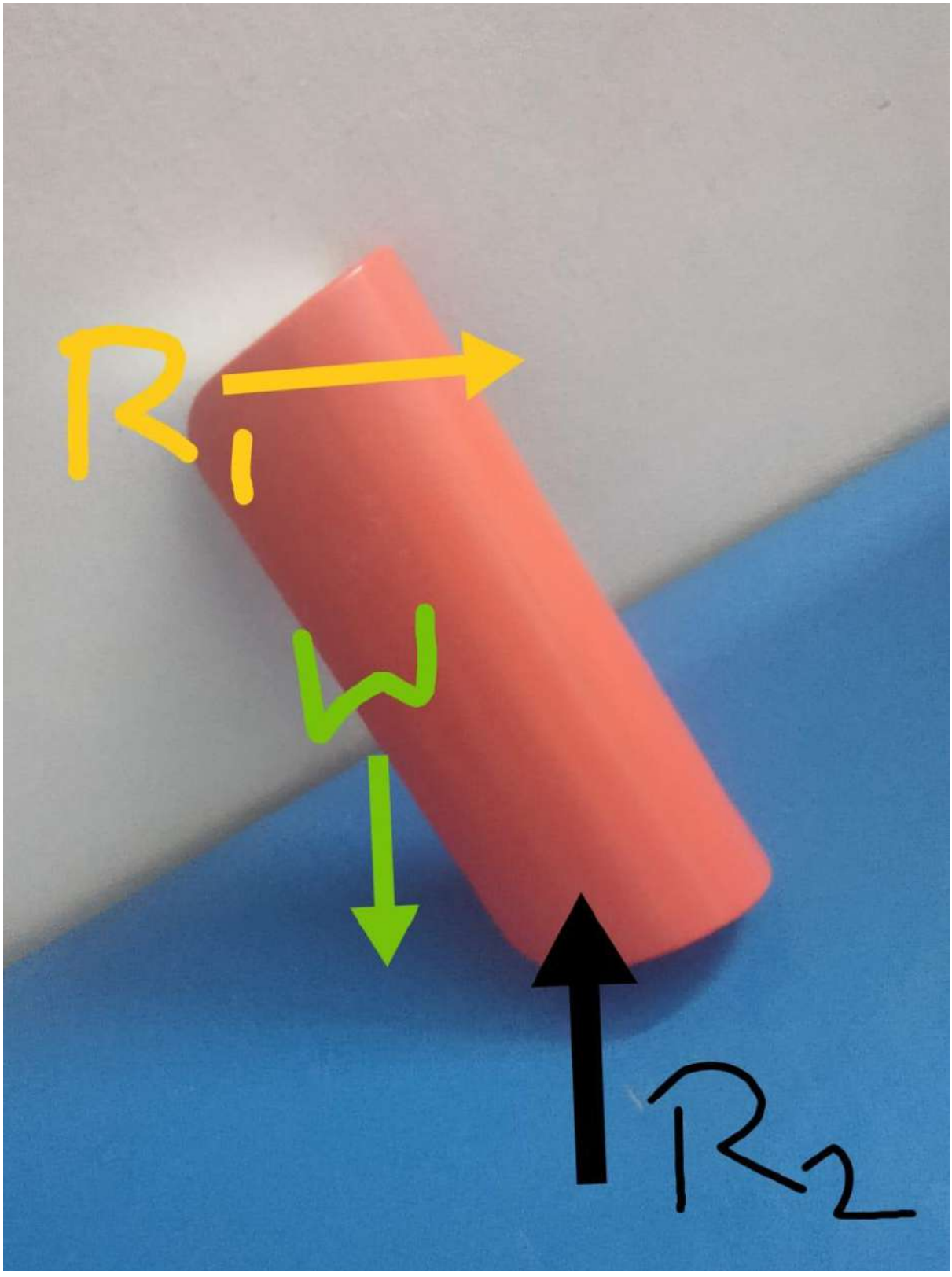


PHOTO 2



Activity - 2 :

Moment:

$M = F * d$ (here, $d = 1m$)

Given : $F = 20\ N$

then, Moment (M) = $20 * 1$

$= 20\ N\ m$

When the distance ,d is reduced ,the moment about the hinge also reduces.

$$M \propto d$$

Hence ,the door handle is fixed at the end to provide enough moment to close or open the door

VARADHARAJAN.C.N | MECH - B | 201001077

Mechanical Assignment
CAT-2
Activity -2

R.V.SAI KUMAR
MECH-B
2020mec0232
ROLL NO : 62

Moment

$$M = F * d$$

$$d = 0.75\ m$$

Given :- $F = 20N$

Then, Moment $(M) = F * d$

$$= 20 * 0.75$$

$$= 15\ Nm$$

When, the distance / d is reduced, the Moment about the hinge also reduced

$$M \propto d$$

Hence, the door handle is fixed at the end to provide enough moment to close or open the door.

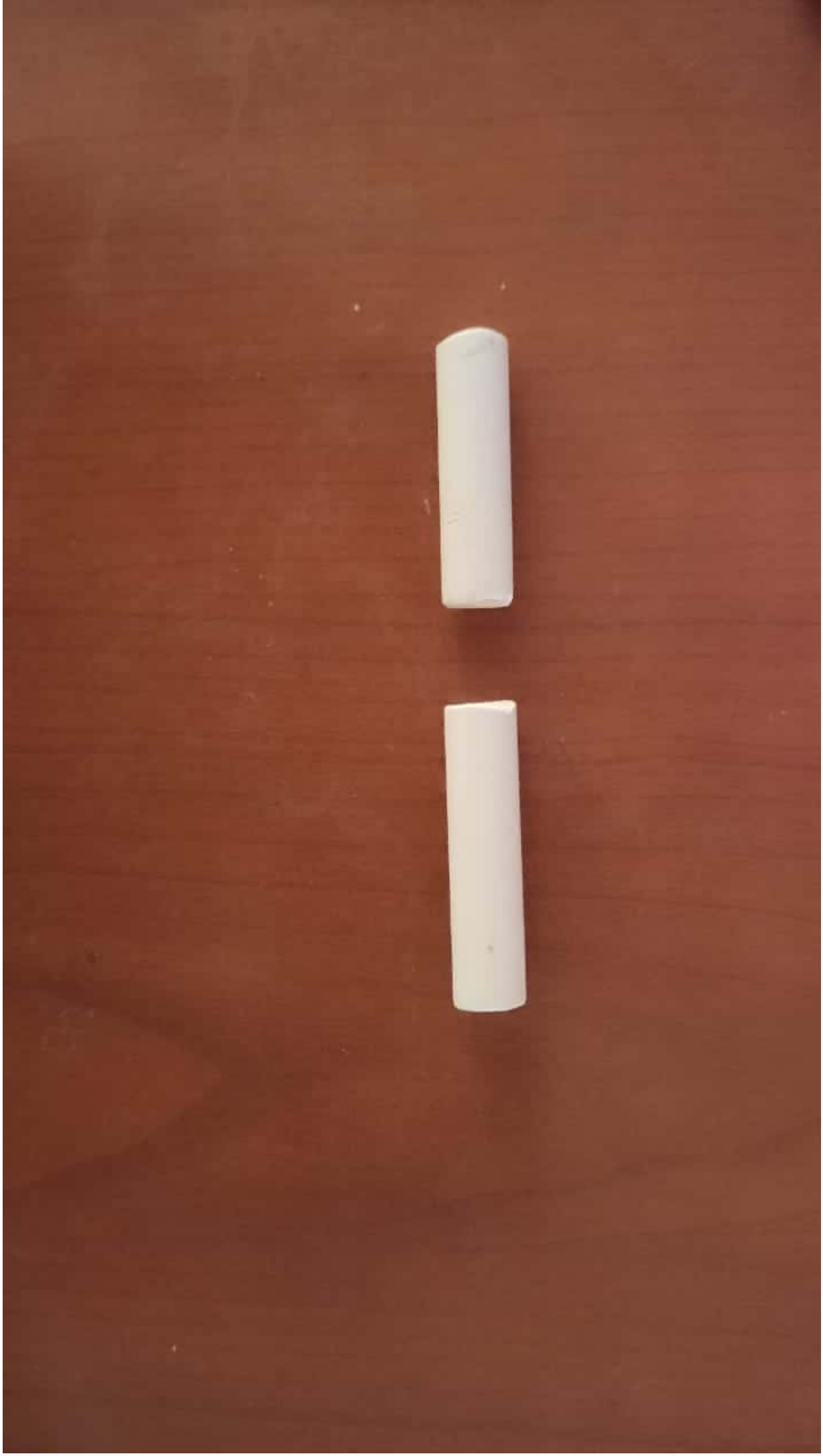
Problem

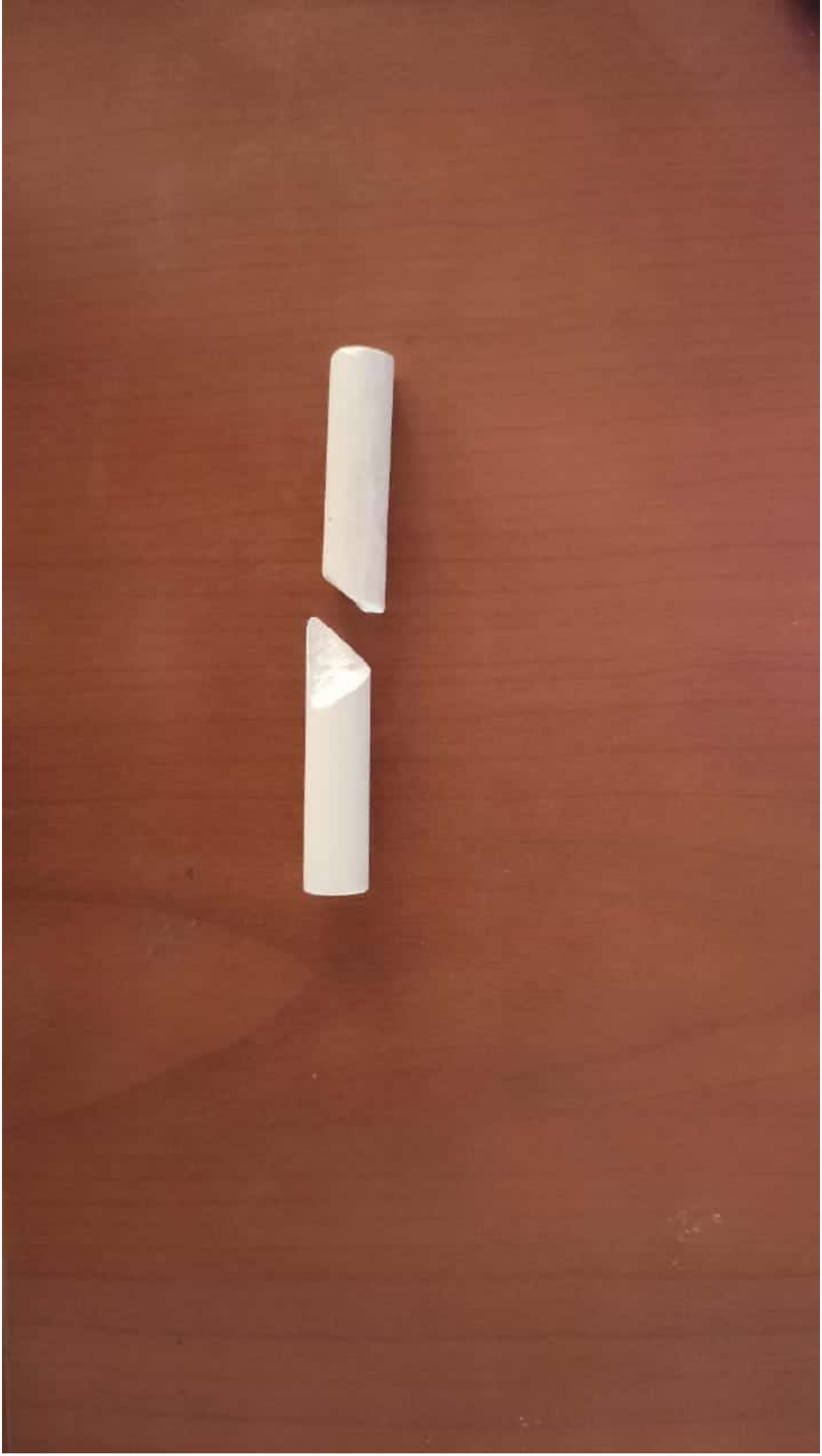
1. Consider two chalk pieces. For the chalk 1 apply a force perpendicular to the axis of chalk until it breaks. Similarly, for chalk 2, apply a twist at the end of the chalk until it breaks. Take a photo near the breaking area for that two chalks and discuss the cause of breakage and type of stresses formed in both chalks

   Mark consideration:

   Nice photograph of chalk before and after breakage - 50 marks

   Discussion - 50 marks





FIRST EXPERIMENT

STRESS DEVELOPED IN CHALK

1. Applying force Perpendicular to the axis of a chalk

When we apply a force Perpendicular to the axis of chalk it breaks into two pieces Photo was taken at the breakage area and it is attached.

The cause for breakage:

The chalk is brittle and less ductile in nature. So when the applied force is greater than the breaking strength of the chalk it breaks into Pieces.

This type of stress is Bending Stress

2. Applying a twisting force at both ends of a chalk

When we apply a twisting force at the ends of chalk it breaks into two pieces

Photo was taken at the breakage area and it is attached.

The couse for breakage :

The chalk is brittle and less ductile in nature. So when the applied tortional force is greater than the applied breaking strength of the chalk it breaks into piece The type of stress is Torsional stress

1st Photo - Bending stress

2nd Photo - Torsional stress

ME-18304

Mechanics of Solids

Stress developed in chalk

Assignment

Name: **V. Ashwin Kumar**

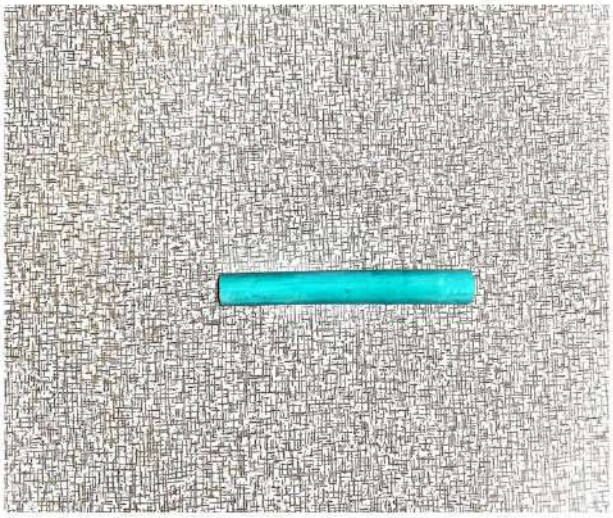
Roll Number: **191001007**

Department and section: **Mechanical-A**

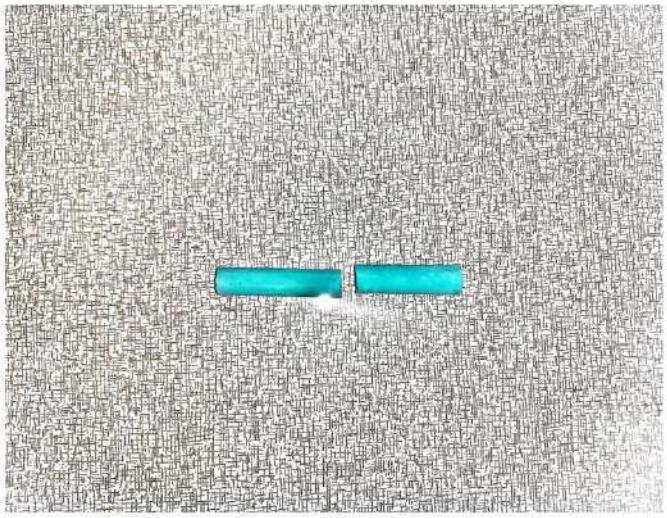
Year of study: **2019-2023 (Semester Ⅲ)**

Scenario 1 :Applying a force perpendicular to the axis of chalk

- Before application (Image A1)



- After application(Image A2)



Scenario 1

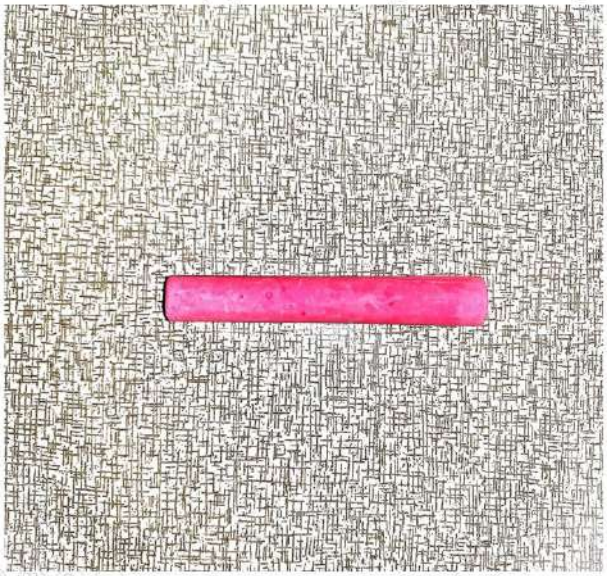
Applying a force perpendicular to the axis of chalk

In the first scenario, a force is applied to the centre of the chalk (length wise) perpendicular to the axis of the chalk. When said force is applied, a crack is formed on the place of application of force and the pieces, when separated, have their cross section identical to the original piece.

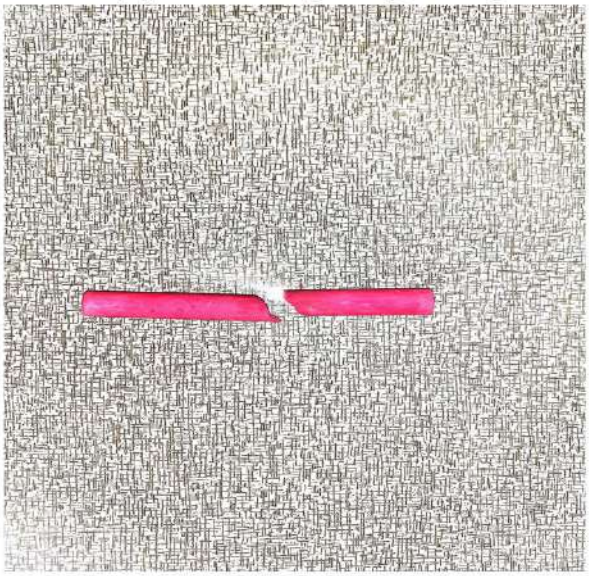
This may be due to the **normal stress** developed on the point of application of force. As the force is not angled and is parallel to the diameter of the cross section of the chalk, the original cross section is maintained, just like how we see in figures A1 and A2.

Scenario 2:Applying a twist at the end of the chalk

- Before application(Image B1)



- After application(Image B2)



Scenario 2

Applying a twist at the end of the chalk

In the second scenario, a twist is applied at one end of the chalk (lengthwise) perpendicular to the axis of the chalk. When the said twist is applied, an angled crack is formed on the centre of the chalk (lengthwise). When these pieces are separated, the cross-section is not uniform; rather, it is uneven and alternating sides of the pieces have their lengths a bit longer and a bit shorter compared to the samples from scenario 1's images Al and A2.

This could have been due to the fact that when twisting the chalk on one side, it could have formed shearing stress which was resolved at some angle (roughly 45°, from observation). The chalk ultimately broke due to the torsion applied while twisting the chalk and it broke unevenly due to the angular crack by the shearing stress