

NLK'S LITTLE STEPS



STEAM COFFEE BOOK

#Mindfulness

#Experiential Learning

#Design Thinking

#Exploration

#Innovation

ENGINEERING DESIGN

We offer students specialized classes in Engineering Design, where they explore various simple machines and engineering tools through hands-on practice.

They also learn to create blueprints and gain a strong foundational understanding of core physics concepts. This approach bridges theory with real-world application, fostering analytical thinking and creativity.



GRADE 6

Module 1 : Slopes and Angles

Introduction to the concepts of Gravity and Friction. Students built models to understand how gravity affects us and what could be the effect of friction for various angles.



Module 2 : Levers

Students were introduced to the concepts of force and work. They were led to understand that simple machines are basic tools that make work easier by changing the magnitude or direction of force. They built models and, in the process, expanded their knowledge of the mechanical advantage and real-life applications of the lever.



GRADE 7

Module 1 : Pulleys and Wheels

Students built two simple machines. In the first project, they built a Pulley frame to understand how a pulley system works. In the second project, students built a cart and its launcher to gain insights on how forces are used in the movement of an object.

Module 2 : Power Transfer

Students built upon their knowledge of power transfer mechanism. They built models that integrate different forms of power transfer, including power transfer across right angles and power transfer that occurs intermittently.



GRADE 8

Module 1: Herculean Machines

Students explored the mechanics behind levers, pulleys, inclined planes, and more, understanding how these devices made work easier. By designing and building their own Herculean machines, they applied concepts of force, effort, and load, developing critical problem-solving skills while engaging in hands-on activities that enhanced their grasp of real-world engineering challenges.



Module 2: Gear Ratios

Students were introduced to different types of gears. They built projects which furthered their knowledge about gear pairs, gear reductions, gear trains, torque, and power ratio.



CAPSTONE SOLUTIONS



CAPSTONE

Prototype

5. Sketch the model that you are planning to build and label the parts. (14A)

6. Write down the list of materials that you think you will need to build your model. (14A)

We will need the following list of materials to build our machine

1. Base Plates	17. Build
2. Gear Wheel - 20/120	Block 15/4
3. Flat bush nuts	2 Pins
4. Rubber band	150 squares
5. Count shaft	
6. Cliff axle	
7. Clips	
8. Axle Coupling	
9. Pin Masher	
10. Angle bracket	
11. Building block 30	
12. Building block 15 with hole	
13. Building block 15 with hole	

Build Create Escalate

CAPSTONE

Prototype

5. Sketch the model that you are planning to build and label the parts. (14A)

6. Write down the list of materials that you think you will need to build your model. (14A)

1. W.A. nut
2. Axle
3. Counting shaft
4. Building blocks with holes
5. Gear plate
6. Gear
7. Building blocks

Build Create Escalate

CAPSTONE

Prototype

5. Sketch the model that you are planning to build and label the parts. (14A)

6. Write down the list of materials that you think you will need to build your model. (14A)

We will need the following list of materials

1. Base plate 5x10
2. Axle
3. Rubber band
4. Rubber band
5. Rubber band
6. Rubber band
7. Rubber band
8. Rubber band
9. Rubber band
10. Rubber band
11. Rubber band
12. Rubber band
13. Rubber band
14. Rubber band
15. Rubber band
16. Rubber band
17. Rubber band
18. Rubber band
19. Rubber band
20. Rubber band

Build Create Escalate

CAPSTONE

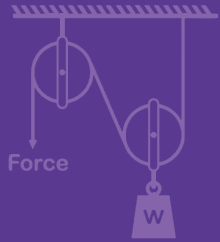
Prototype

5. Sketch the model that you are planning to build and label the parts. (14A)

6. Write down the list of materials that you think you will need to build your model. (14A)

Name of the part	Requirement
Wheels	4
Impeller	1
Building Blocks	10
Base plate	1
Pin	1
Wheels	4
Building Blocks	10

Build Create Escalate



*Invention
is curiosity
in action.*

