



<TACO>
robobricks

STEM MAKER KIT

LESSON PLANS

PENDULUM



IMAGINE
BUILD
PLAY

OBJECTIVE

1. Understand that objects swing back and forth, when suspended from a pole.
2. Describe the simple harmonic motion arising from a swinging pendulum.
3. Understand the working of Pendulum.
4. Create a simple pendulum using the STEM maker kit.

WORD WALL

- **Swing**
to move from one side to another when suspended in a pole.
- **Motion**
Movement of a object.
- **Pendulum**
A heavy weight suspended through a pole that moves regularly from one side to another.

PRE KNOWLEDGE-CHECK

1. Understand that objects move when a force is applied.
2. Identify parts that are required to create the model.
3. Ability to create a model by snapping blocks.

ASK

1. Have you played in a swing with your friends? How does it move?
2. Have you come across any object that moves sideways, instead of front and back, as in a swing?
3. If yes, that is an example of a pendulum. Have you ever come across any other objects like that?
Can you name a few?

A) PENDULUM CLOCK



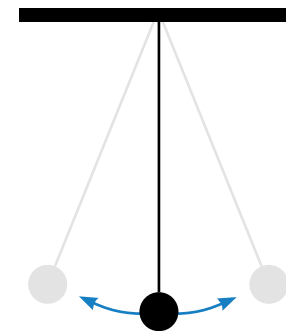
B) WIND CHIMES



C) BELL

**SIMPLE PENDULUM**

A Pendulum is a weight that hangs from one end of a wire. The other end of the wire is attached to a fixed point. The pendulum swings freely when the weight is pulled back and let go.



IMAGINE

- 1. You would have observed that the pendulum swing creates a pattern of motion. Where else you can find a pattern of motion apart from this?**

E.g. waves in the sea, playground swings, clocks, ropes and balances in the circus.

- 2. How can we increase the speed of a pendulum?**

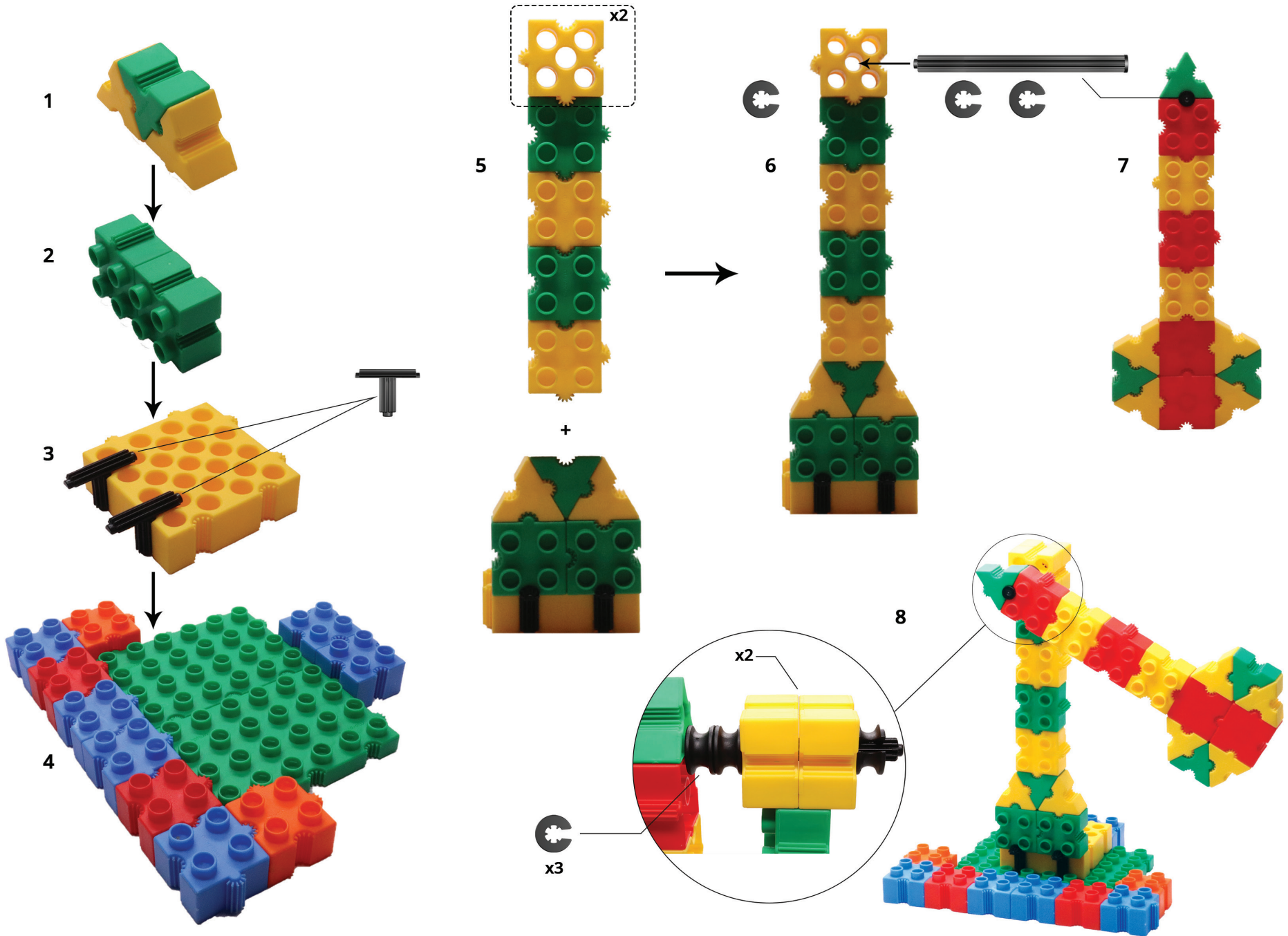
This can be done by increasing the length of the pendulum and also by increasing the weight of the pendulum.

PLAN

Discuss among your friends and construct a Two Wheel Cycle. Think which among the parts will be required and how many will be required. Also discuss how much time will be required to complete the construction.

CREATE

Create a Pendulum by following the steps shown below.



EXTEND

Do the following changes in the pendulum created by you and observe the following:

Changes	Observations
Increase the length of pendulum and decrease height of pole	
Add more weight to the pendulum, by adding more bricks to it	
Increase the height of pole and decrease length of pendulum	

Add two gears in the front and back of the bush, where the pendulum string is joined with a pole and observe if there are any variations in the swing speed.

SHARE

Share the created model with your friends and family and have fun trying theirs.

DID YOU KNOW?

A pendulum finds extensive use in clocks. Pendulum clocks were invented in 1656 by Dutch scientist and inventor, Christian Huygens, and were later built by Salomon Coster.