

This Activity Program is for use with:

Noggin BuilderZ Advanced Kit

Each kit can accommodate up to 8 students.

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Building Blocks and Child Development

Child development refers to how a child becomes able to do more complex things as they get older. When we talk about normal development, we are talking about developing skills like:

- ***Gross and Fine Motor***
- ***Language***
- ***Cognitive & Intellectual***
- ***Problem Solving***
- ***Mathematical***
- ***Social Emotional***

Let us take a look on how building block, as a tool contribute to child development:

Fine Motor

While making models, the children have to push, pull, insert into the hole, and make connections between parts, during the process of building, all this movement enhances the hand eye coordination and provides a good opportunity to practice their arm, wrist and finger strength and accuracy.

Language

When the children talk about what they build, explain how their model works, share information, discuss or make a presentation, these flourish their language development.

Cognitive & Intellectual

As the children experiment with blocks, they have entered the area of science as they learn about physical laws, reality and the law of gravity (objects fall down). With time and experience of many hours of handling blocks, they will learn how to make a steady building, how to balance weight equally and about three-dimensionality.

Problem Solving

Block building poses further problem solving for children. There are architectural problems: *Why does the tower keep falling?* Initially, these problems are worked on through trial and error. Then, from an expanding background of experience and long stretches of time spent in trial and error, children arrive at the point where they announce with conviction, *"If we add a square here, see, then the tower will be more steady."*

Mathematical Thinking

Blocks become tools that invite mathematical thinking. Patterns, geometric shapes, part-whole relationships, fractions, adding, dividing and subtracting are all experienced and practiced naturally in the process of building.

Social Development

There are many and varied opportunities exist for *moral* thinking. Negotiation, compromise, cooperation, caring, consideration, the balance of individual and group rights and life experiences children encounter, all work to resolve the dilemmas that arise when space and materials are finite and must be shared.

In symbolically recreating their world through block building and dramatic play, children also learn to use the social symbol systems of language and mathematics to tell us the meanings that they have created and the understandings they have achieved. In the process of translating their ideas, images and feelings into visible forms, the children share their information, strengthening their skills and abilities of using language symbols such as naming the model they created and mathematical symbols to describe they size, shape, weight.

The learning opportunities available in block building, and the dramatic play accompanying it, are many and varied.

How Noggin BuilderZ Benefits Child Development

In early years of childhood, they engage in exploring the world around them, trying things out, making links and having their own ideas and expressing themselves.

Noggin BuilderZ is a creative construction system that consists of elements that facilitate creativity. From simple to complex structures, 2D to 3D models, static to dynamic objects, children are able to translate their ideas into real form and express their ideas and innovation.

Beginner

In the beginner's stage, children are introduced to parts of Noggin BuilderZ and construction of simple modules. Children will initially learn to make some modules by following instruction, and further extend it into a model. They will understand that every complex system is built up from different simple modules. By the end of the program, they will acquire the skill and know-how to use all the elements creatively and make complex models from simple modules.

Intermediate

In the intermediate stage, children will learn to make real life objects from Noggin BuilderZ, they are then encouraged to innovate the model to meet new needs, expand their functions, or modify to become bigger or more stable. They will learn and understand science and concepts of base (stability, motion, hinge, gravitational force, direction, etc). By the end of the program, they will be able to build more complex structures, including a dynamic structure that can move, turn, and revolve.

How Noggin BuilderZ Benefits Child Development

Advanced

In the advanced stage, children will be introduced to gears, bearings, pulleys and belts. Classroom experiments facilitate the children to understand the concepts of gearing up, gearing down, changes in motion, speed and power, linear and rotary power, driving forces, etc. They are encouraged to create models and to experiment on scientific concepts. At the end of the program, the children will be able to create hand powered devices and machines

Through the program, the children develop:

- Fine motor skills which increase their self confidence, perseverance, and ability to complete a project individually or as a group
- Conscientiousness, looking at things in more detail and looking for characteristics
- Curiosity, keenness for investigation
- Useful innovation and creativity to create solutions to their problems
- Intra and inter-personal skills to work individually or in a group
- Understanding of science, mechanical or mathematical concepts and technical terms

There are special qualities that are found in children who engage in block building: **higher EQ** and **higher resistance to failure and frustration**. In the process of block building, a problem solving mechanism is triggered, *if this is not stable, how should I make it more stable? If this does not work, I can try other ways...* A positive attitude is being cultivated which is a very important asset in the future development of the child.

New Family Members



Objectives:

1. Let the kids name the new family members (parts)
2. Explore with the new family members.
3. Learn how to connect with other family members
4. Use creativity and imagination to construct simple items with the new family members.

Part 1

FAMILY MEMBERS

Pins and Gears



Spiral Staircase



Sunflower Garden

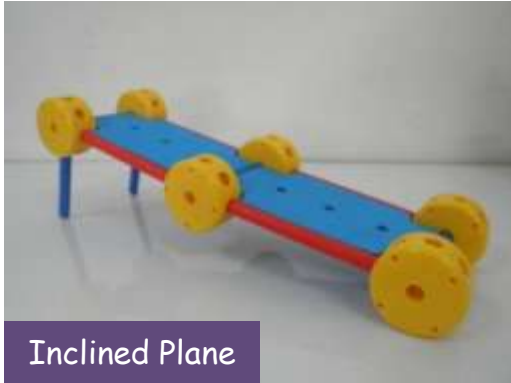


Sunflower

NBZ Mini Robot



Simple Machine

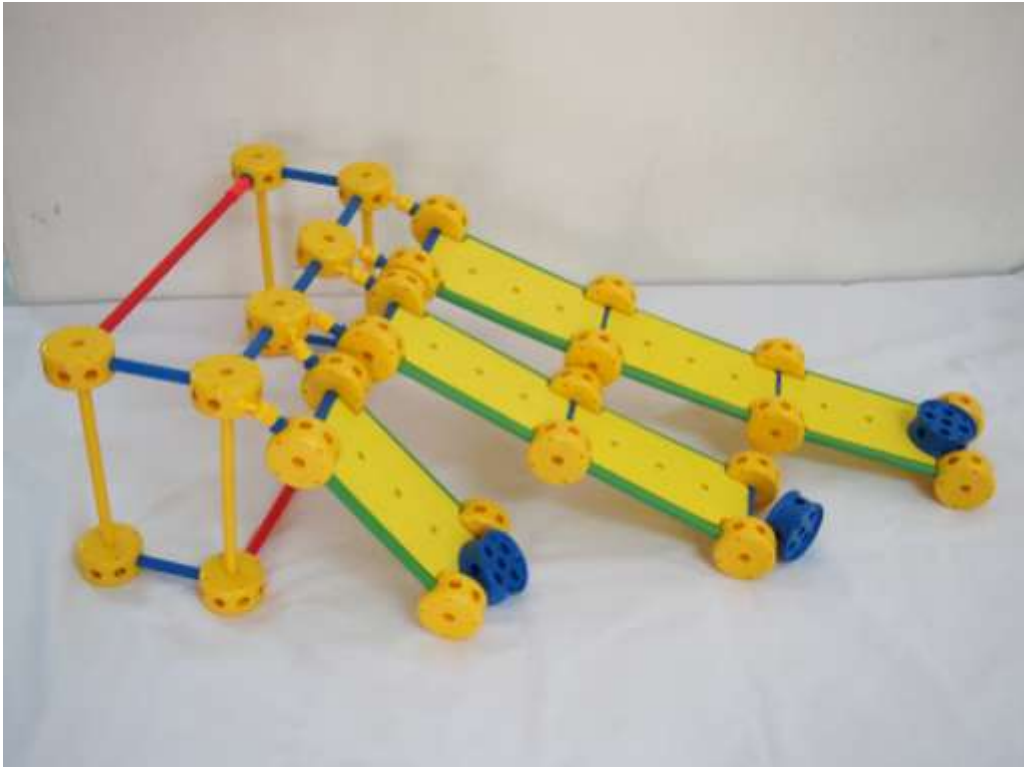


Objectives:

1. Let the Kids learn about simple machines
2. Learn how simple physics helps make everyday life easier
3. Explore a few types of simple machines:
 - inclined plane
 - pulley
 - lever
 - wheel and axle
4. Use Noggin BuilderZ to construct some simple machines and explore with it.

Inclined Plane

Inclined Plane



- An inclined plane is a flat surface that is sloped
- It takes less effort to move or lift something higher.
- The amount of work is the same:
 $\text{more force} \times \text{shorter distance} = \text{less force} \times \text{longer distance}$
- It will be harder to push a rock up a steep slope, so using a less steep slope with longer distance will make it easier to push.
- Climbing up a steep hill needs more effort. Walking up a gentle slope need less effort but longer distance to reach the same height.
- Reduced force produced by direct falling.

Part 2

Simple Machines

Inclined Plane

Inclined Plane

Parts used:



Steep Slope



Moderate Slope



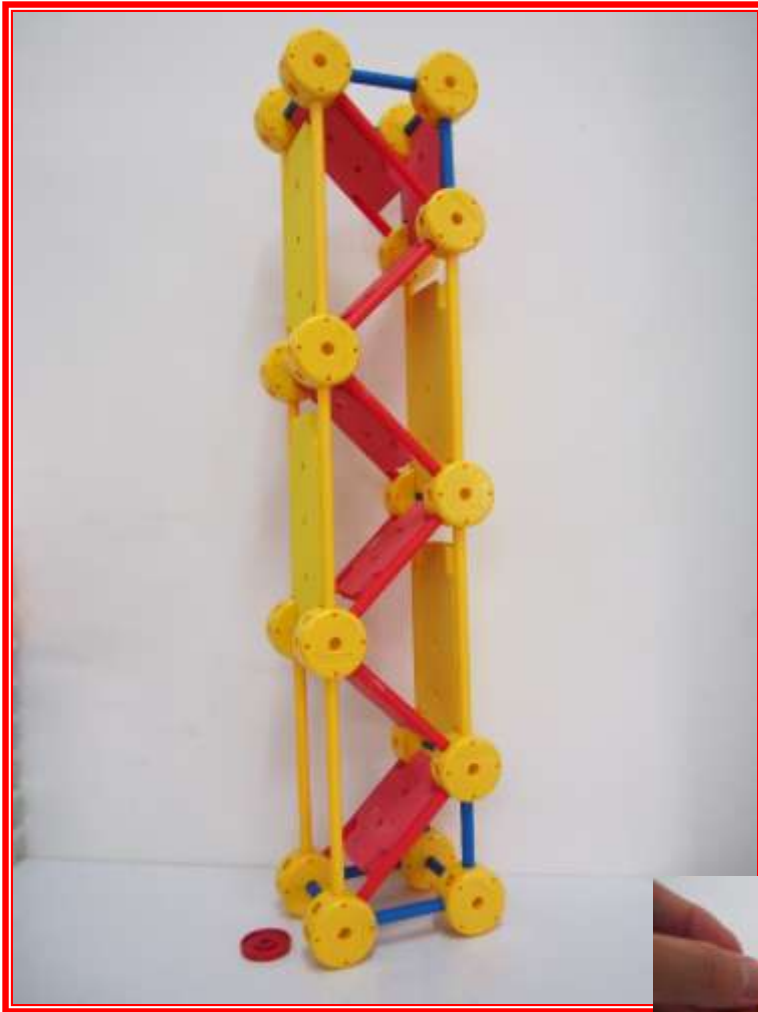
Gentle Slope



- To push the wheel up to the cabinet, which slope will use least effort?

Inclined Plane

Inclined Plane Tower

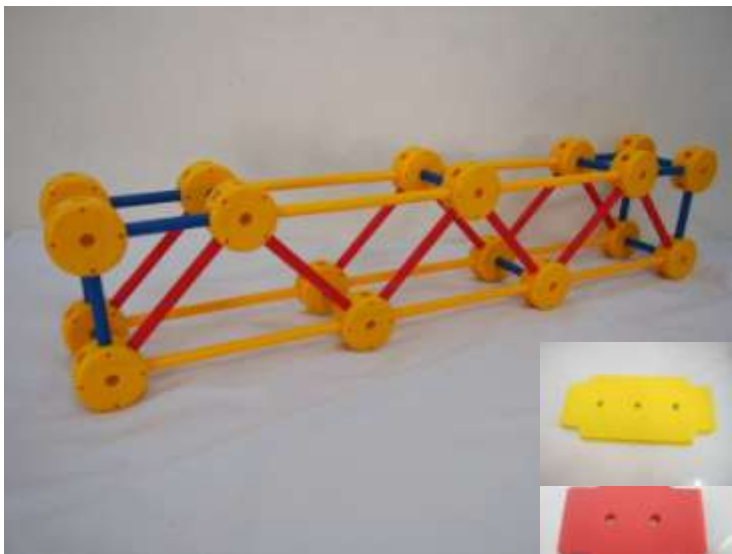
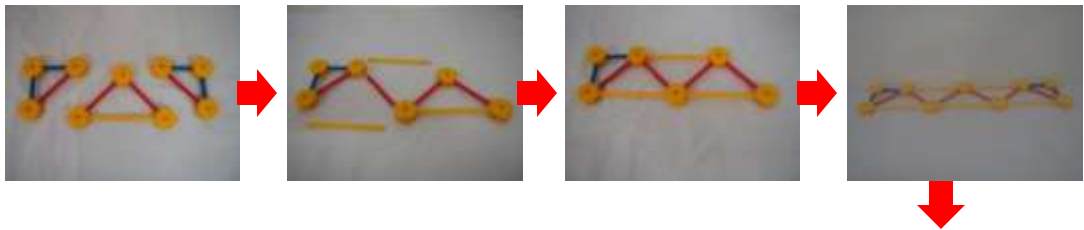


Part 2

Simple Machines

Inclined Plane

Parts used:



- At the same time, drop one disc or a coin from the tower and drop one next to the tower, which one will reach the ground first?
- What is the reason?
- Why would we want to reduce the force in which the object hits the ground?



Note to Teacher:

Use tape to secure the square sponge to the tower if it drops off.



Pulley

Pulley



- A pulley is a chain, rope, or belt wrapped around a wheel. It provides lifting, lowering and movement
- Try to lift a bucket with your hands, and lift with the pulley, which one is easier?

Flag Pole



Pulley

Flag Pole

Objectives:

1. Learn to know the things that use pulleys in our daily life.
2. Learn to make a flag pole using Noggin BuilderZ.
3. Explore different ways of making a flag pole.
4. Use imagination and creativity to design your own unique flag pole.
5. Artistic demonstration – design and decorate your flag pole.

Preparation

1. Some picture of flag pole in different building or event.
2. String
3. Paper and colored pencil
4. Glue or tape

Steps:

Attraction

1. Ask the children where can we see flag post? In the school, police station, sports event and where else.
2. Can you draw the flag of your country?

Build

1. Let the children build the flag pole.
2. Let them draw their flag and attached to the string, then tie it to the flag pole.

Modification

Design and build your own flag pole and draw your own flag

Present:

1. Let the children sing a song and raise the flag slowly.
2. Invite the children to talk about the flag pole they design and build.

Clean up:

1. Ask the children to dismantle and put the parts back to the storage box or
2. Ask the children to put the model they made to the specific display area.

Note to Teacher:

1. Show the children how to glue or tape the flag they draw with the string.
2. Show the children how to tie the string to the Noggin BuilderZ flag pole

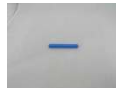
Part 2

Simple Machines

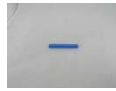
Pulley

Flag Pole

Parts used:



Base



Pulley

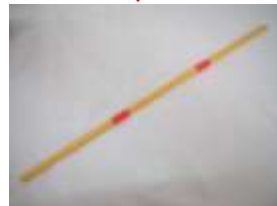


Stand

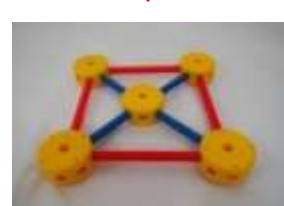
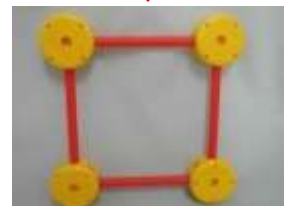
Pulley



Stand



Base

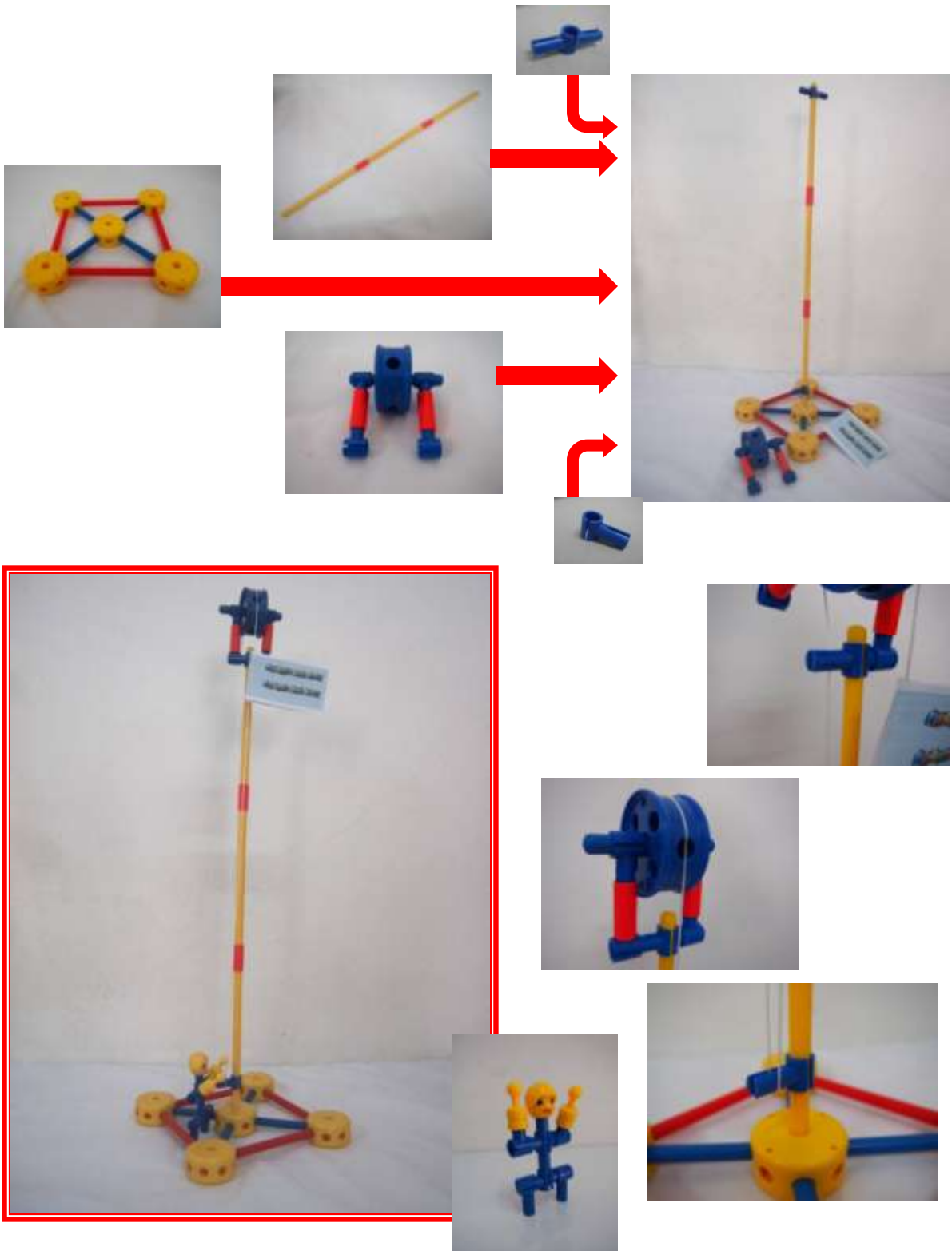


Part 2

Simple Machines

Pulley

Flag Pole

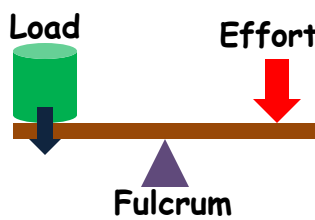
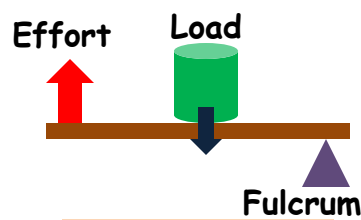
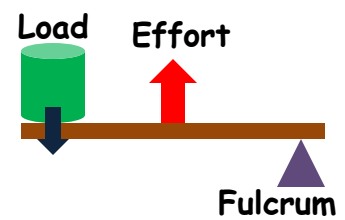


Lever

Lever



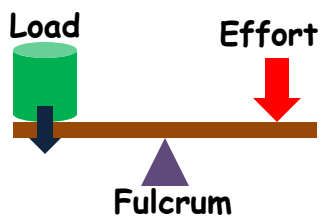
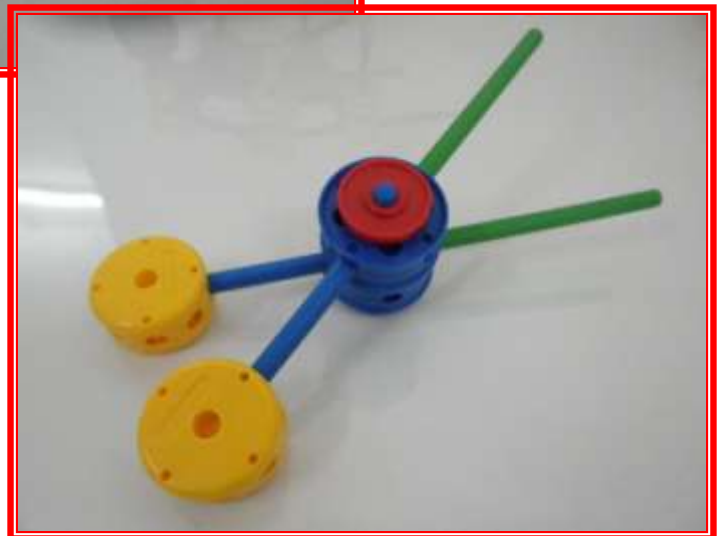
- A lever is basically a long stick that you push or pull against a pivot (fulcrum) to move something.
- A lever lets you move something heavy (lift load with less effort) or make something go fast
- We use levers in so many of our daily life activities.
- There are 3 types of levers:
 - 1st Class lever Seesaw or scissors
 - 2nd Class Lever Wheel barrow
 - 3rd Class Lever Staple remover / tweezers

1st Class lever2nd Class lever3rd Class lever

Weighing Scale



Scissors



1st Class lever

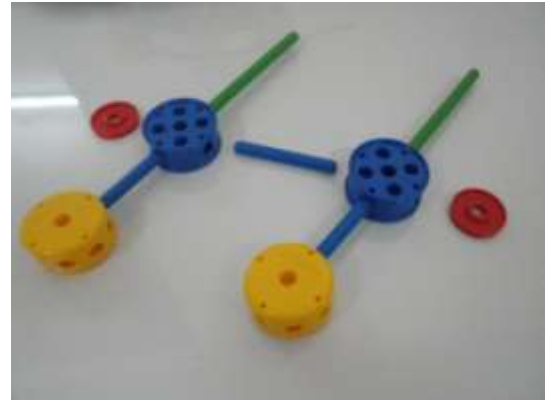
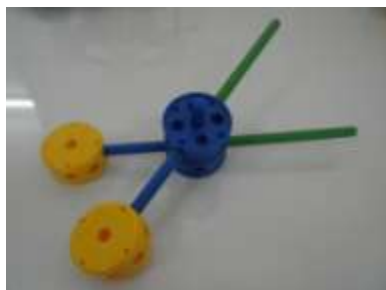
Part 2

Simple Machines

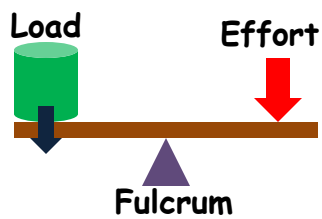
Lever

Scissors

Parts used:



Weighing Scale



1st Class lever

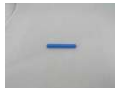
Part 2

Simple Machines

Lever

Weighing Scale

Parts used:

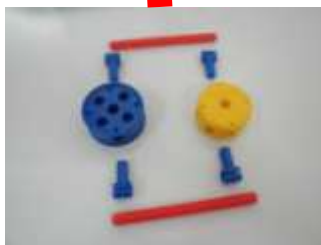


Part 2

Simple Machines

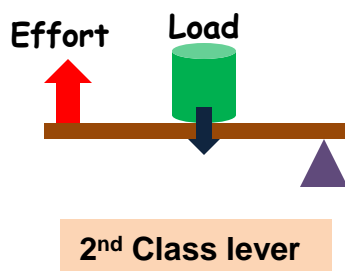
Lever

Weighing Scale



- Compare the weight of two items
- Is the weight of different types of gears the same?
- What is the weight of a spool? How many discs equal to the weight of a spool?
- Try to weigh and compare the weight of various objects.
- Build another type of weighing machine.

Wheel Barrow



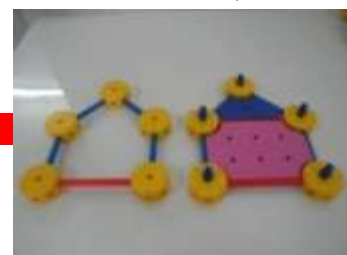
Simple Machines



Parts used:



Stand



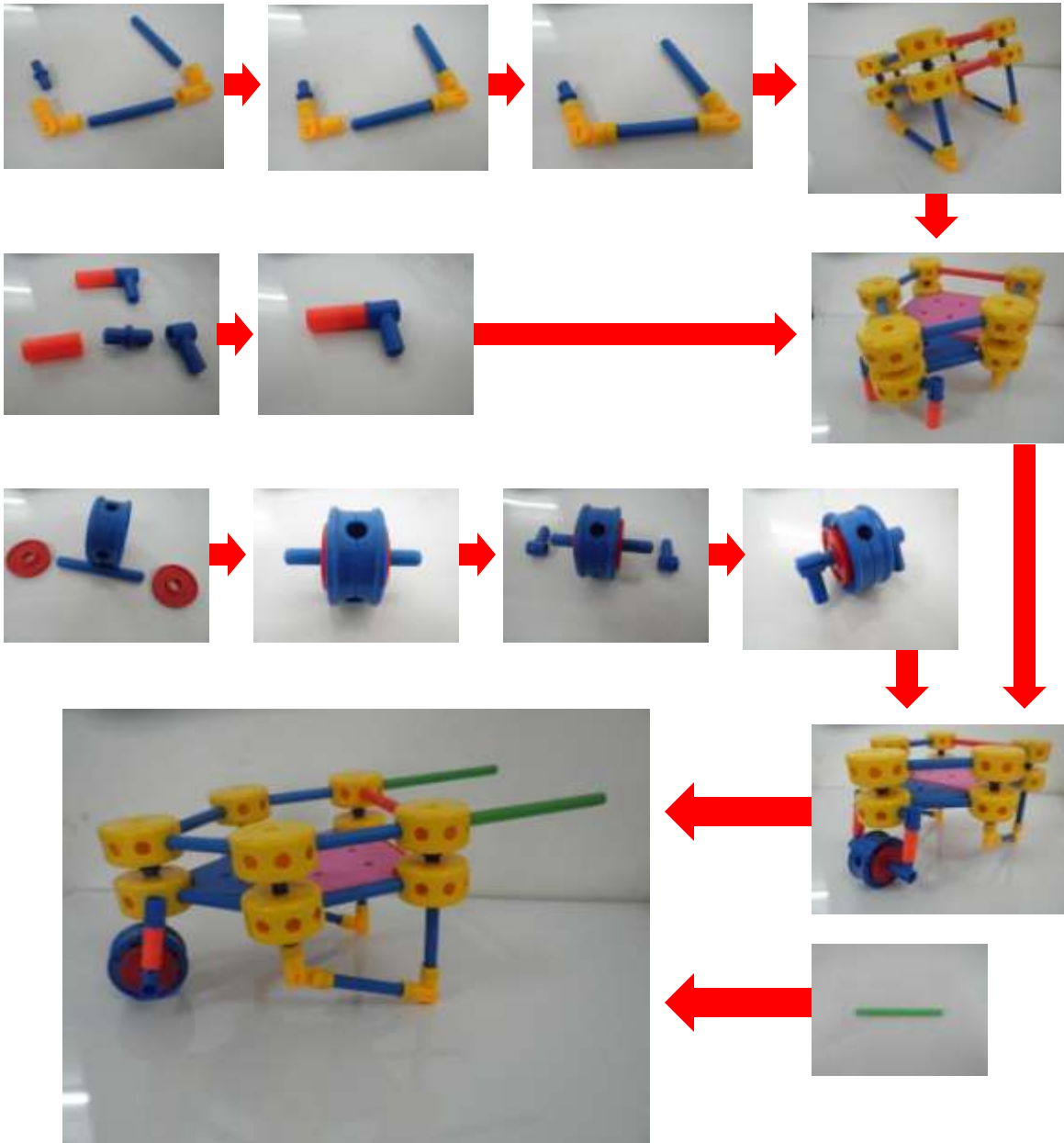
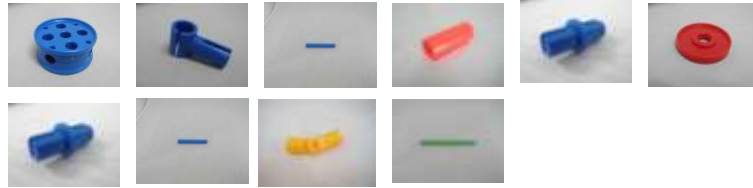
Part 2

Simple Machines

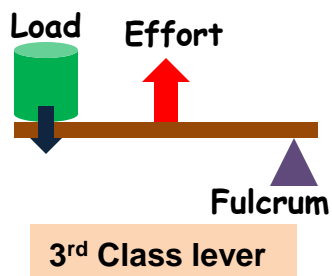
Lever

Wheel Barrow

Parts used:



Tweezers



You have to use more energy, but load moves in the same direction as the force you apply, which is convenient.

Wheel and Axle

Wheel and Axle



- A wheel and axle has 2 parts to it. The wheel, and the axle! The axle is a rod that goes through and locks to the wheel. It rotates along with the wheel. This lets the wheel turn .
- A wheel and axle helps to move objects in 2 ways:
 1. If we turn the wheel, the axle will also turn. Turning wheel with longer distance use less force, but the axle will go in much shorter distance with more force. We can use this to turn something heavy.
 2. If we turn the axle, the wheel will spin. The faster the axle is turned, the faster the wheel spins. That is what cars turn.
- When we move a heavy object, we need to overcome 2 forces:
 1. Friction: Force resisting the motion of the object on the ground.
 2. Gravitational force: Force that pulls the object to the ground.
- Wheels on a wagon only touch the ground at one spot at a time, keeping the rest of the wagon off the ground. This makes less [friction](#)

Container Truck



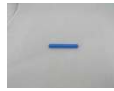
Part 2

Simple Machines

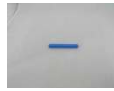
Wheel and Axle

Container Truck

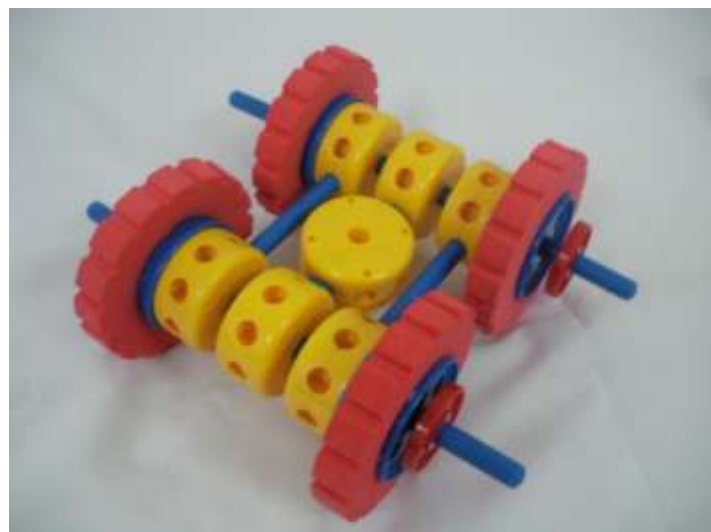
Parts used:



Body



Wheel



Part 2

Simple Machines

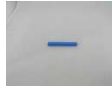
Wheel and Axle

Container Truck

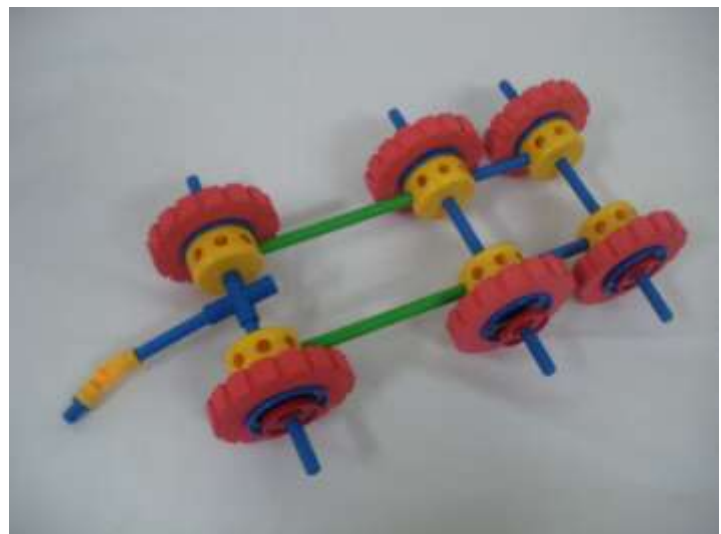
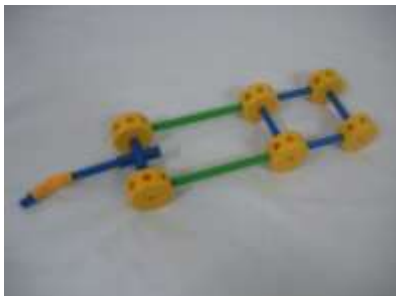
Parts used:



Body



Wheel



Part 2

Simple Machines

Wheel and Axle

Container Truck



What is a Gear

Exploring Gears



Objectives:

1. Learn what is a gear
2. Learn how to name the gears by its number of teeth
3. Learn how to name a gear (Driver, Driven, Idler Gear) by its position in a gear train
4. Learn how to increase, reduce speed, change direction with gears
5. Learn how to build a gear train and explore with the gear train
6. Play around with different combinations of gears and explore the applications to real life

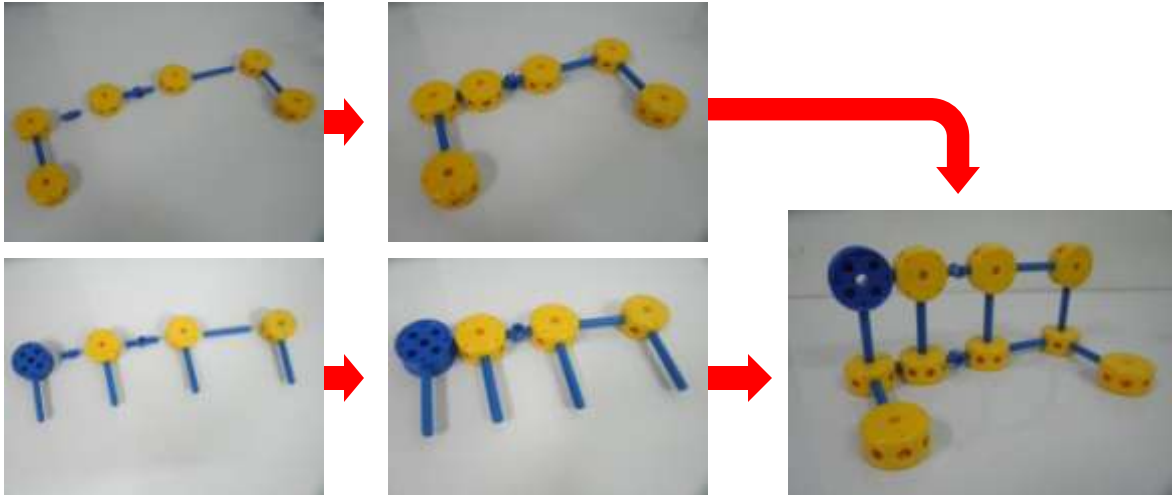
Part 3

Exploring Gears

What is a Gear

Gear Stand

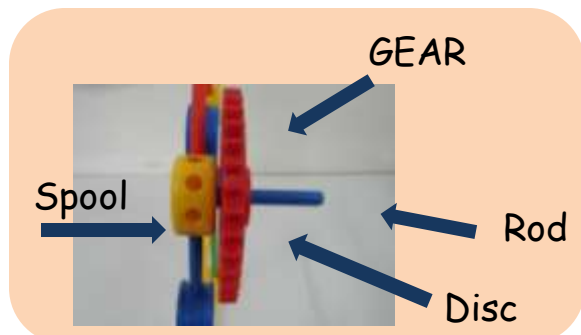
Parts used:



PIN the Gear
with different
color to the
Gear Stand



How to Connect **PIN** the GEAR



What is a Gear



1. Insert the blue rod through the wheel
2. Secure the wheel with 2 discs, 1 at the front and 1 at the back of wheel
3. Insert the green gear to the blue rod



Front View



Back View

What is a Gear

Exploring Gears



What is a Gear?

GEAR is use to transfer the power from the :

DRIVING GEAR (EFFORT)- it can be electric motor, a manual crank, a wind turbine etc to

DRIVEN GEAR (LOAD)- it can be wheel, fan etc

What Are Gears Used For?

Gears can be used to:

1. Change speed.
2. Change torque
3. Change direction of motion
4. Transmit torque over a distance.

What is a Gear

Gears are differentiated by the number of TEETH

What is the number of teeth for each gear:









What is GEAR RATIO:

GEAR RATIO: $\frac{\text{DRIVER}}{\text{DRIVEN}}$

GEAR RATIO: DRIVER : DRIVEN

- Compare the distance covered by the DRIVER gear and the distance covered by the DRIVEN gear or
- When DRIVER gear makes 1 turn, How many turns the DRIVEN gear make?

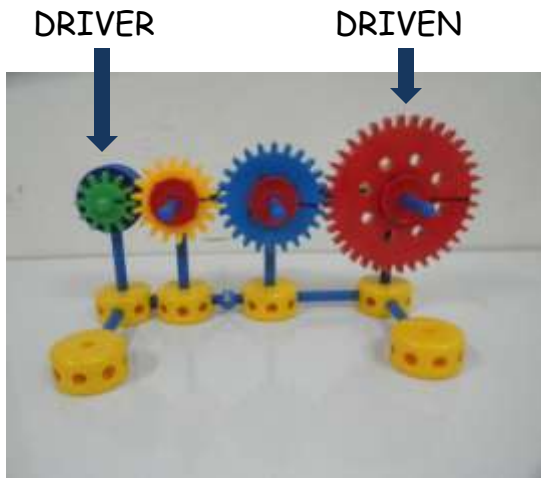
Draw a line on the GEAR, ask the children to notice/take down the number of turns.

- How many turns does a GREEN wheel need to make the RED wheel turn once?
- How many turns does a YELLOW wheel need to make the RED wheel turn once?
- How many turns does a BLUE wheel need to make the RED wheel turn once?

Gear Down

GEAR DOWN

Slow down the Speed



GEAR RATIO:

DRIVER
DRIVEN
12
36
1
3

- With the DRIVER as green gear 12T and DRIVEN as red gear 36T
- The GEAR RATION is 1/3
(green gear makes 3 turns and red gear only makes 1 turn)
- SPEED is 3 times slower
- TORQUE is 3 times more (use less effort to drive heavy load)

GEAR DOWN ➡ REDUCE SPEED

➡ INCREASE TORQUE

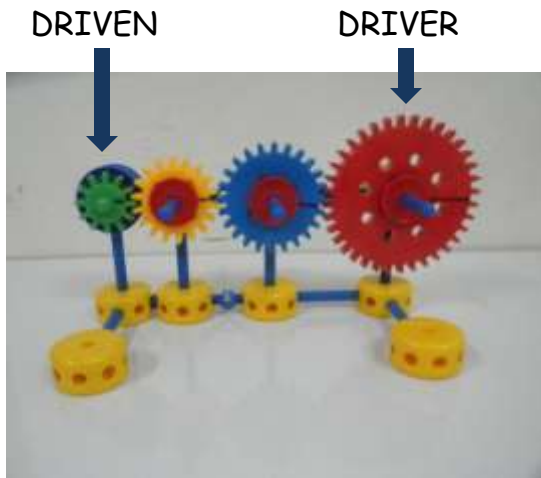
GOING UP HILL

LOAD is high,
use GEAR DOWN to reduce
the speed and increase
torque

Gear Up

GEAR UP

Increase the Speed



GEAR RATIO:

$$\frac{\text{DRIVER}}{\text{DRIVEN}}$$

$$\frac{36}{12}$$

$$\frac{3}{1}$$

- With the DRIVER as **red** gear 36T and DRIVEN as **green** gear 12T
- The GEAR RATION is 3/1
(red gear makes only 1 turn and green gear makes 3 turns)
- SPEED is 3 Times slower
- TORQUE is 3 Times Less

GEAR UP



INCREASE SPEED



REDUCE TORQUE

GOING DOWN HILL

LOAD is low,
use GEAR UP to increase
the speed and reduce
torque

Gear Train

Gear Train

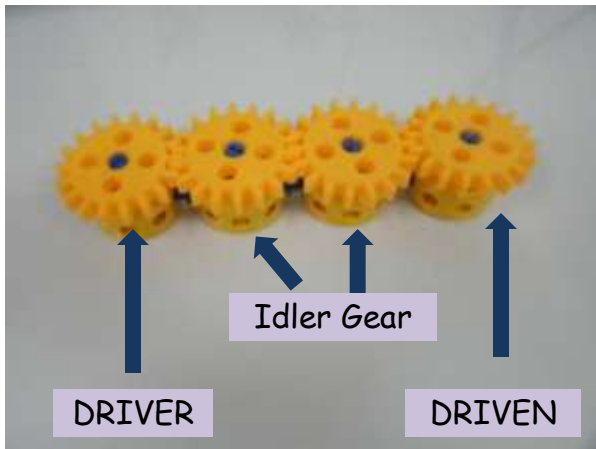


1. Construct many little gear models
2. Connect the little gear module using 2 end pins
3. Join as many little gear models to become a gear train, it can be joined in different directions



Gear Train

Gear Train



What is an IDLER GEAR?

When there are more than 2 gears, the gears in between is called an IDLER GEARS.

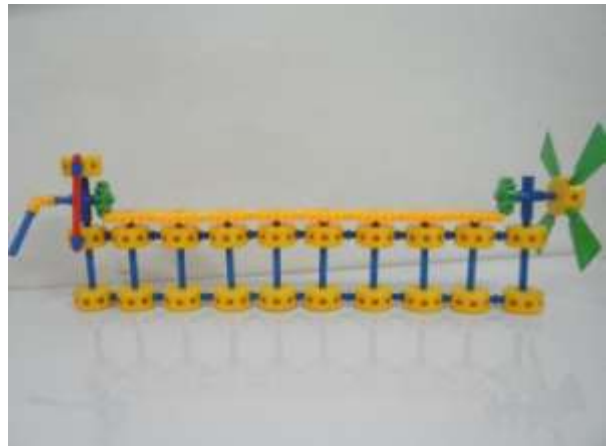
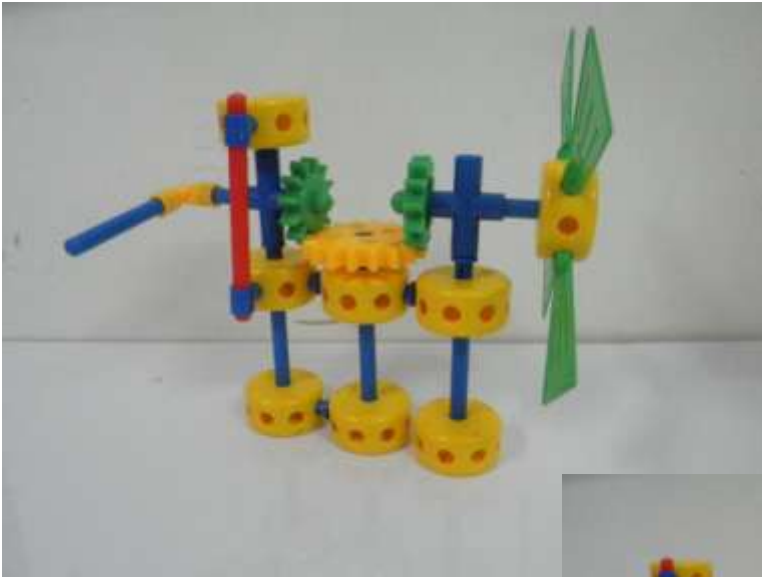
What is a Gear Train?

When more than 2 gears are joined together, it forms a gear train.

Gear trains can be use to change the direction of the DRIVEN gear direction



Change of Direction



Part 3

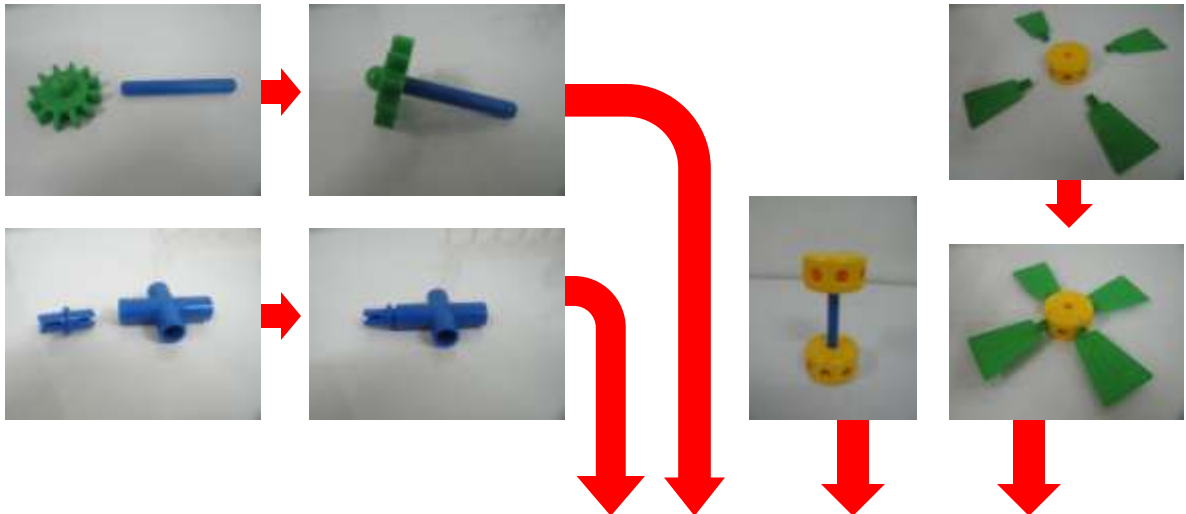
Exploring Gears

Gear Train

Change of
Direction

Driven Fan

Parts used:



Front View



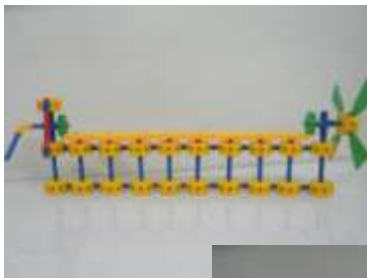
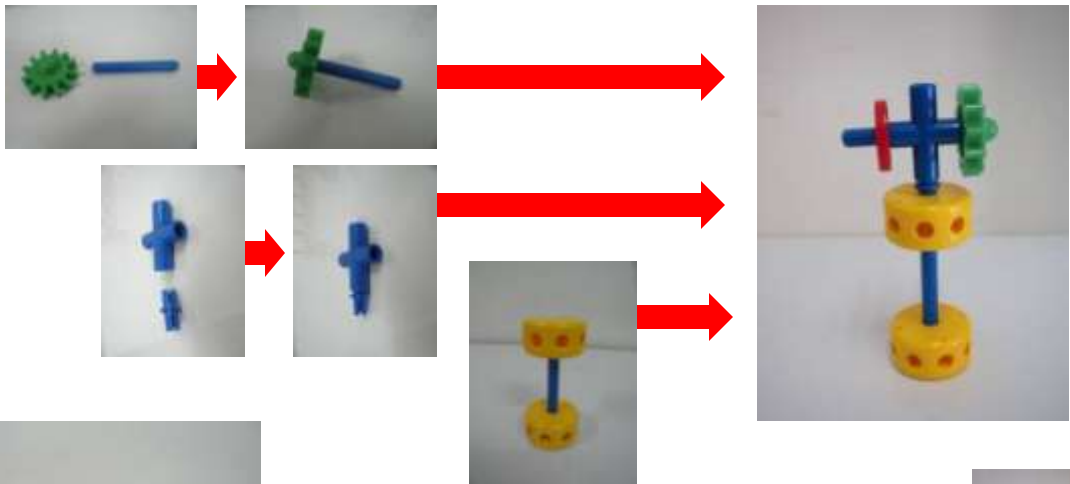
Side View

Gear Train

Change of Direction

Driver Gear

Parts used:



Ask the kids to take note:

- When there is 1 idler gear, if the DRIVER gear turns clockwise, what is the direction of the FAN? (clockwise or counterclockwise)
- When there are 2 idler gears, if the DRIVER gear turn clockwise, what is the direction of the FAN? (clockwise or counterclockwise)
- What number of idler gears should be in the gear train make the FAN turn in the same direction as DRIVER gear?
- What number of idler gears should be in the gear train make the FAN turn in the opposite direction as DRIVER gear?

Part 3

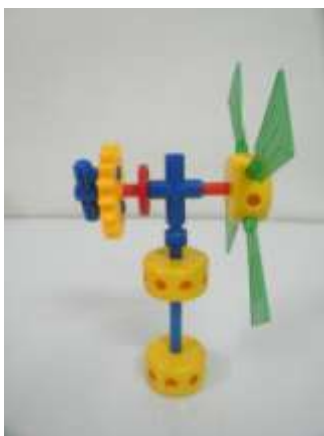
Exploring Gears

Gear Train

Change of
Direction

NOGGIN BUILDERZ

Build different DRIVEN
fans with 12T, 24T, 36T
Gear



18T Fan



24T Fan



36T Fan

Part 3

Exploring Gears

Gear Train

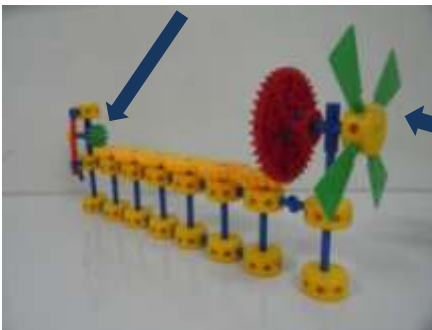
Change of
Direction



Ask the kids to take note:

- Attach the different fans to the gear train
- Notice the speed of fan when driver gear turns 3 round, how many round does the Fan turns:
for 12T Fan - ____
for 18T Fan - ____
for 24T Fan - ____
for 36T Fan - ____
- Notice also the direction of the FAN, is it moved in the same direction as the DRIVER Gear?
- How to make the FAN turn in the same direction or opposite direction as the DRIVER gear?

Driver Gear



Fan

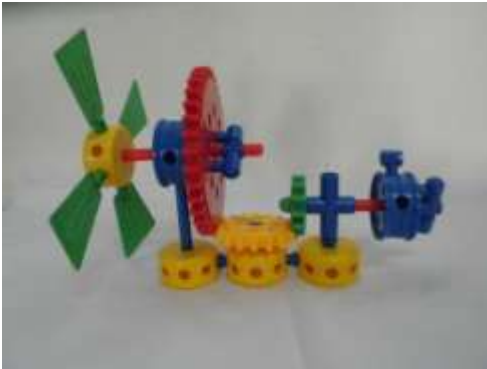


Part 3

Exploring Gears

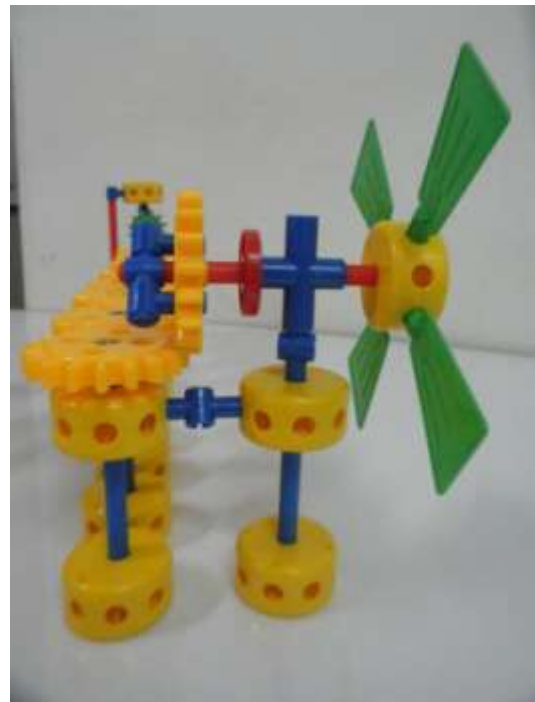
Gear Train

Change of
Direction



Ask the kids to modify and take note:

- Play around with different sized gears in the gear train
- Play around with different sized fans
- Play around with different combination of gear train and fan



2 Speed Fan



Part 3

Exploring Gears

Gear Box

2 Speed Fan

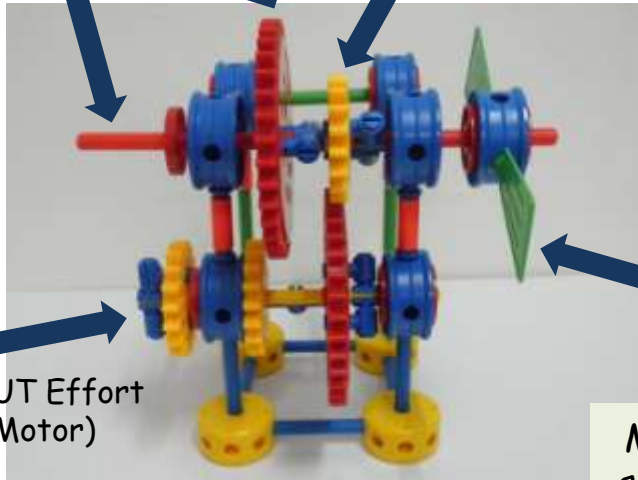
DRIVING Shaft/Gear



LOW GEAR

HIGH GEAR

DRIVEN Shaft

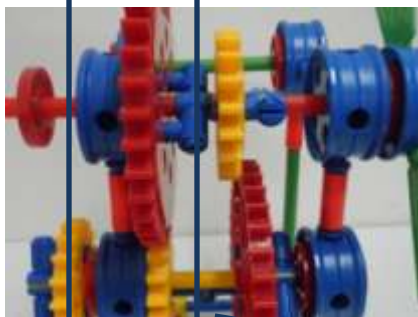


FAN connect to
Driven Shaft

Move the DRIVEN Shaft to
select the GEAR Down or UP
position

DRIVEN Shaft/Gear

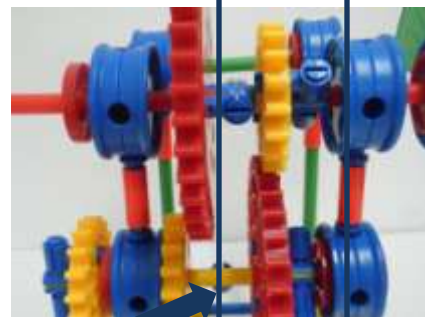
GEAR DOWN



DRIVING Shaft

Low Speed

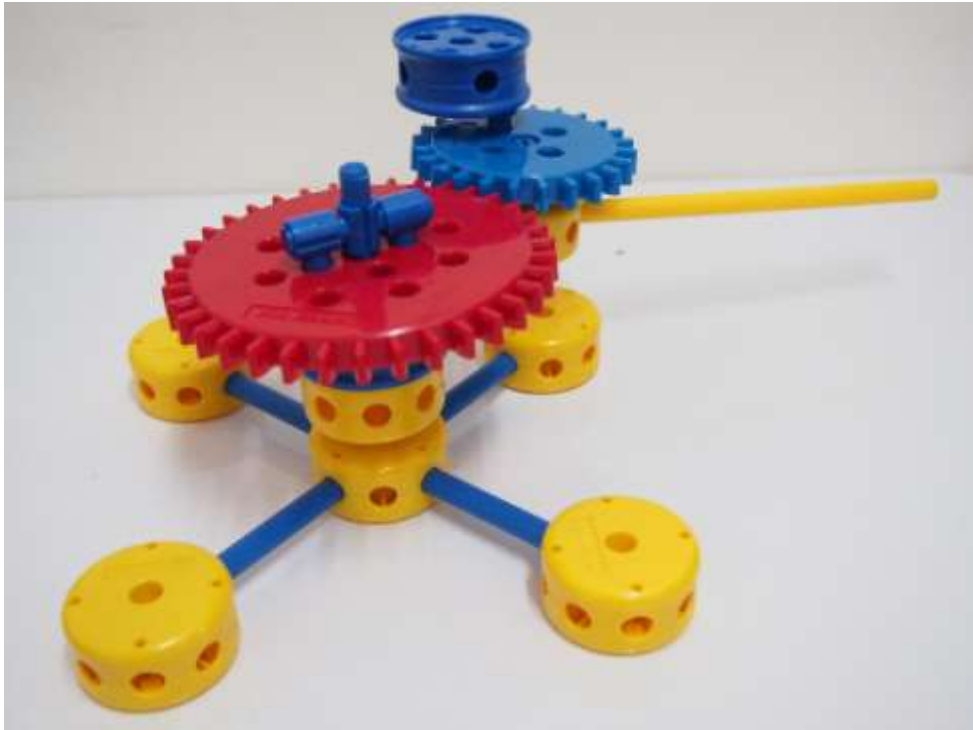
GEAR UP



High Speed

Sun and Planet Gear

Sun and Planet Gear



Objective:

1. Learn to know that the Earth revolves around the Sun and rotates by itself at the same time. The Moon also turns around the Earth and rotates by itself at the same time.
2. Learn to use Noggin BuilderZ to construct a Sun and planet gear model.

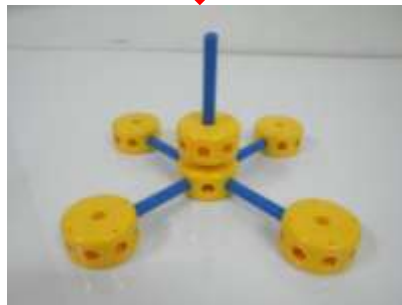
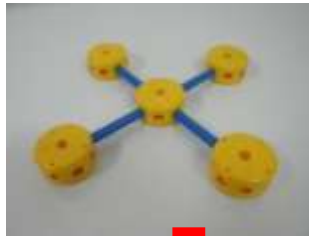
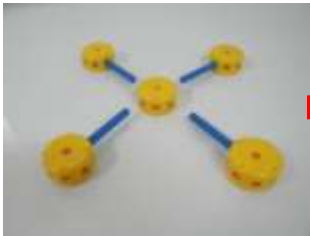
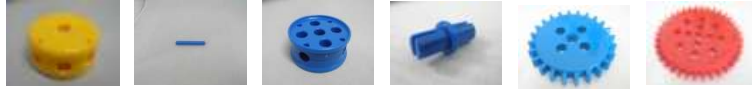
Part 3

Exploring Gears

Sun and Planet Gear

Amusement Park

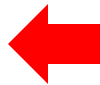
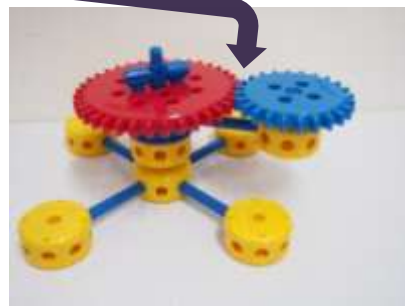
Parts used:



Part 3

Exploring Gears

Sun and Planet Gear



Place in any hole except for the center hole of the wheel to the pin in the blue gear

Spinning Wheel



Objective:

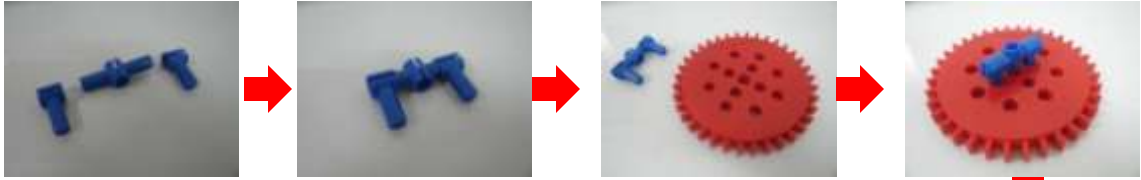
1. Make a spinning wheel from the Sun and planet gear model.
2. Learn to know how the Sun and planet gear model in apply in our daily life.

Part 3

Exploring Gears

Sun and Planet Gear

Spinning Wheel



The teeth of blue gear fits in the teeth of red gear



Part 3

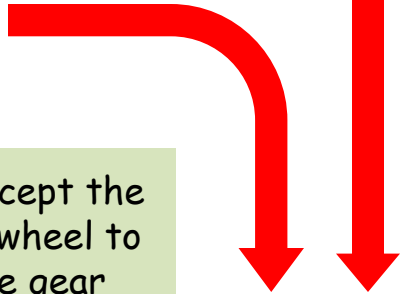
Exploring Gears

Sun and Planet Gear

Spinning Wheel



Place in any hole except the center hole of the wheel to the pin in the blue gear

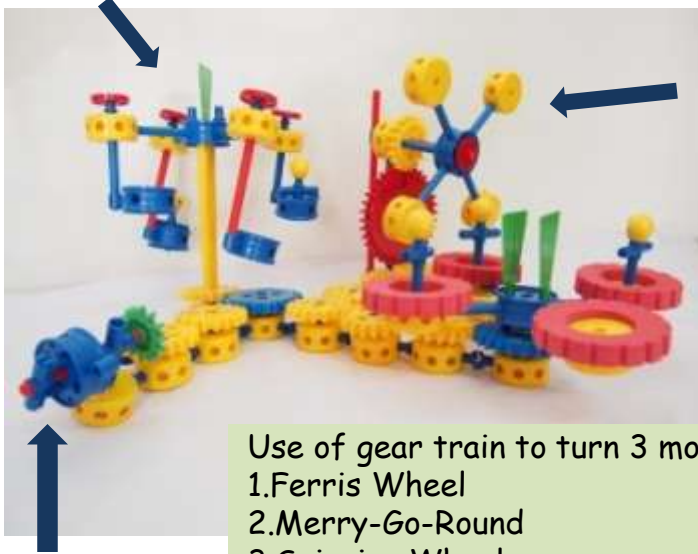


Gear Application

Amusement Park

Amusement Park

Merry-Go-Round



Ferris Wheel

Spinning Wheel

"Motor"

Use of gear train to turn 3 models at the same time:

1. Ferris Wheel
2. Merry-Go-Round
3. Spinning Wheel



Truck Crane

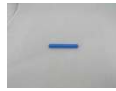


Part 4

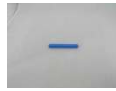
APPLICATION

Crane

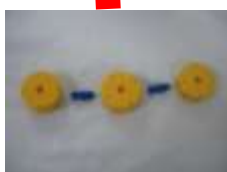
Parts used:



Body



Wheel



Part 4

APPLICATION

Crane

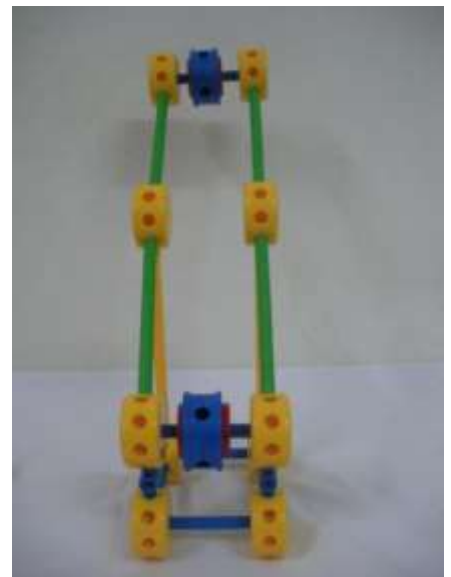
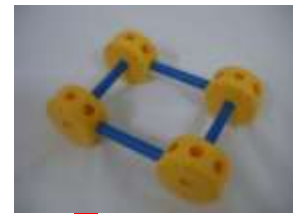
Parts used:



Body



Wheel



Part 4

APPLICATION

Crane

NOGGIN BUILDERZ



Dump Truck

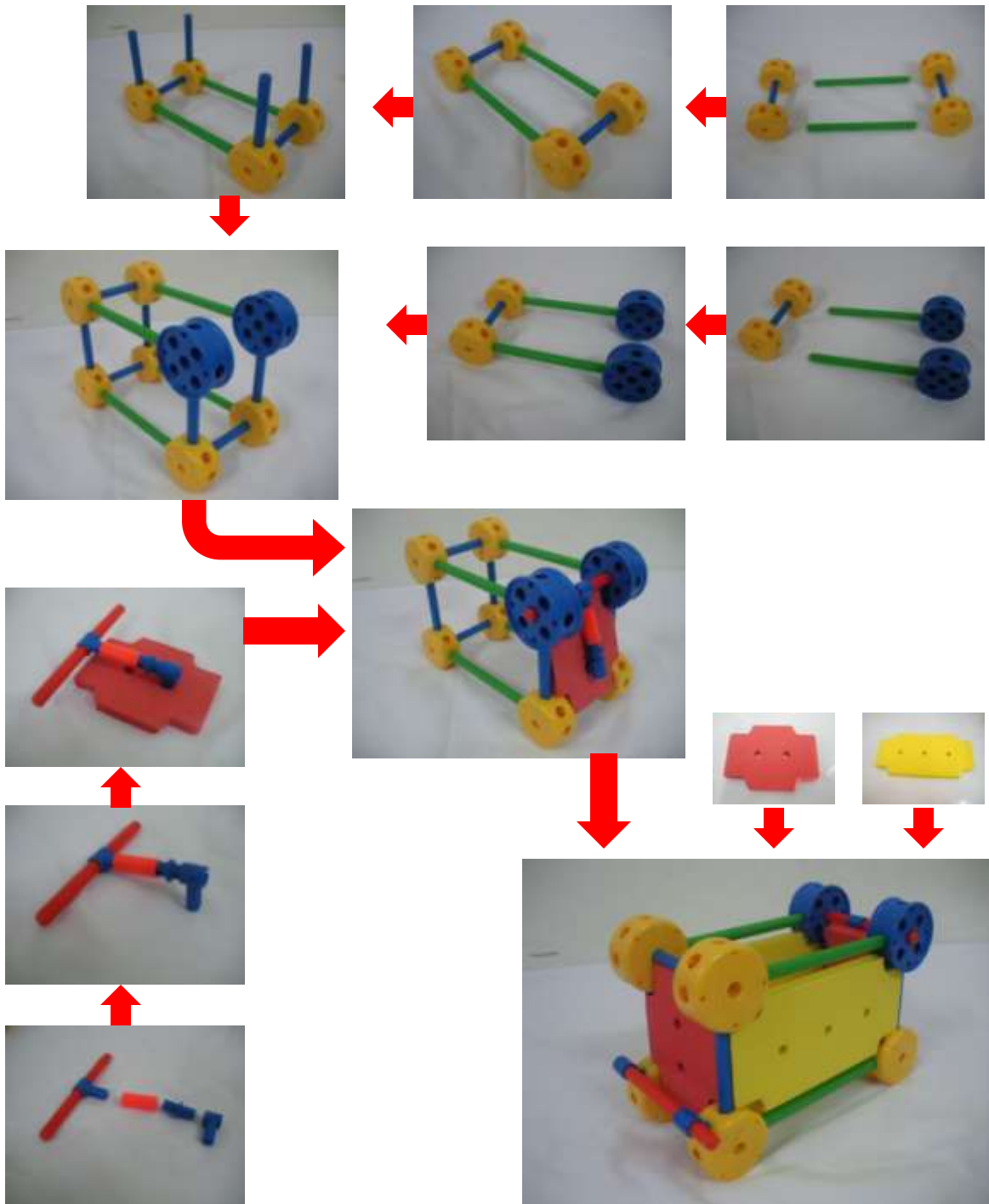
Dump Truck



Part 4

APPLICATION

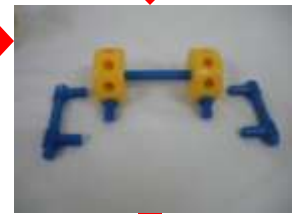
Dump Truck



Part 4

APPLICATION

Dump Truck



Dump Truck

Dump Truck





20' Container



Truck Crane & Dump Truck



40' Container



20 Footer Truck



40 Footer Truck

Ferris Wheel

Ferris Wheel



Objectives:

1. Learn that complex machines like a ferris wheel makes use of the simple machine – wheel and axle.
2. Incorporate gear train into ferris wheel, the wheel is turning when we turn a small handle! (Transfer the force of turning the handle to turn the wheel)
3. Learn to use Noggin BuilderZ to construct a giant ferris wheel with and without a gear system.
4. Use imagination and creativity to modify the ferris wheel.
5. Artistic demonstration – design and decorate the ferris wheel.

Ferris Wheel

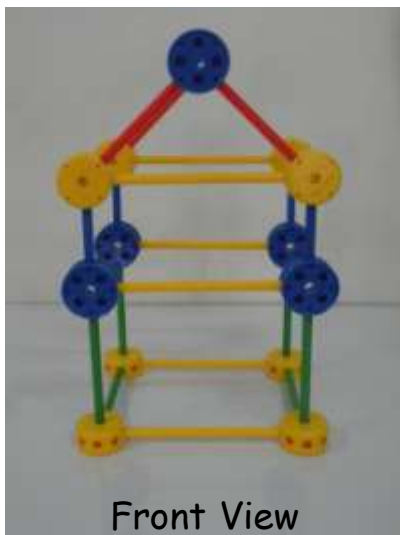
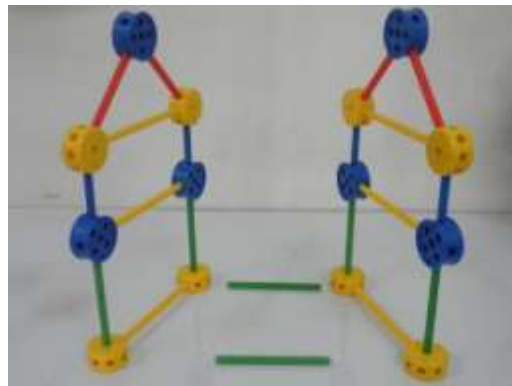
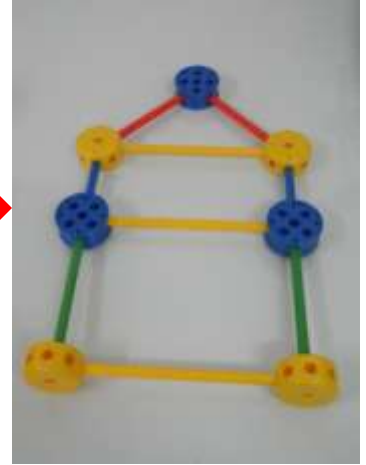
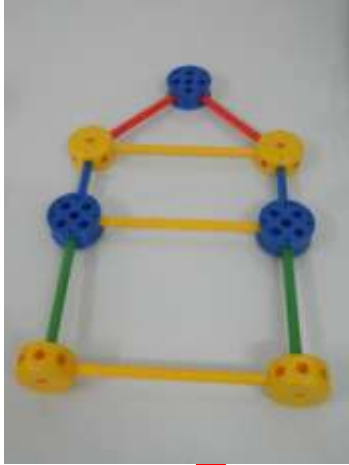
Parts used:



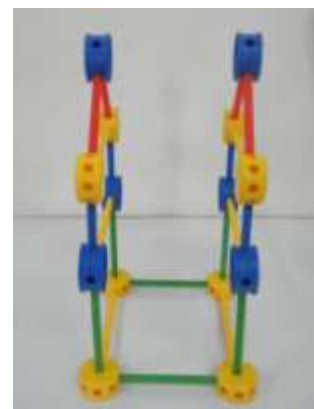
Passenger Cabin and Wheel



Ferris Wheel



Front View

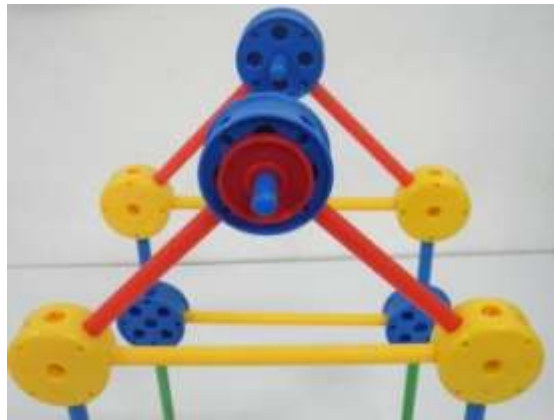


Side View

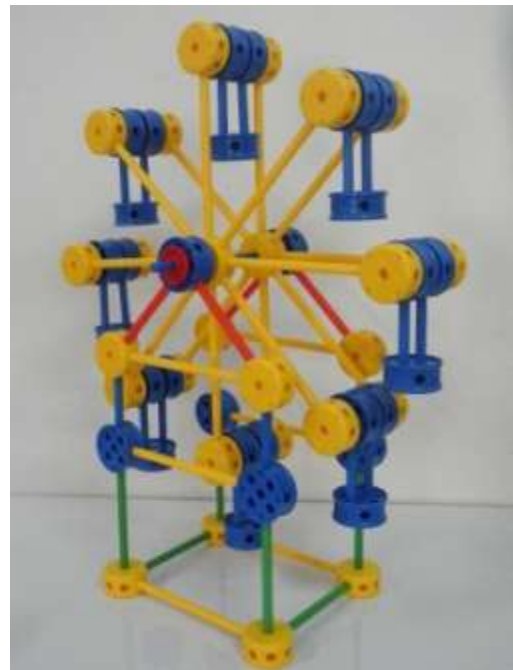
Ferris Wheel



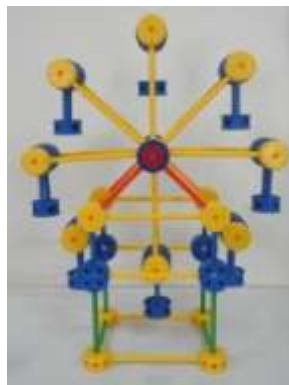
Insert the rods across
the upper blue wheel
(body)



Attach it to the yellow
spool (wheel)



Front View



Part 4

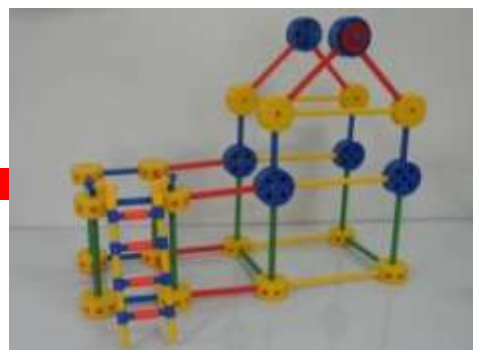
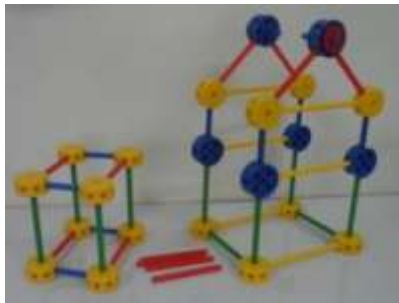
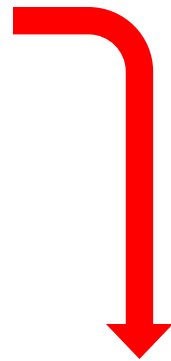
Complex Machines

Ferris Wheel

Parts used:



Ladder



Ferris Wheel

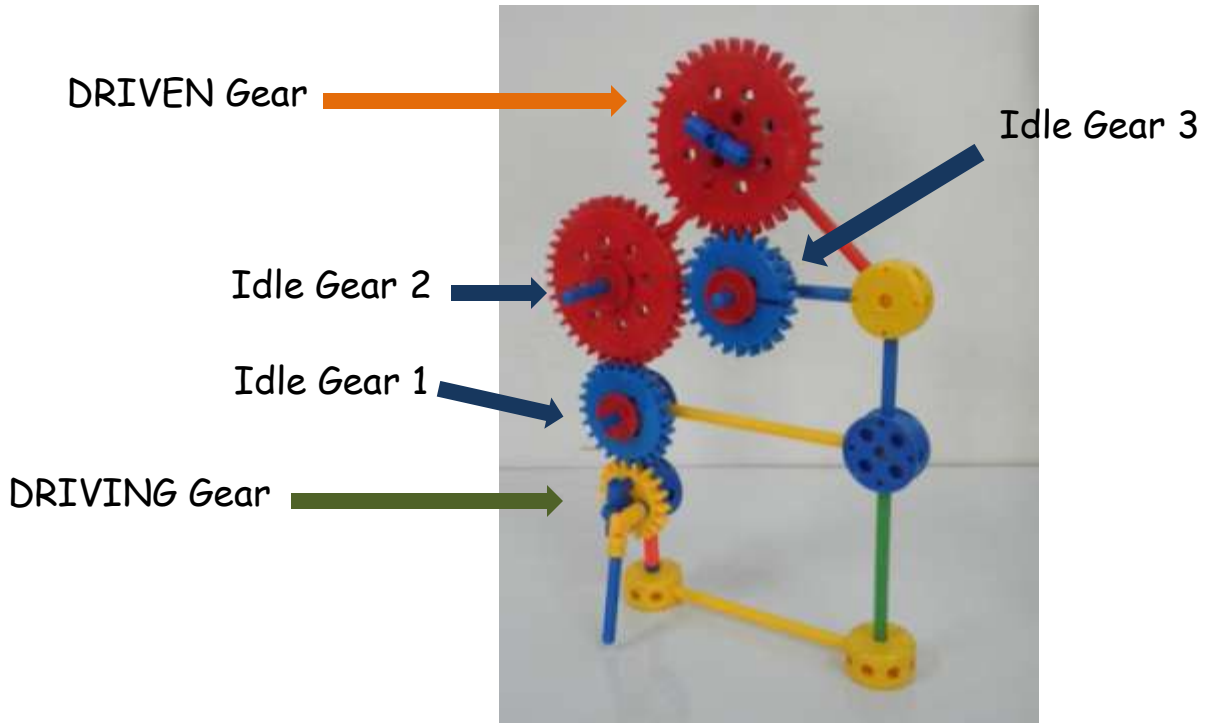


Ferris Wheel



Gear Driven Ferris Wheel

Ferris Wheel



Parts used:

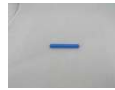
Idle Gear 1
Idle Gear 3



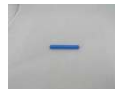
Idle Gear 2



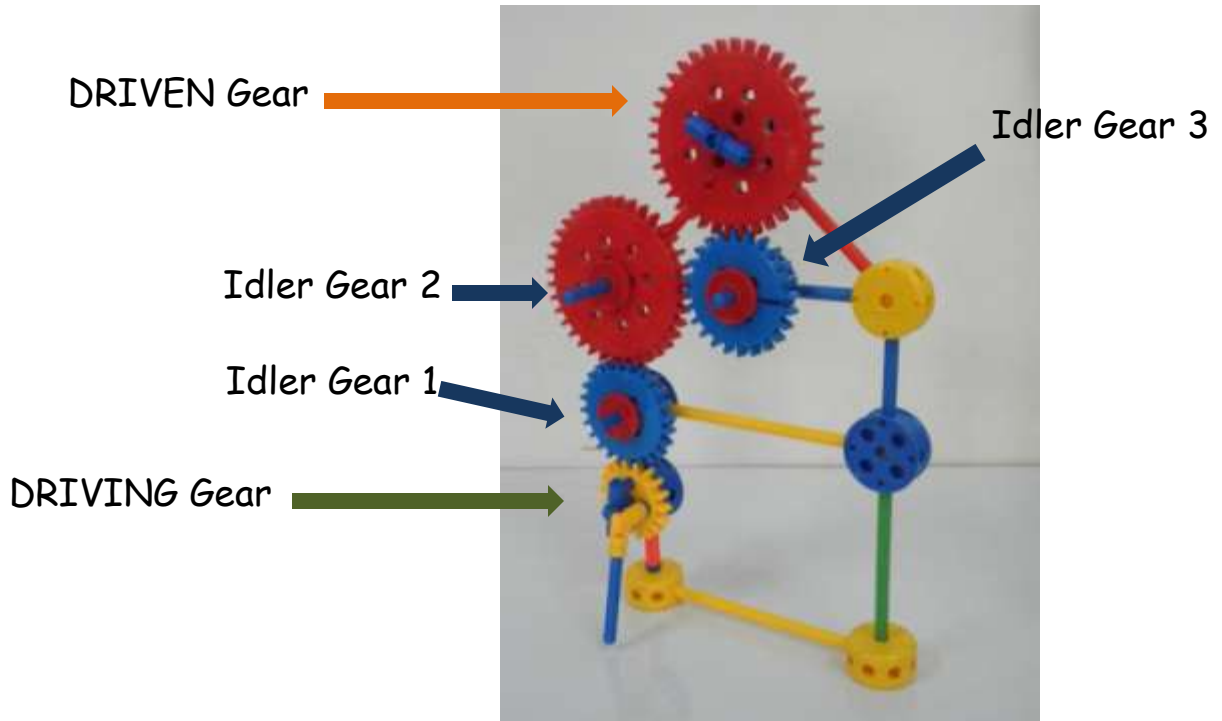
Driven Gear



Driving Gear



Ferris Wheel



Idler Gear 1
Idler Gear 3



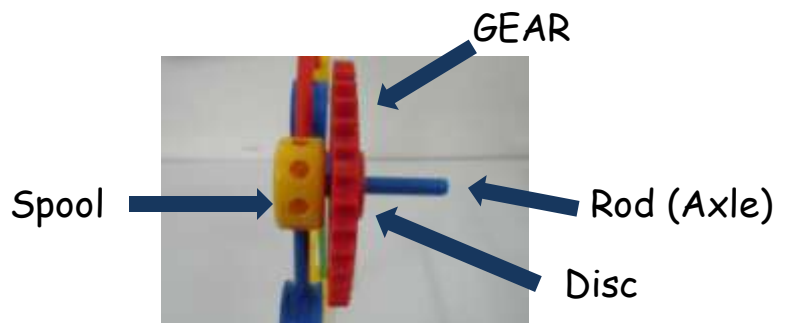
Idler Gear 2



Rod (Axle)
Disc

How to Connect **PIN** the GEAR

The gear is **PIN** to a Spool using a rod and disc.
PIN allow the GEAR to rotate freely, but the axle is not moving.



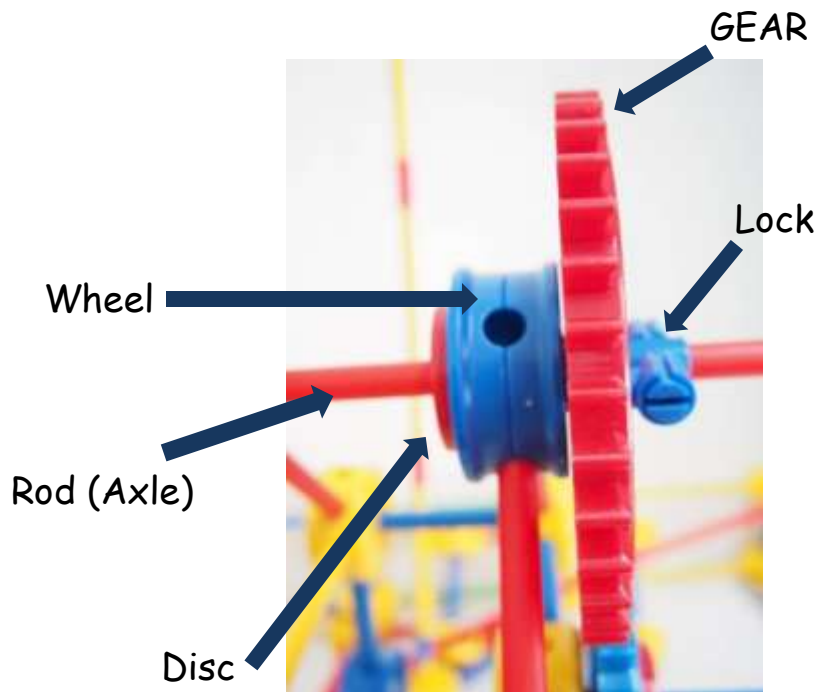
Ferris Wheel



How to Connect

LOCK the GEAR

Gear is **LOCKED** to a wheel using a lock, rod and disc. **LOCK** force the rod (axle) to rotate with the GEAR. Thus movement can be transmitted from GEAR to the axle



Ferris Wheel

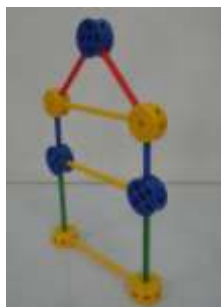
Steps:



1. LOCK the DRIVEN GEAR (red gear) to the wheel on top of the body.
2. PIN the 3 idle gears to the spool on the structure
3. LOCK the DRIVING GEAR (yellow gear) to the wheel on the bottom of the structure.
4. Insert a handle to the DRIVING GEAR.



5. Join the body with GEAR Train and

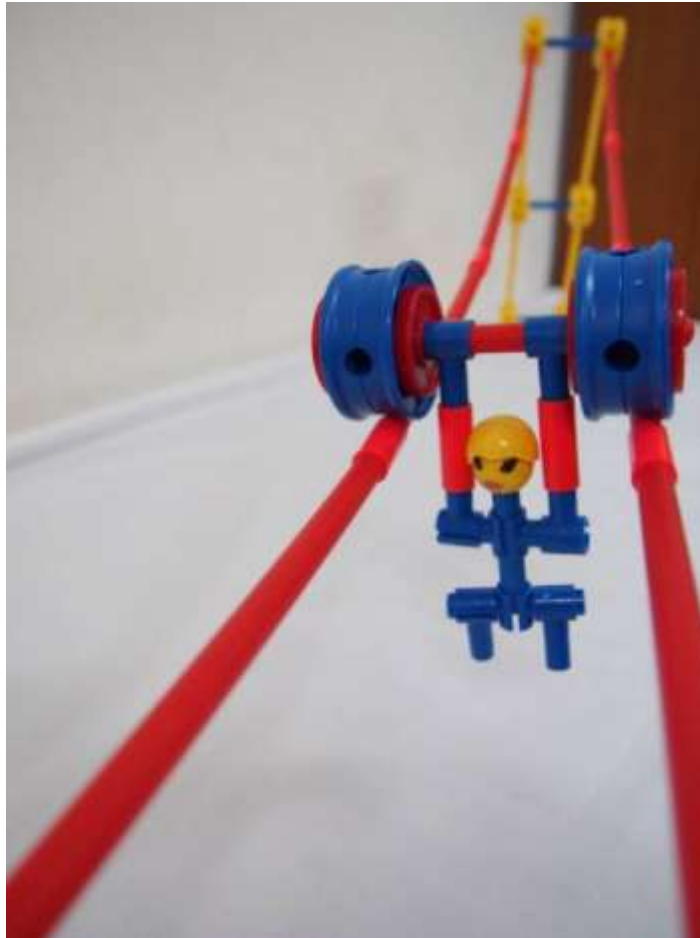


6. Join the axle of DRIVEN gear to the center spool of the big wheel. Pin the wheel to the spool on the opposite site



Great Escape

The Great Escape



Objective:

1. Let the kids explore with inclined plane s, wheel and axle.
2. Explore the basic condition to allow the girl to slide from one side to another
3. Explore the basic condition to make the girl slide safely without falling down along the way.

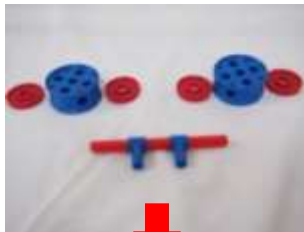
Part 5

Fun Game

NOGGIN BUILDERZ

Great Escape

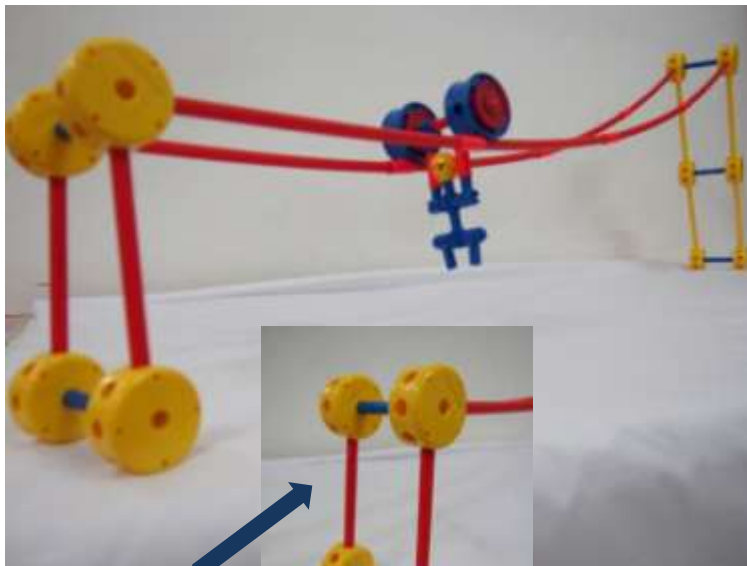
Parts used:



Part 5

Fun Game

Great Escape



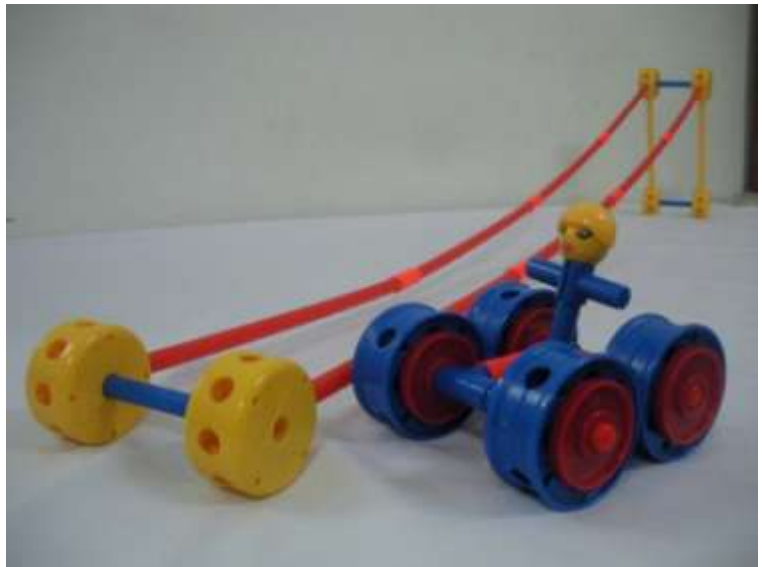
FININSH

- What is the starting height that allows the girl to slide (escape) to the other side?

START

Mini Roller Coaster

Run Away



Objectives:

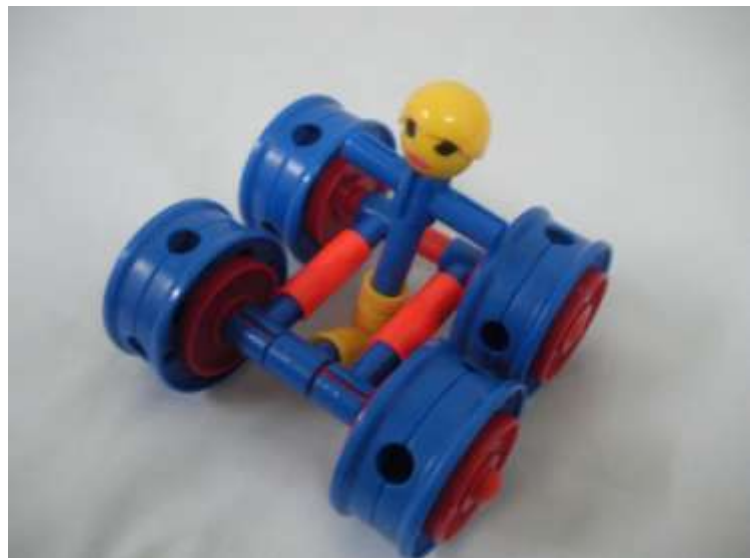
1. Let the kids explore with inclined planes , wheel and axle.
2. Explore the basic condition to allow the car to slide from the top.
3. Explore the basic condition to make the car slide safely without falling down along the way.

Part 5

Fun Game

NOGGIN BUILDERZ

Mini Roller Coaster



Part 5

Fun Game

NOGGIN BUILDERZ

Mini Roller Coaster

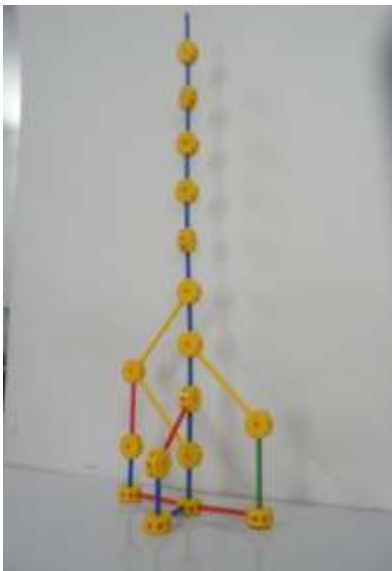


Skyscraper

Skyscraper



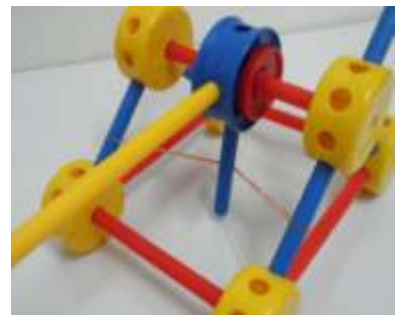
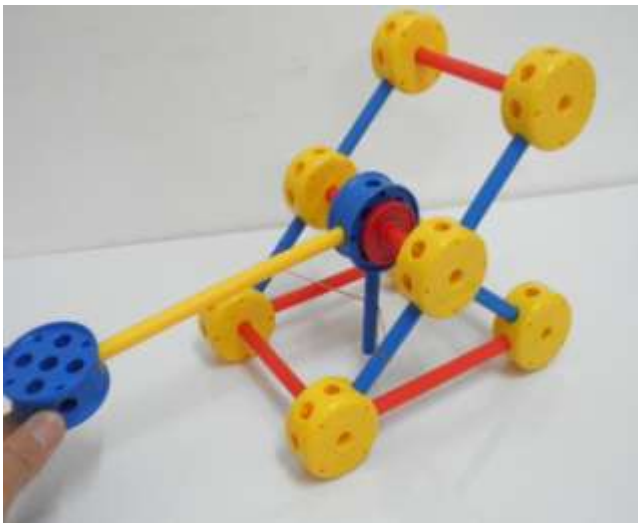
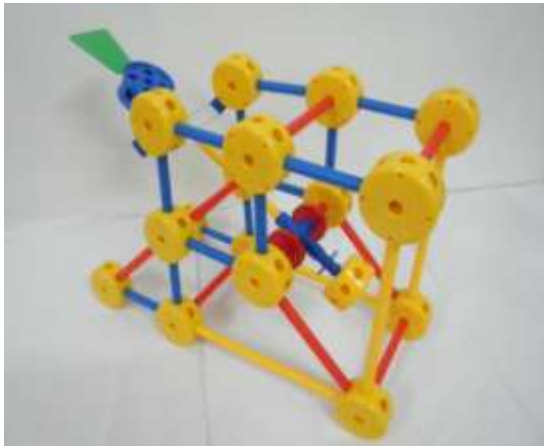
Burj Khalifa –
Highest Building in the world



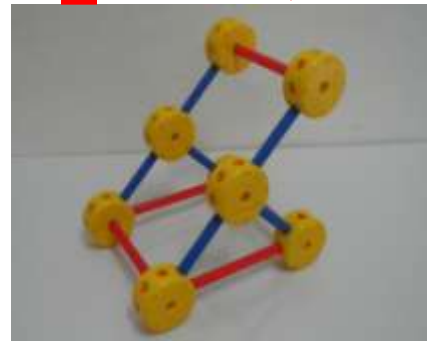
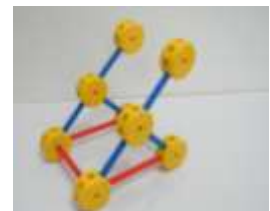
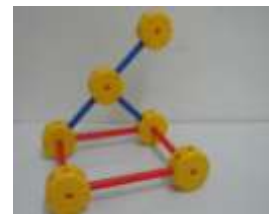
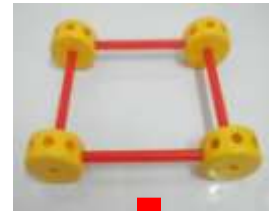
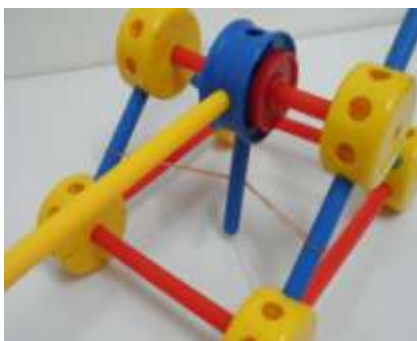
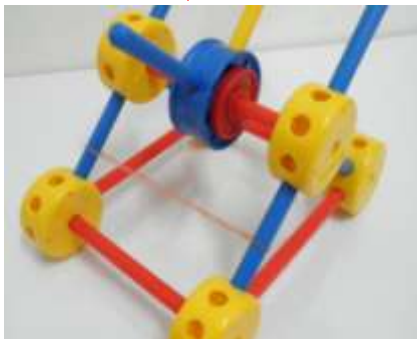
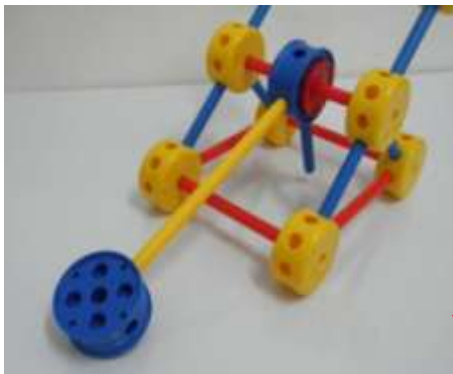
- Can you use only 10 spools and 11 blue rods to build a highest building that can stand alone
- Use any combination of spool and rod to create a skyscraper.

Catapult

Catapult



- Design a catapult
- Experiment with the catapult - What is the force needed to reach the furthest distance?



PART LIST

Part List



80 Wheel

Holder 190



100 Spool

Double Pin 30



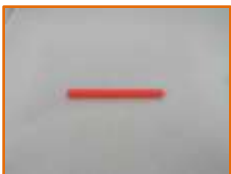
130 Disc

Hole Pin 50



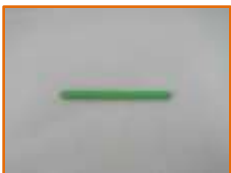
150 Blue Rod

Disc Pin 40



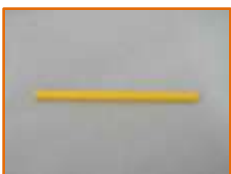
40 Red Rod

Cross 30



40 Green Rod

Pin 20



20 Yellow Rod Rubber Pin 10



10 Red Long Rod

PART LIST

Part List



40 Cap

Gear 12T 10



20 Girl

Gear 18T 20



20 Boy

Gear 24T 20



40 Blade

Gear 36T 10



10 Rectangle Red

Flexible Connector 40



10 Rectangle Yellow

Connector 50



40 Wheel

Learning Record



Noggin Builders Learning Progress

Name:

Class:

Date:

						Remarks
A INTELLECT (Ability To)						
1	Count					
2	Compare and Differentiate					
3	Rectify					
4	Design					
B CREATIVITY (Ability To)						
1	Experiment/Make Discoveries					
2	Develop Idea/Solution					
3	Explore Possibilities					
4	Build Innovatively					
5	Build Creatively					
C MOTOR-SKILL (Ability To)						
1	Fine Arm & Finger Movement					
2	Hand-eye Coordination					
D INTER_PERSONALITY (Ability To)						
1	Interact with Others					
2	Share Ideas					
3	Negotiate and Compromise					
4	Work in a Team					
5	Lead Others					
E INTRA_PERSONALITY (Ability To)						
1	Carry Out Task Independently					
2	Concentrate on the Task					
3	Pay Attention to Details					
4	Follow Instructions					
5	Present Verbally					

Note: Mark the performance of student on the scale of 1-10 with 5 as average