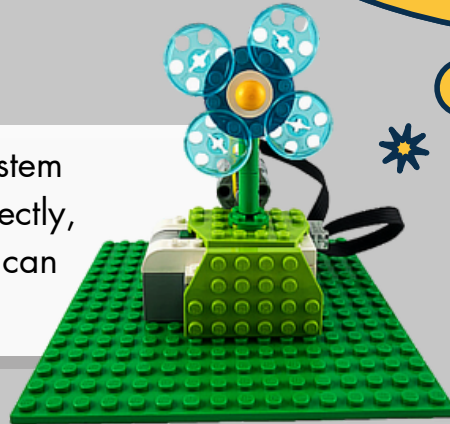# K-2 Session A
## 5 Week Afterschool Robotics
Register at: NB.snapology.com

Week 1

Flower - By building a flower with a simple pulley system that spins the flower's petals when programmed correctly, students will be able to see how this simple machine can get things moving with very little work at all!

Week 2

Goal Kicker - Students will learn about motor power and how it is useful in programming. Then, students will program their LEGO® builds to move and kick a ball, experimenting with different motor powers to examine the distance the ball can travel.
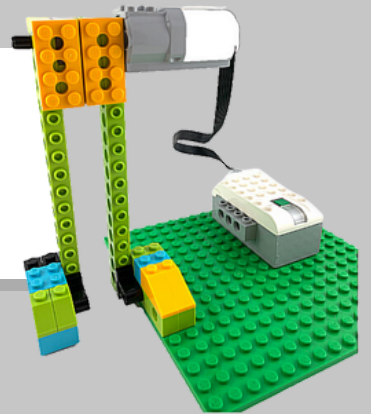
Week 3

RoboPup - Students will learn about gears and their ability to transfer power to one another. In addition, students will be challenged to develop an ideal home environment for a RoboPup!
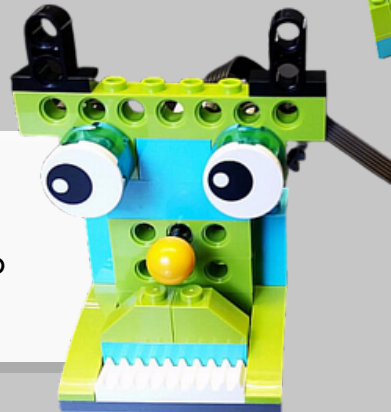
Week 4

Helicopter - By building and programming a LEGO® helicopter, students will see gears in action as they spin and understand how different gear sizes impact the speed at which they rotate!
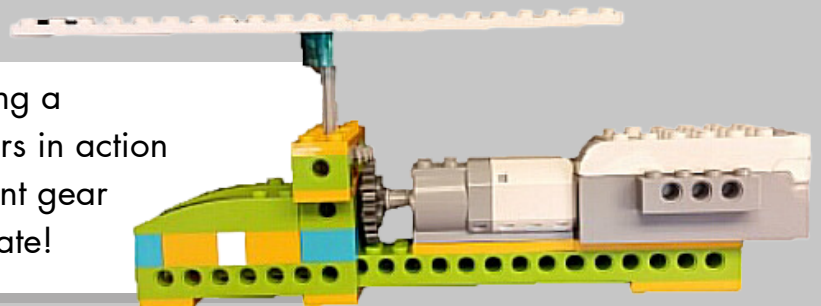
Week 5

Race Car - Students will learn about the motion sensor and how it is used. The time in between sending and receiving these waves is used to determine if an object is getting closer, or farther away.
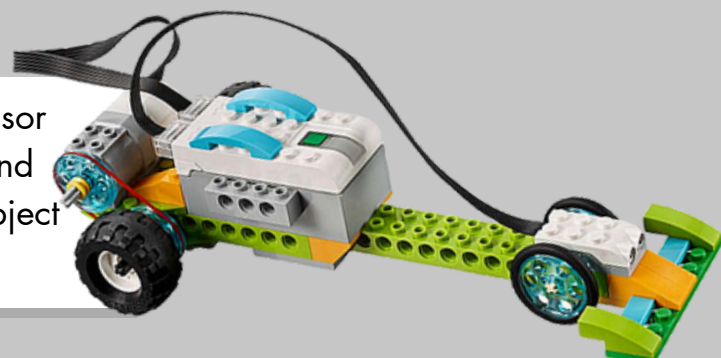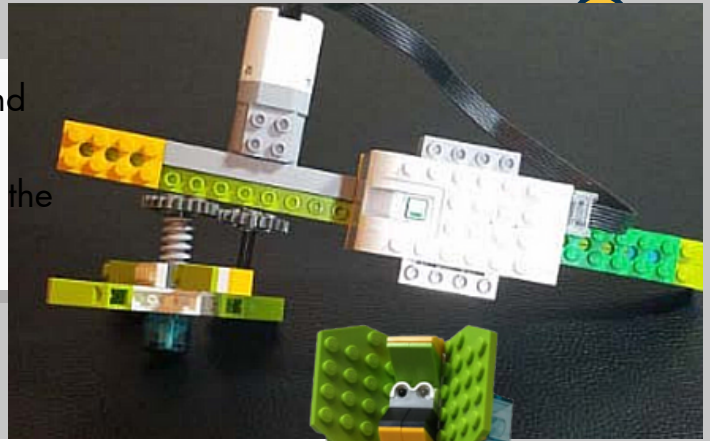
3-5 Session A
5 Week Afterschool Robotics
Register at: NB.snapology.com

Week 1

Ninja Star - Students will learn about gears and their ability to transfer power to one another. They will able to identify the driving gear and the driven gear.

Week 2

Planetary Defense - Movement sensors are good ways of detecting something approaching within an area. Optimizing the detector means balancing how much area the sensor watches with how closely it watches it.
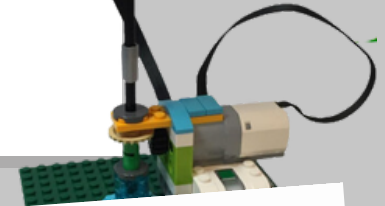
Week 3

Forklift - Students will learn about gear ratio and how it affects mechanical motion. Students will learn how changing the size (and thus ratio) of these gears affects motion.

Week 4

Measure - Students will learn about the motion sensor and how it is used in programming robotics. They will learn to program the motion sensor to understand if an object is moving, getting closer, or moving farther away.
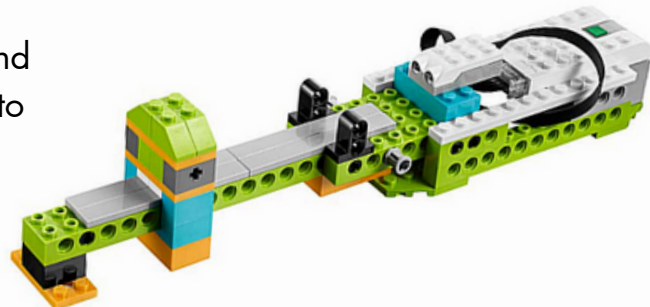
Week 5

Dolphin - Students will learn about wheels and axles and how these elements help to facilitate movement by reducing the friction between two surfaces.
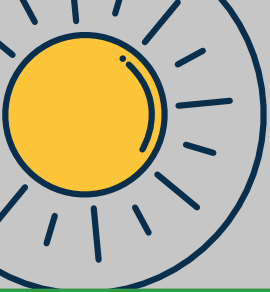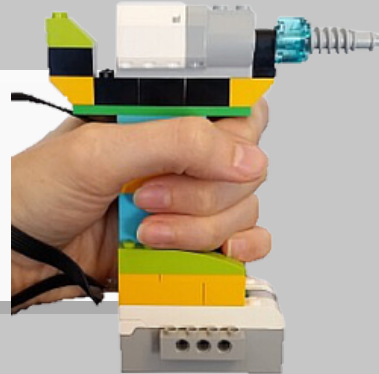
K-2 Session B
5 Week Afterschool Robotics
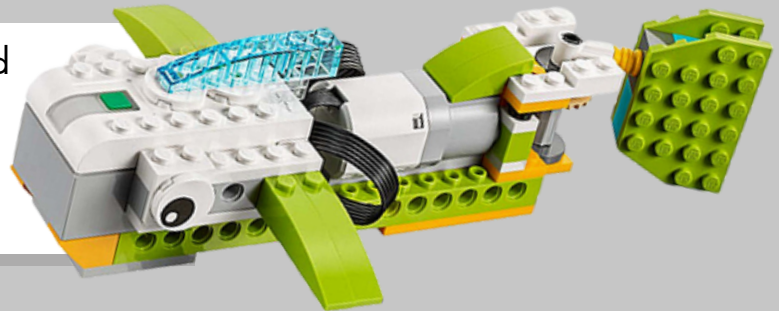Register at: NB.snapology.com

Week 1

Drill - By building a power drill with a programable motion sensor, students will be able to experiment with robotic reactions when the robot is collecting information about environment around it.
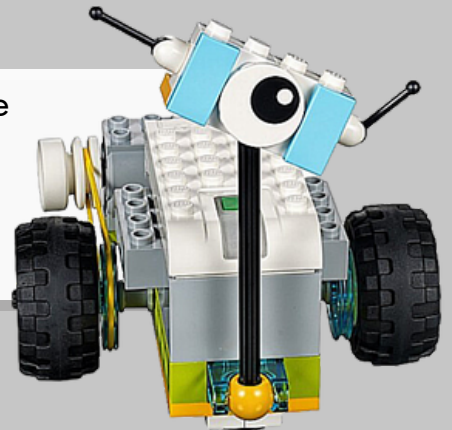
Week 2

Fish - Students will learn about bevel gears and how the curve of their teeth can be utilized to redirect forces.

Week 3

Milo - Students will learn about wheels and axles and how they are used to move an object. In addition, will consider the mechanical needs of having an actual robotic pet and how important the maintenance of their robotic pet is.
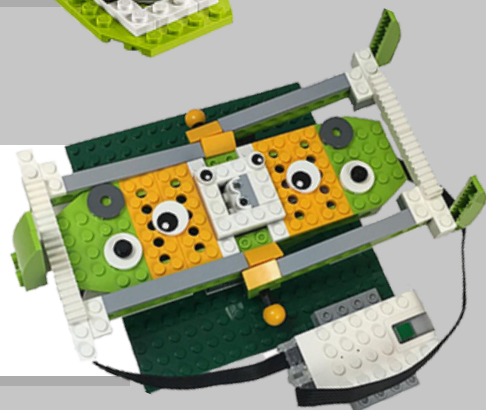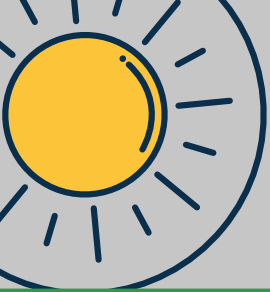
Week 4

Firefly - Students will learn about the tilt sensor and how it is used in programming robotics. The WeDo tilt sensor can detect six different types of internal motion.

Week 5

Space Jaws - Camouflage is one way that animals solve a problem—how to get close enough to their pray to catch it. We can imagine that creatures in space would use similar techniques.

3-5 Session B
5 Week Afterschool Robotics
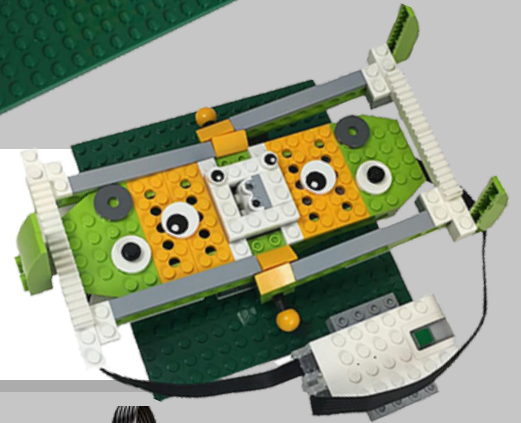Register at: NB.snapology.com

Week 1

Moon Base - Moons have much more complex orbits than planets or stars. Hiding a base on a moon would make it much more difficult to target from space.

Week 2

Space Jaws - Camouflage is one way that animals solve a problem—how to get close enough to their pray to catch it. We can imagine that creatures in space would use similar techniques.

Week 3

Floor Sweeper - Students will learn about pulleys and how they are used to redirect forces. The pulley acts to change the direction of movement of the cord and is usually used to help lift a weight.
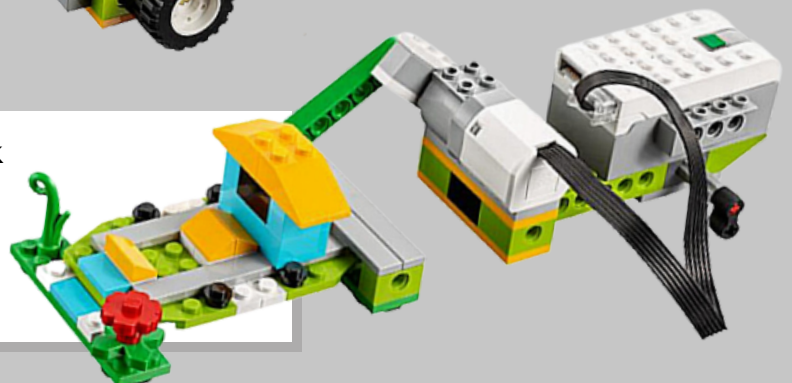
Week 4

Recycling Truck - Students will practice building with motors and pulleys, then solve a problem using these devices. Students will also identify beginning programming ideas.

Week 5

Earthquake - Students will learn about crank mechanisms and identify that the main purpose of a crank is to convert circular motion to linear motion.
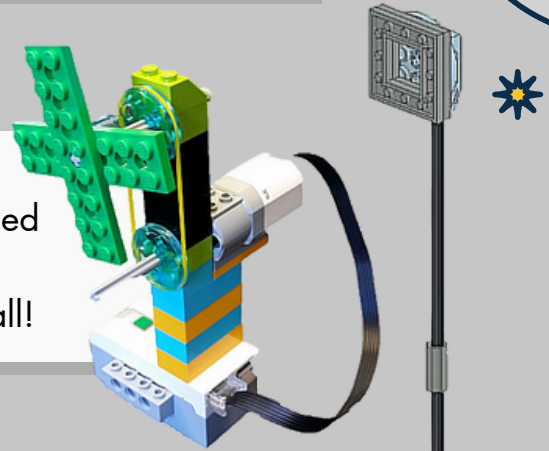
Week 1

Windmill - By building a windmill with a simple pulley system that spins the windmill's blades when programmed correctly, students will be able to see how this simple machine can get things moving with very little work at all!

Week 2

Catapult - By building a catapult with a simple lever system that launches when programmed correctly, students will be able to see how this simple machine can send something in the air and learn about the importance of timing their motors correctly in their code.
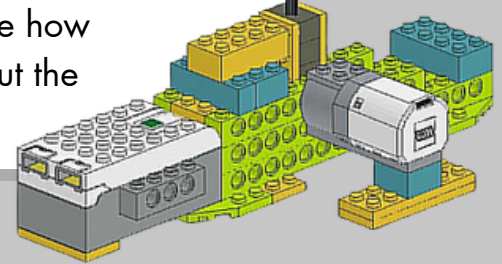
Week 3

Seesaw - Students will build a LEGO® seesaw using building instructions. Prior to programming their build, students will practice identifying major code blocks in the programing app. Then, they will be challenged with coding the tilt sensor to move the seesaw back and forth!
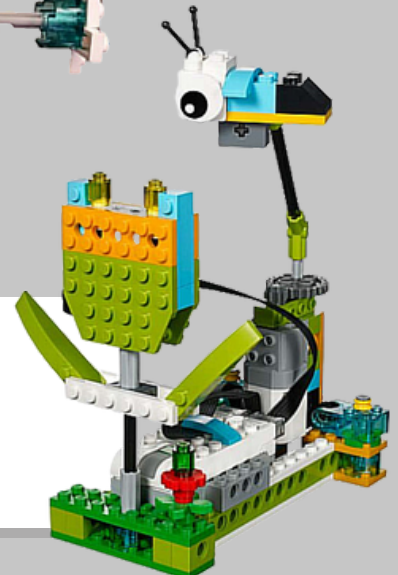
Week 4

Race Boat - By building a race boat with a motor and axle, students will be able to see how the power from the motor causes the axle and the propeller of their race boats to move.

Week 5

Bee - Students will learn about gears and their ability to transfer power to one another. They will able to identify the driving gear and the driven gear.

Week 1

Bee - Students will learn about gears and their ability to transfer power to one another. They will able to identify the driving gear and the driven gear.
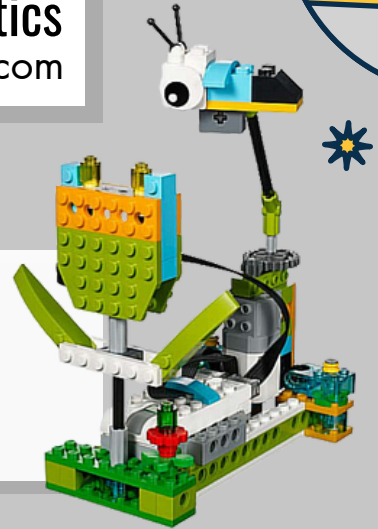
Week 2

Space Chase - Even though the same motor moves two objects, they can move at different speeds if the gears connecting the object to the motor are set up differently.

Week 3

Garbage Truck - Students will learn about pulleys and how they are used to redirect forces. The pulley acts to change the direction of movement of the cord and is usually used to help lift a weight.

Week 4

Snow Plow - Students will learn about the motion sensor and how it is used in programming robotics. The time in between sending and receiving these waves is then used to determine if an object is moving, getting closer, or moving farther away.

Week 5

Pull Robot - Students will learn about wheels and axles and how these elements help to facilitate movement by reducing the friction between two surfaces.