



Thornccliffe Association  
Curriculum  
Age 5 - 8



RoboThink is an international leader in STEM education, offering fun and engaging programs in **robotics, coding, and engineering** for children of all ages. Our hands-on curriculum is designed to spark curiosity, foster creativity, and build critical problem-solving skills.

Through guided activities, students learn to **design, build, and program robots** while developing teamwork, logical thinking, and confidence. Each session is structured to balance **learning and play**, ensuring that children not only gain valuable technical knowledge but also have fun throughout the process.

RoboThink programs are trusted by schools and learning centers worldwide and are carefully tailored to meet the needs of different age groups, ensuring that every student is challenged at the right level.

Our mission is simple: to inspire the next generation of **engineers, innovators, and problem solvers** through exciting, hands-on STEM experiences.



## **Program Description**

Our **Construction Machines STEM Program** introduces students to the exciting world of engineering and heavy machinery through hands-on building and problem-solving. Each week, students explore how real construction equipment works by designing and building mechanical models that simulate real-world functions such as lifting, digging, crushing, and transporting materials.

This program strengthens critical thinking, creativity, and teamwork while teaching students how motors, gears, and structural design come together to power complex machines. Guided lessons ensure a fun balance of learning and play, helping students develop confidence and a deeper understanding of STEM concepts.

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### **Weekly Breakdown for Parents**

#### **Week 1 – Power Drill**

Students learn how rotational power works to drive tools. They build a power drill model and explore gears, torque, and how motors create motion.

#### **Week 2 – Wrecking Ball**

Students build a wrecking ball machine and experiment with force, weight, and momentum while learning how demolition equipment functions safely and effectively.

#### **Week 3 – Bulldozer**

Students design and build a bulldozer model and learn about pushing force, friction, and how heavy machinery reshapes land and moves materials.



### **Week 4 – Steam Roller**

Students construct a steam roller model and explore compression, uniform weight distribution, and how smooth surfaces are created in road construction.

### **Week 5 – Wheel Dump Truck**

Students build a dump truck with a lifting bed mechanism to learn about hydraulic-style lifting systems and transporting materials efficiently.

### **Week 6 – Build Your Own**

Students apply everything learned to independently design and build a unique construction machine of their choice. They will test and present their final creations to the group.

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### **What Students Gain**

- STEM foundations in mechanics, motors, gears, balance, and structural engineering
- Problem-solving, creativity, and innovation
- Improved teamwork and communication
- Real-world understanding of how engineering shapes the world around them
- Confidence in building and presenting their own creations

## Robothink Schedule

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| Week   | Activity         |
|--------|------------------|
| Week 1 | Power Drill      |
| Week 2 | Wrecking Ball    |
| Week 3 | Bulldozer        |
| Week 4 | Steam Roller     |
| Week 5 | Wheel Dump Truck |
| Week 6 | Build Your Own   |

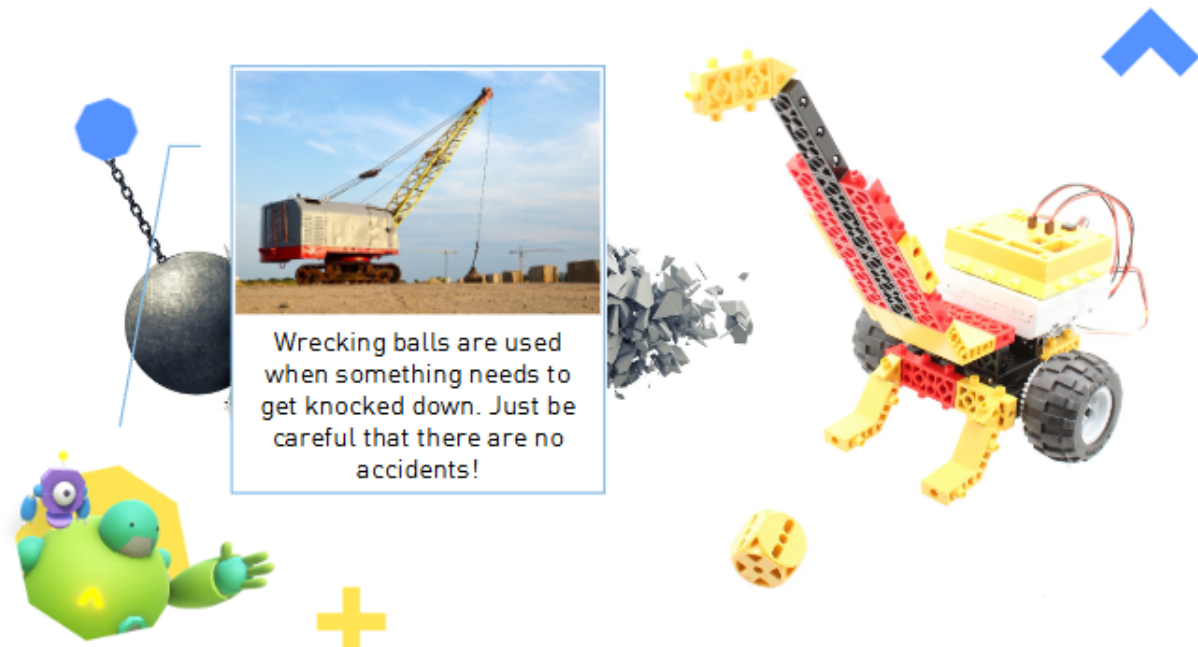
## DEMOLITION ROBOTS

### LESSON 1: POWER DRILL



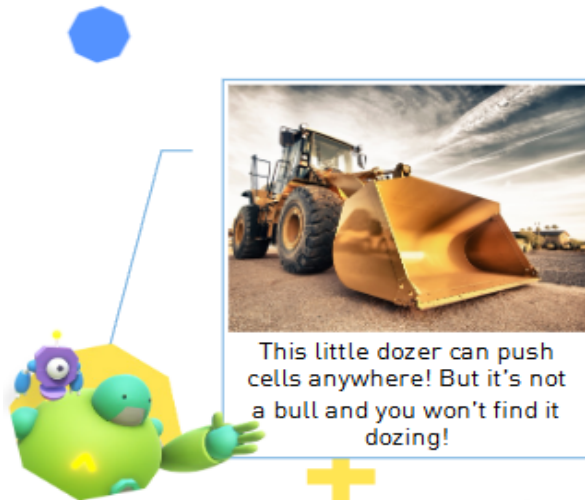
## DEMOLITION ROBOTS

### LESSON 2: WRECKING BALL



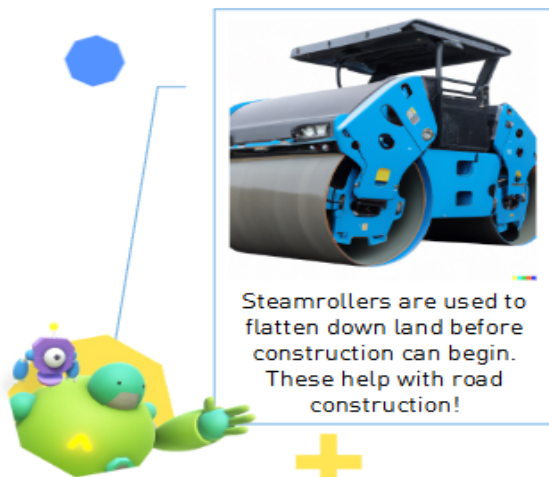
## DEMOLITION ROBOTS

### LESSON 3: BULLDOZER



## DEMOLITION ROBOTS

### LESSON 4: STEAMROLLER



## DEMOLITION ROBOTS

### LESSON 5: WHEEL DUMP TRUCK



## DEMOLITION ROBOTS

### LESSON 6: BUILD YOUR OWN



