

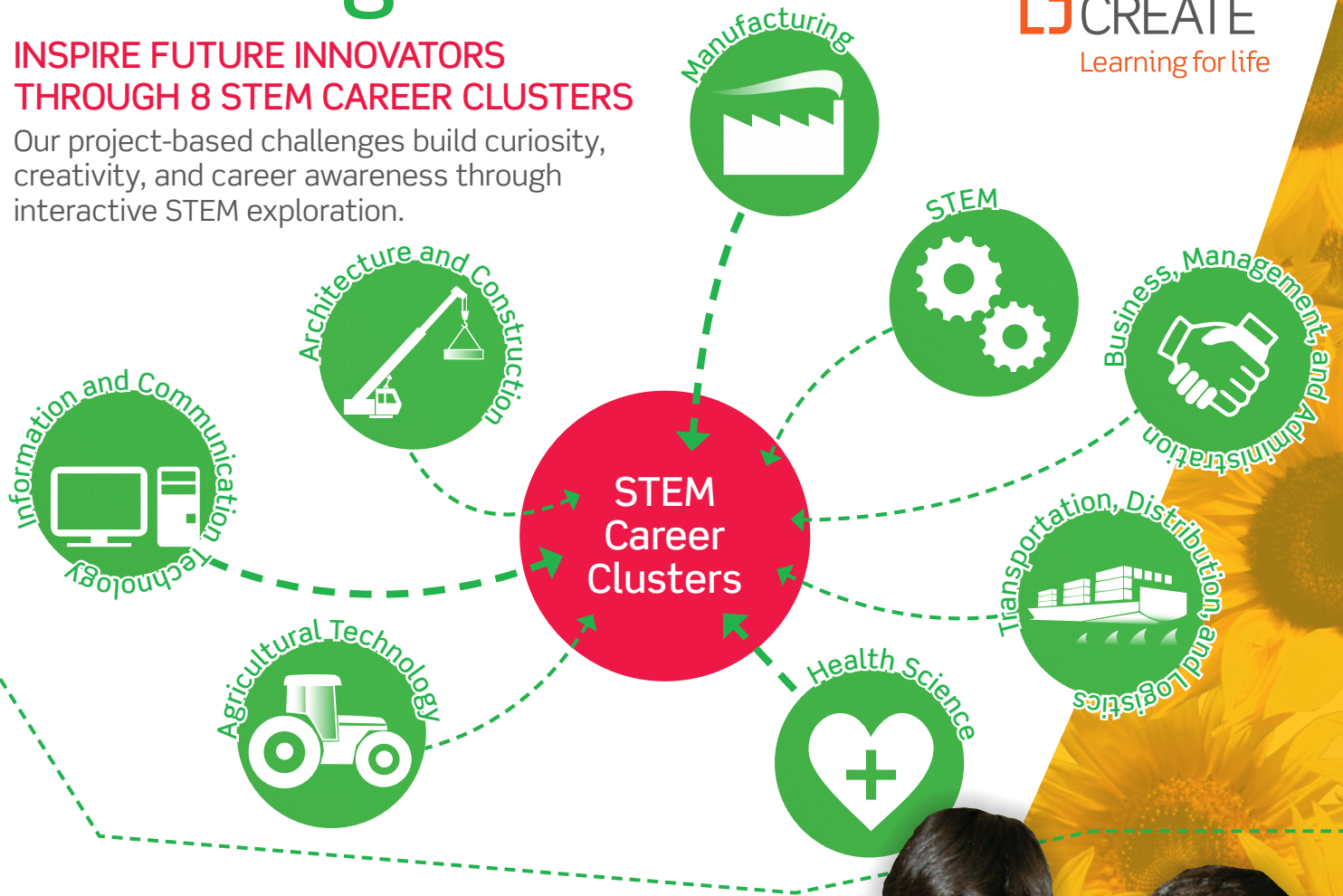
# Elementary Career Exploration Challenges

## INSPIRE FUTURE INNOVATORS THROUGH 8 STEM CAREER CLUSTERS

Our project-based challenges build curiosity, creativity, and career awareness through interactive STEM exploration.



**LJ CREATE™**  
Learning for life



## HANDS-ON EXPLORATION

We deliver a combination of ready-to-print challenge sheets, interactive software, and hands-on STEM equipment to support a mixed-media program that is accessible for all Elementary staff and students and can support:

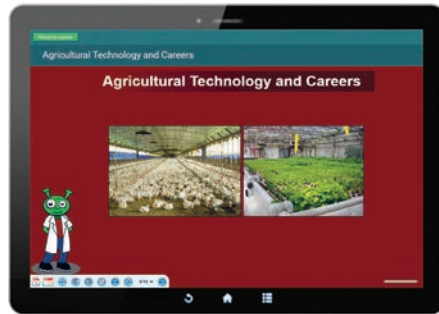
- Classroom Instruction
- Drop-in Centers
- Evening/Weekend Clubs
- Mobile Workshops



## INTRODUCTION TO TECHNOLOGY, CAREERS, & EDUCATIONAL PATHWAYS

We've developed a series of engaging presentations that introduce students to a wide range of STEM careers and educational pathways.

By helping students envision their future, these experiences encourage early career exploration and make STEM learning more relevant, meaningful, and inspiring.



### Career Exploration Presentations:

- Agricultural Technology and Careers
- Construction Technology and Careers
- Health and Biomedical Technology and Careers
- Computer Science and Careers
- Manufacturing Technology and Careers
- Engineering Design and Careers
- Transportation Technology and Careers



## PRACTICAL INQUIRY TO DEVELOP STEM SKILLS

The career exploration challenges include dozens of laboratory or classroom hands-on activities intended to develop and enhance STEM skills including:

- Science inquiry
- Critical thinking
- Teamwork
- Independent learning
- Problem-solving

70+  
challenges

8 career  
clusters



# EXCITING HANDS-ON STEM CHALLENGES TO INTRODUCE CAREER EXPERIENCES

Students engage in interactive career-based challenges designed to strengthen teamwork, problem-solving, and communication abilities.

Select from a wide range of equipment packs to target specific career cluster challenges.

Data Logging Kit



## Heart Rate Challenge

Your task is to compare heart rate before and after exercise.

- 1 Set up the datalogger to measure heart rate and then measure your heart rate at rest.
- 2 Run on the spot for 1 minute and then immediately measure your heart rate again.



What happens to your heart rate after you exercise? Why do you think this happens?

## Reinforced Concrete Challenge

Your task is to make different beams and compare their strengths.

- 1 Mix plaster of Paris.
- 3 Test each beam to destruction.



- 2 Make three different beams:

1. Using plaster of Paris mixture only.
2. Using 1" strands of cotton mixed into the plaster of Paris mixture.
3. Using beam mold wire threaded through the mold, then filling with plaster of Paris mixture.

Beams could take up to 24 hours to completely dry

Independent variable = mass (100 g to 2,000 g)  
Dependent variable = beam deflection



Which beam is strongest?

Structures and Materials Student Resource Pack



## Robots Challenge

Your task is to operate a robot.

- 1 Power up the robot and make sure the device is switched on.
- 2 Connect the device to the robot.



- 3 Launch the Makeblock App and select Drive.



- 4 Make the robot move.

Use Draw and Run to make the Robot follow a Path.



1. Joystick control movement
2. Boost movement
3. Spin
4. Wiggle
5. LED Eyes
6. Emotions

Robot Programming Device



## OUR STEM CHALLENGES

CAREER CLUSTERS	CHALLENGES
Agriculture, Food, and Natural Resources	Wedge
	Engineering Design
	Vegetable Plot
	Microscope
	Wheelbarrow
	Pollination
	Origin of Soil
	Windmill
	Parts of a Plant
	Plant Structures
Architecture and Construction	Shapes and Structure
	Heat Transfer
	Solar Power
	Bridge Building
	Basement Circuit
	Solar Energy in Buildings
	Crane
	Rotating Crane
	Reinforced Concrete
Business, Management, and Administration	Sharing into Equal Groups
	Estimating Using Rounding
	Seesaw
	Value of Money
	Savings Plan
	Working to a Budget
	Carousel
Making White Light	
Health Science	Light Rays
	Heart Rate
	Measuring Temperature
	Determining Volume
	Bones
Neural Processing	

CAREER CLUSTERS	CHALLENGES
Information and Communication Technology	Robots
	Sending a Message
	Controlling Robots
	Making Tables
	Digital Communication
	Programming Robots
	Making Bar Graphs
	Programming Machines
Manufacturing	Building a Sawing Machine
	Sawing
	Fluid Power
	Plastic Part Manufacturing
	Building a Turning Machine
	Turning
	Material Lifting
	Rapid Manufacturing
	Building a Milling Machine
Milling	
Gears and Gear Trains	
Building a Hydraulic Circuit	
Science, Technology, Engineering, and Math	Periscope
	How the Sun Affects the Earth
	Investigating Habitats
	Magnetic Property
	Modeling Day and Night
	Electrical Conductor or Insulator
	Mixtures
	Forces at a Distance
	Temperature
	Analyze & Interpret Information
Transportation, Distribution, and Logistics	Rounding Machine
	Forces and Motion
	Speed, Energy, and Collisions
	Effects of Force
	Forms of Energy
	Rocket Launcher
	Ideas from Nature
	Motorized Winch
	Material Lifting
Electromagnets	

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