

## LIVING WITH STEM

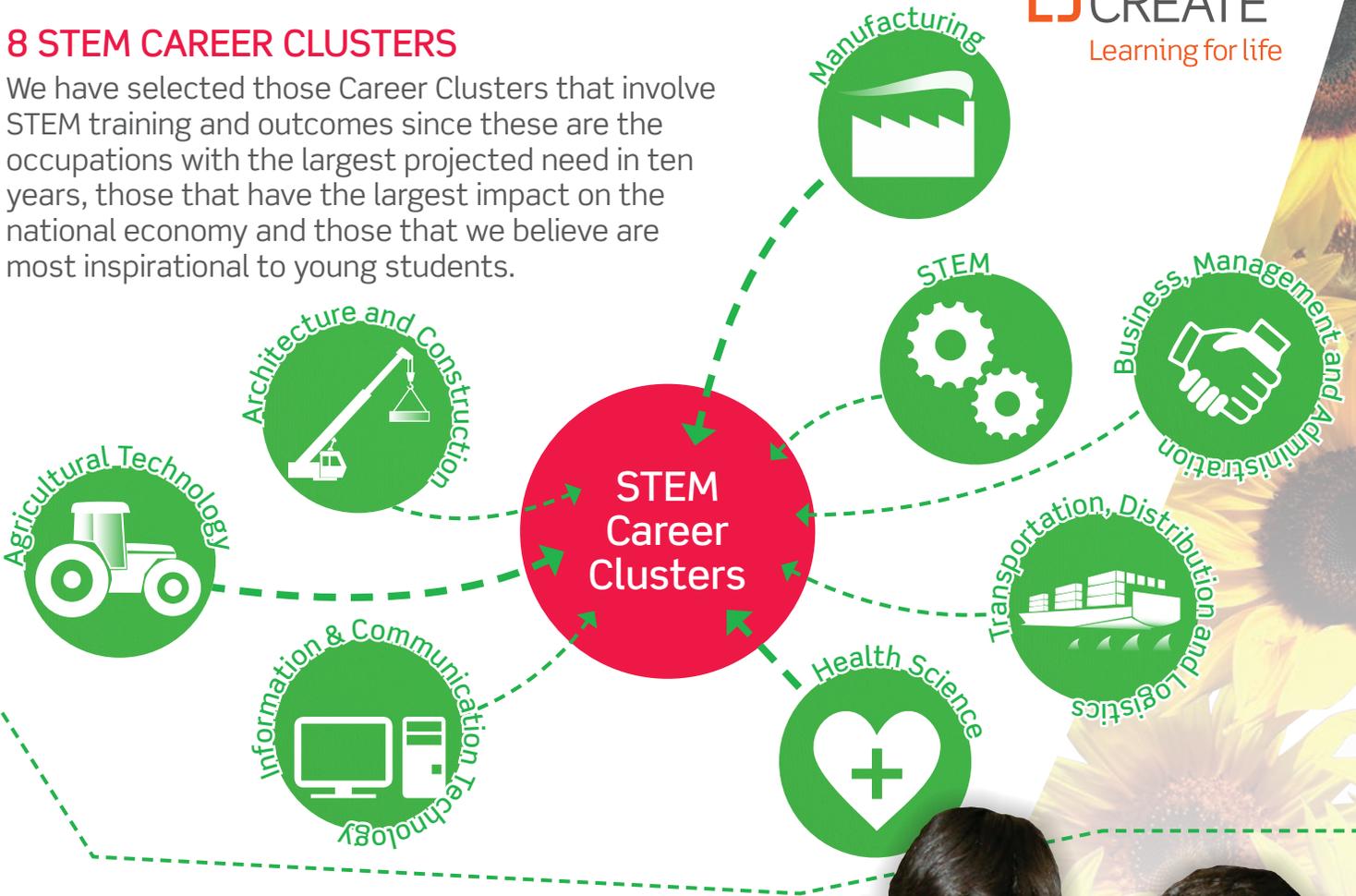
# Elementary Career Exploration Program



**LJ CREATE™**  
Learning for life

### 8 STEM CAREER CLUSTERS

We have selected those Career Clusters that involve STEM training and outcomes since these are the occupations with the largest projected need in ten years, those that have the largest impact on the national economy and those that we believe are most inspirational to young students.



### SOFTWARE AND HANDS-ON EXPLORATION

We deliver a combination of interactive cloud 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



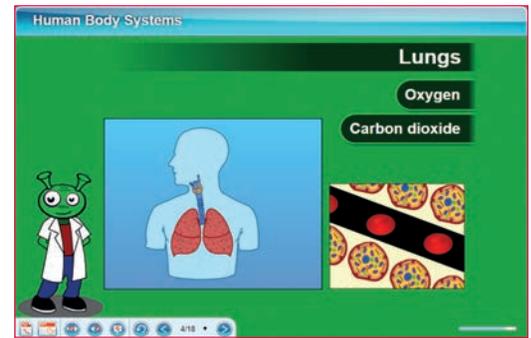
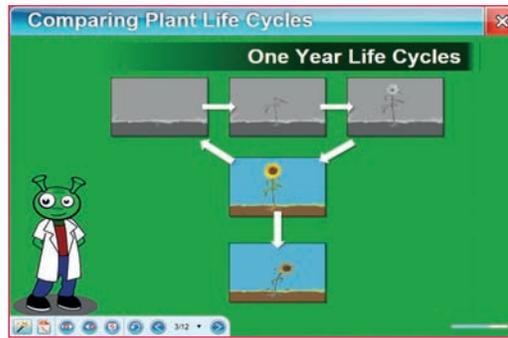
# INTRODUCTION TO CAREERS AND EDUCATIONAL PATHWAYS

Designed to introduce students to a wide range of STEM career experiences the program:

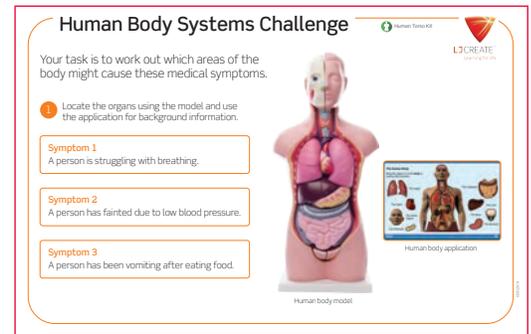
**1** Starts with a career cluster introduction and education pathways model



**2** Provides underpinning knowledge and skills: technical, mathematics, language

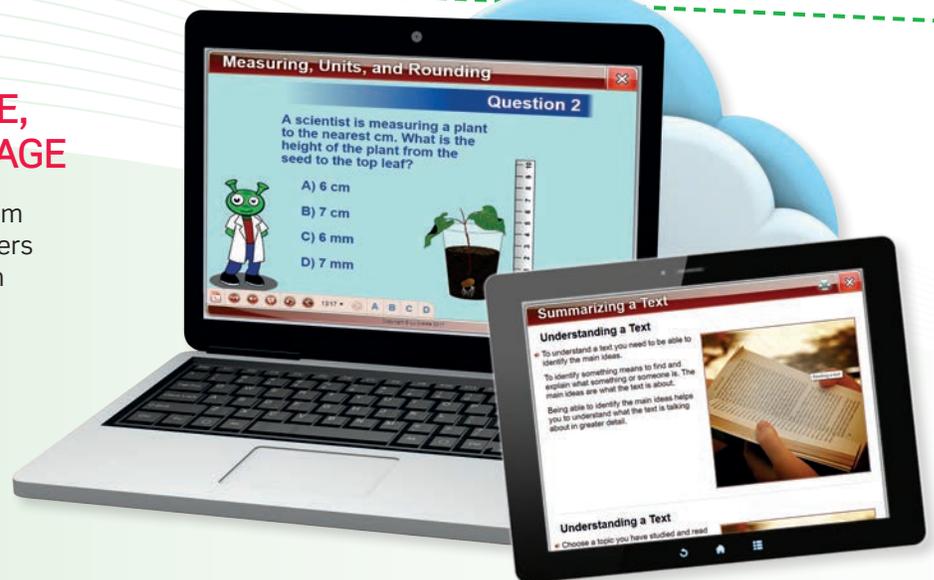


**3** Challenges with a career related task to complete



## RELATED CLASSROOM LESSONS TO APPLY SCIENCE, MATHEMATICS AND LANGUAGE

The program includes hundreds of classroom activities that are intended to link the careers study to academic study. These classroom activities are identified by the academic standards that they meet.



## PRACTICAL INQUIRY TO DEVELOP STEM SKILLS

The program includes 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



8 career clusters

70+ challenges

## EXCITING STEM CHALLENGES TO INTRODUCE CAREER EXPERIENCES

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

### Turning Challenge

Your task is to make a component using turning.

- 1 Fix the workpiece into the chuck securely.
- 2 Fit the drill to the tailstock.
- 3 Drill a small  $\phi 3$  mm pilot hole into the end of the workpiece. (Approximately 2 mm deep)
- 4 Remove the drill and fit the live center to the tailstock. Locate the live center into the pilot hole at the end of the workpiece.
- 5 Use the this co...

Machine Tool Class Pack

**L2CREATE**  
Learning to Create

Refer to the **Lathe Reference Sheet** to find out how to use the machine.  
Make sure you read the safety instructions before operating the machinery.

Lathe machine



### Lifting Machine Challenge

Your task is to build a lifting machine to lift 2 bean bags.

Accelerations in mm

10 10

Test the lifting machine on a box.

Can you make it safe so that it does not unwind when you let it go?

Wear safety glasses.



## OUR STEM CHALLENGES

CAREER CLUSTERS	CHALLENGES
Agriculture, Food, and Natural Resources	Generating Electricity
	Origin of Soil
	Power Saw
	Engineering Design
	Vegetable Plot
	Microscope
	Parts of a Plant
	Plant Structures
	Mixing Machine
	Pollination
Architecture and Construction	Solar Power
	Bridge Building
	Basement Circuit
	Solar Energy in Buildings
	Shapes and Structure
	Heat Transfer
	Construction Machine
	Reinforced Concrete
Business, Management, and Administration	Sharing into Equal Groups
	Value of Money
	Working to a Budget
	Estimating Using Rounding
	Savings Plan
	Flying the Flag
	Designing a Toy
Making White Light	
Health Science	The Human Body
	Human Body Systems
	Heart Rate
	Measuring Temperature
	Determining Volume
	Bones
	Neural Processing
Light Rays	

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

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