Innovative Learning Spaces

LJ CREATE™
Learning for life

ljcreate.com

Smart Labs

At LJ Create we pride ourselves on the innovative learning spaces we produce for a wide range of STEM education and occupational disciplines. We call these Smart Labs. This brochure illustrates a few examples of these labs. We combine and customise these spaces to meet every customer's specific needs.

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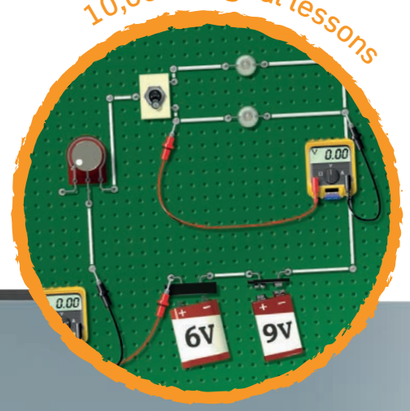
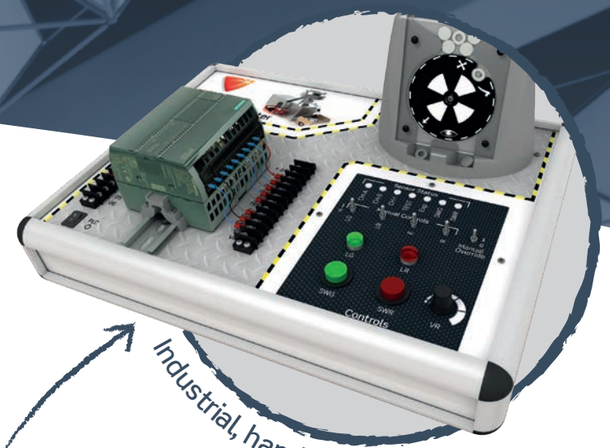


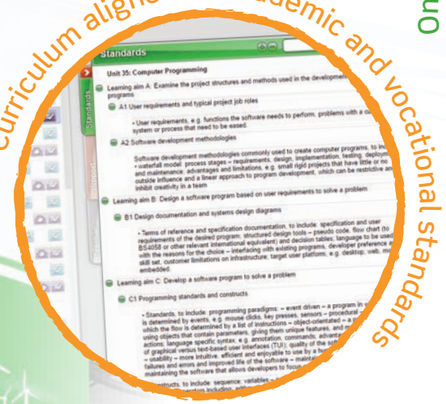


INNOVATIVE HARDWARE

EVERY LJ CREATE LAB INCLUDES:

ONLINE LMS AND LESSON LIBRARIES

CONTINUING PROFESSIONAL DEVELOPMENT (CPD)



Smart Labs

Our SMART Labs are designed to create:

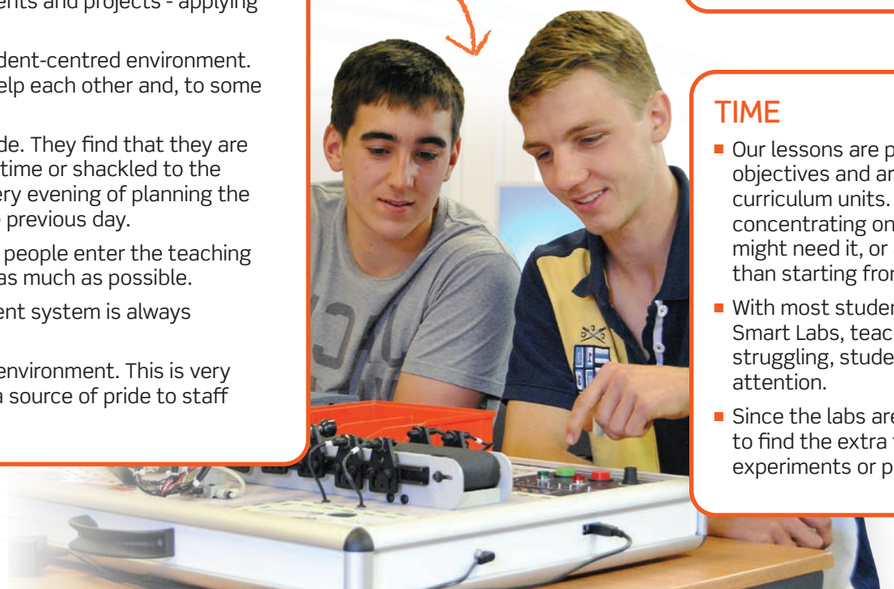
SKILLS – in students: academic, occupational and learning skills
MOTIVATION – for students, staff and stakeholders who take pride in a 'showpiece'
ADAPTABILITY – for different staff and student groups
RESULTS – for the institution and individuals
TIME – for instructional staff to spend on the best parts of their jobs

SKILLS

- Active learning lessons and projects develop cognitive and manipulative skills
- Student-centred learning develops responsibility and lifelong learning skills
- Our large library of lessons integrate science, maths, language, engineering and occupational learning

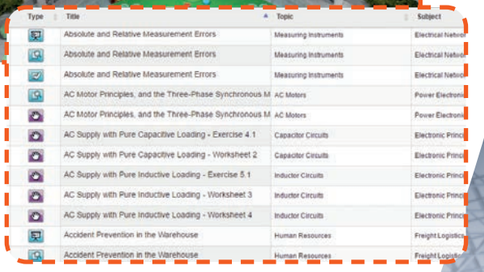
MOTIVATION

- Students love the active learning sessions in our Smart Labs. They are gaining just the knowledge they need to complete investigations, experiments and projects - applying this information while developing useful skills.
- Students enjoy their enhanced role in a well-organised student-centred environment. They have responsibility for their own learning. They can help each other and, to some extent, they can set their own pace of working.
- Staff enjoy the relative freedom that the Smart Labs provide. They find that they are no longer locked to a group of students for a set period of time or shackled to the front of the room. Neither are they faced with the task every evening of planning the lab lessons for the following day, or marking work from the previous day.
- Instead of this they can focus on the tasks for which most people enter the teaching profession - the job of helping individual students achieve as much as possible.
- The immediate feedback provided by a learning management system is always motivating for both students and staff.
- The Smart Labs look great and are an obviously high-tech environment. This is very exciting to everybody associated with the institution and a source of pride to staff and administration.



ADAPTABILITY

- Our library of lessons and courses is so large that individual teachers have lots of choices for each class. Additionally, the lessons have been produced to a consistent high standard and develop successful outcomes in the Smart Lab for all staff. This helps enormously during staff transition times or in larger institutions.
- The nature of the Smart Lab means that if institutions are in a situation where a non-specialist has to look after the class for short periods the activities in the lab will be unaffected.

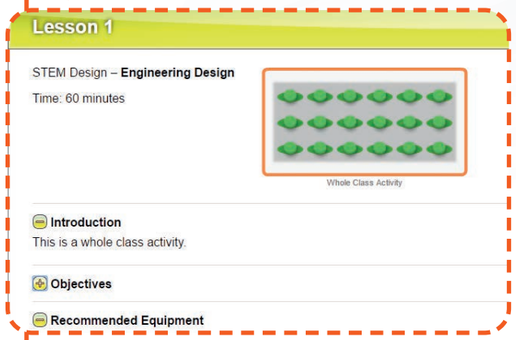


RESULTS

- The primary purpose of our labs is to deliver results. Whether used for qualifications at levels 1, 2, 3 or 4, the focus is upon better performance in unit or course assessments and examinations. Performance in a lesson is assessed against the learning objectives and courses have pre- and post-testing available. Project-based units are supplied with a number of options for assessed portfolios.
- The learning management system tracks and reports performance - providing teaching and administrative staff with the necessary tools to react when appropriate.
- LJ Create lessons include integrated academic tasks. These are supported by specific lessons that students can call up when required. This in-context academic intervention is a fantastic tool for enhancing mathematics, science and language skills.

TIME

- Our lessons are preconfigured to meet specific learning objectives and are sequenced against required or optional curriculum units. So staff can spend their planning time concentrating on extra instruction for individuals that might need it, or adapting our lessons - always easier than starting from scratch.
- With most students in a class being self-occupied in the Smart Labs, teachers can focus on the advanced, or struggling, students that will benefit most from close attention.
- Since the labs are usually ready to run, staff don't need to find the extra time normally needed to configure experiments or project work.



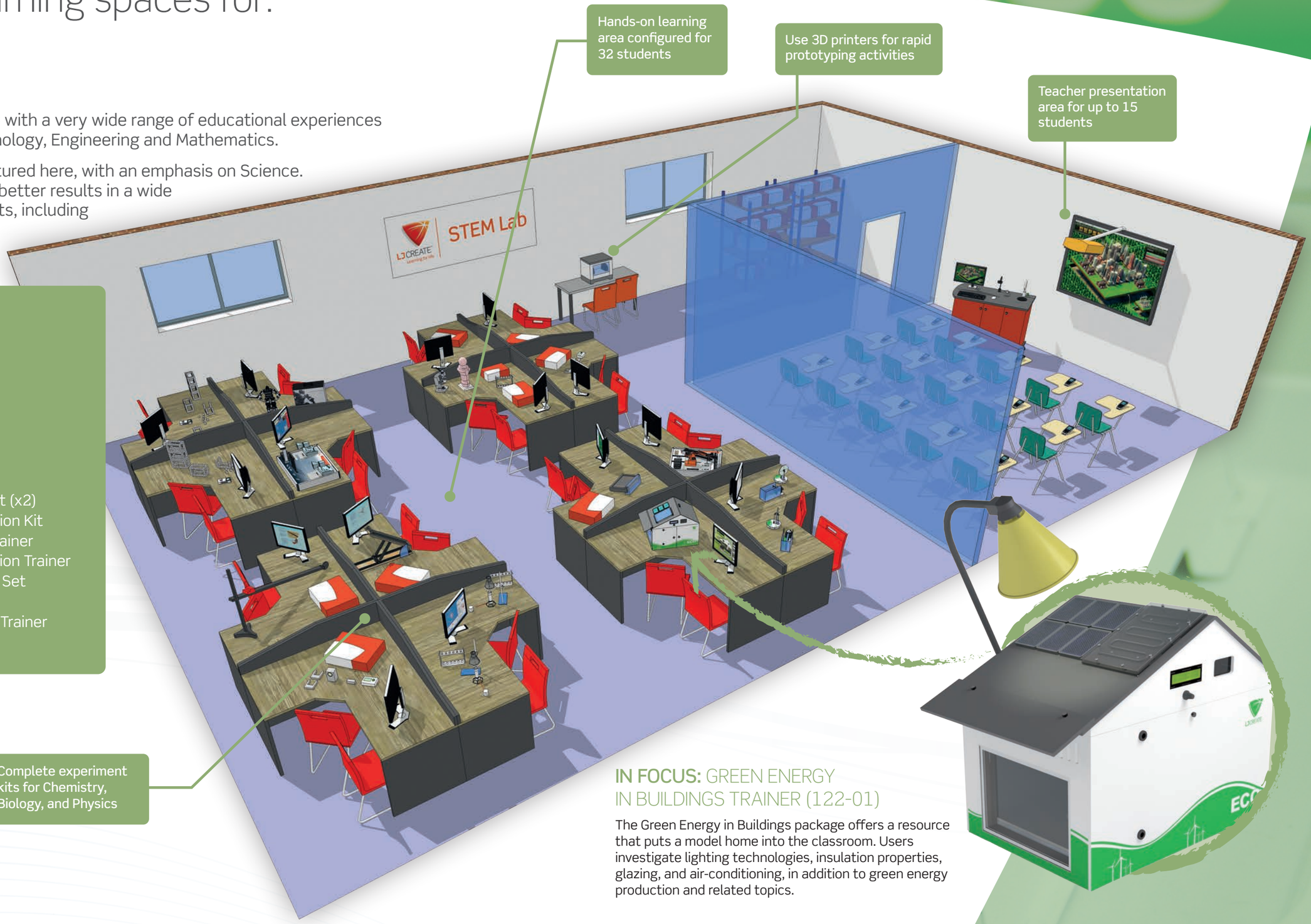
Innovative learning spaces for:
STEM

This space provides students with a very wide range of educational experiences that integrate Science, Technology, Engineering and Mathematics.

Modern technologies are featured here, with an emphasis on Science. Using this lab will encourage better results in a wide range of Level 2 STEM subjects, including GCSE Mathematics and Science.

This typical STEM Lab configuration includes the following resources:

- Teacher STEM Cart
- Biology Experiment Kit
- Physics Experiment Kit
- Chemistry Experiment Kit
- Data Logging Kit (x2)
- Biomedical Technology Kit
- Engineering Construction Kit (x2)
- Educational Robotics Invention Kit
- Green Energy in Buildings Trainer
- Sustainable Energy Production Trainer
- Electronic Circuits Teaching Set
- Robotics Trainer
- Electronic Communications Trainer
- Rapid Prototyping Machine



IN FOCUS: GREEN ENERGY IN BUILDINGS TRAINER (122-01)

The Green Energy in Buildings package offers a resource that puts a model home into the classroom. Users investigate lighting technologies, insulation properties, glazing, and air-conditioning, in addition to green energy production and related topics.

To find out more, visit:
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Innovative learning spaces for:

Science

We create a collegiate-style open science laboratory, driven by the use of technology, in which students can be assigned a number of practical experiments to be completed each term and then left with the responsibility to visit the lab, log in to the system, collect the matching kit or kits and conduct their experiment.

This methodology really brings GCSE and A Level Science instruction into the 21st century.

This typical Science Lab configuration includes the following resources:

- Teacher STEM Cart
- Biology Experiment Kit (x4)
- Physics Experiment Kit (x4)
- Chemistry Experiment Kit (x4)
- Data Logging Kit (x4)
- Chemistry Apparatus Kit (x4)

IN FOCUS:
CHEMISTRY APPARATUS KIT (512-01)

The Chemistry Apparatus Kit is comprehensive yet compact, with most of the essential items you will need to carry out a large proportion of your chemistry lesson hands-on experiments.

Typical practical tasks include:

- Acids and bases
- Atomic structure and ions
- Chemical change
- Halogens
- Decomposition
- Separating mixtures

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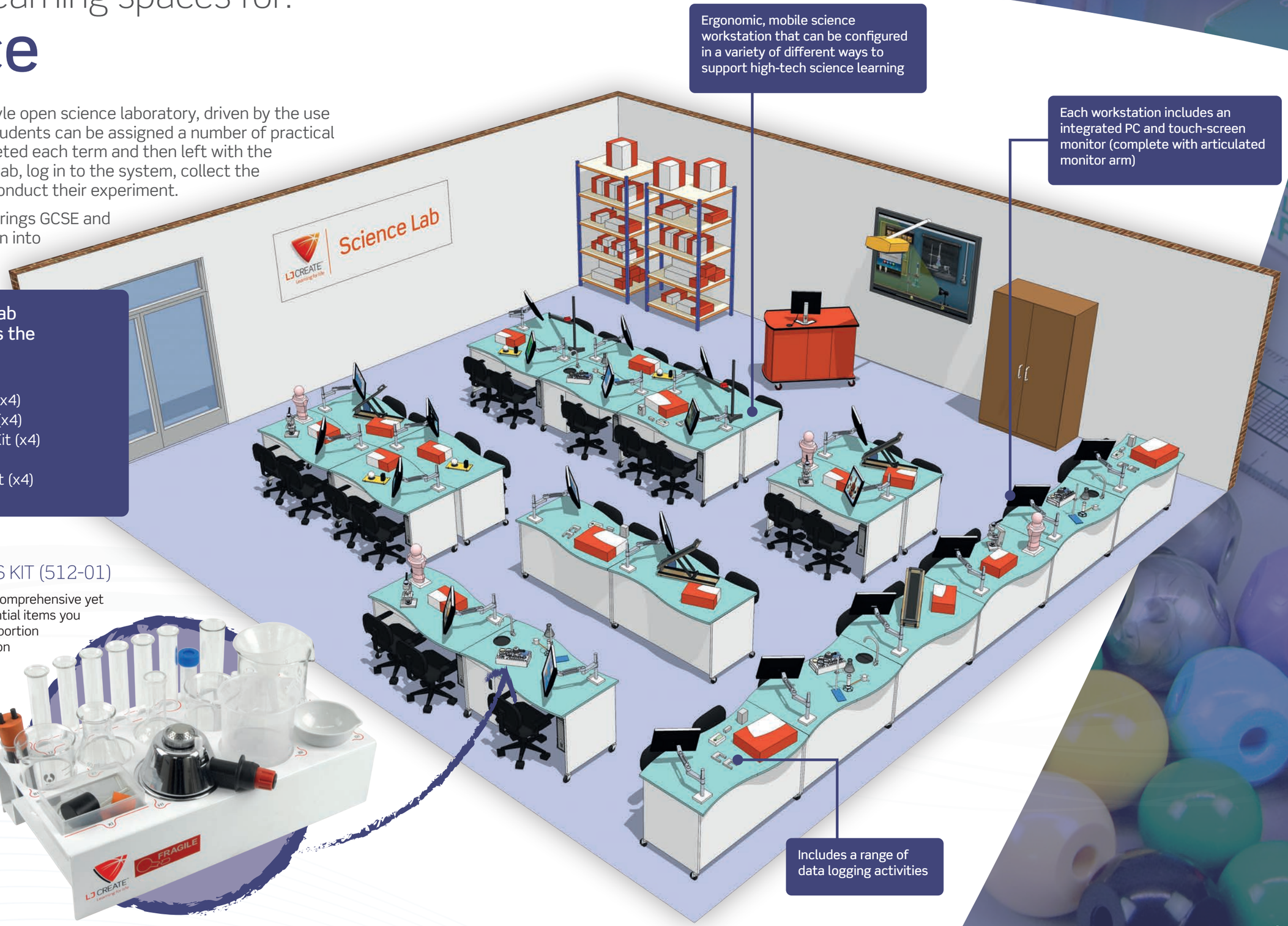


Innovative learning spaces for:

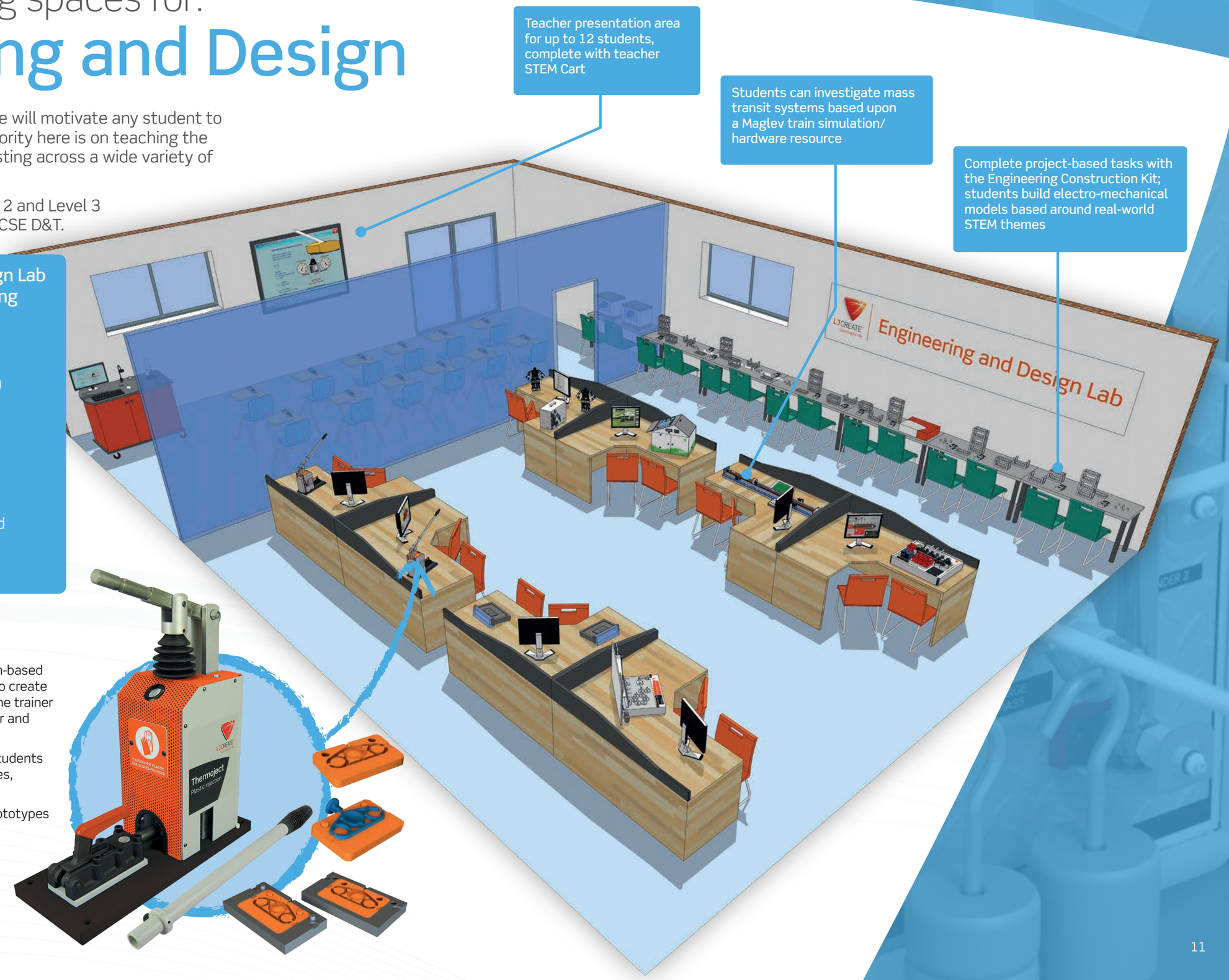
Engineering and Design

Regular exposure to this exciting space will motivate any student to pursue a career in engineering. The priority here is on teaching the process of design, prototyping and testing across a wide variety of different technologies.

Units covered are mandatory for Level 2 and Level 3 Engineering qualifications as well as GCSE D&T.

This typical Engineering and Design Lab configuration includes the following resources:

- Teacher STEM cart
- Engineering Construction Kit (x12)
- Educational Robotics Invention Kit (x2)
- Green Energy in Buildings Trainer
- Electronic Circuits Teaching Set (x2)
- Rapid Prototyping Machine (x2)
- Injection Moulding Trainer (x2)
- Research and Design Teaching Set
- Industrial Control Trainer
- Structures and Materials Resource and Consumables Pack
- Mechanisms Trainer



IN FOCUS: INJECTION MOULDING TRAINER (350-01)

The Injection Moulding Trainer offers a classroom-based resource for investigating the techniques used to create thermo-plastic products. Students initially use the trainer to mould a variety of items, including a model car and different designs of door handles.

Using the trainer alongside a 3D printer allows students to follow rapid prototyping and tooling techniques, including:

- 3D printing, evaluation and improvement of prototypes
- 3D printing of injection mould tools
- Injection moulding of the final product

To find out more, visit:
ljcreate.com

Innovative learning spaces for:

Electronics

Students learn the necessary cognitive and practical skills for many technician occupations involving electrical or electronic systems.

These include: Medical Equipment Technician, IT Support, Manufacturing Maintenance and Audio Systems Technician. Qualifications addressed include GCSE, and Level 2/3 Engineering Units, and Level 3/4 Electronics.

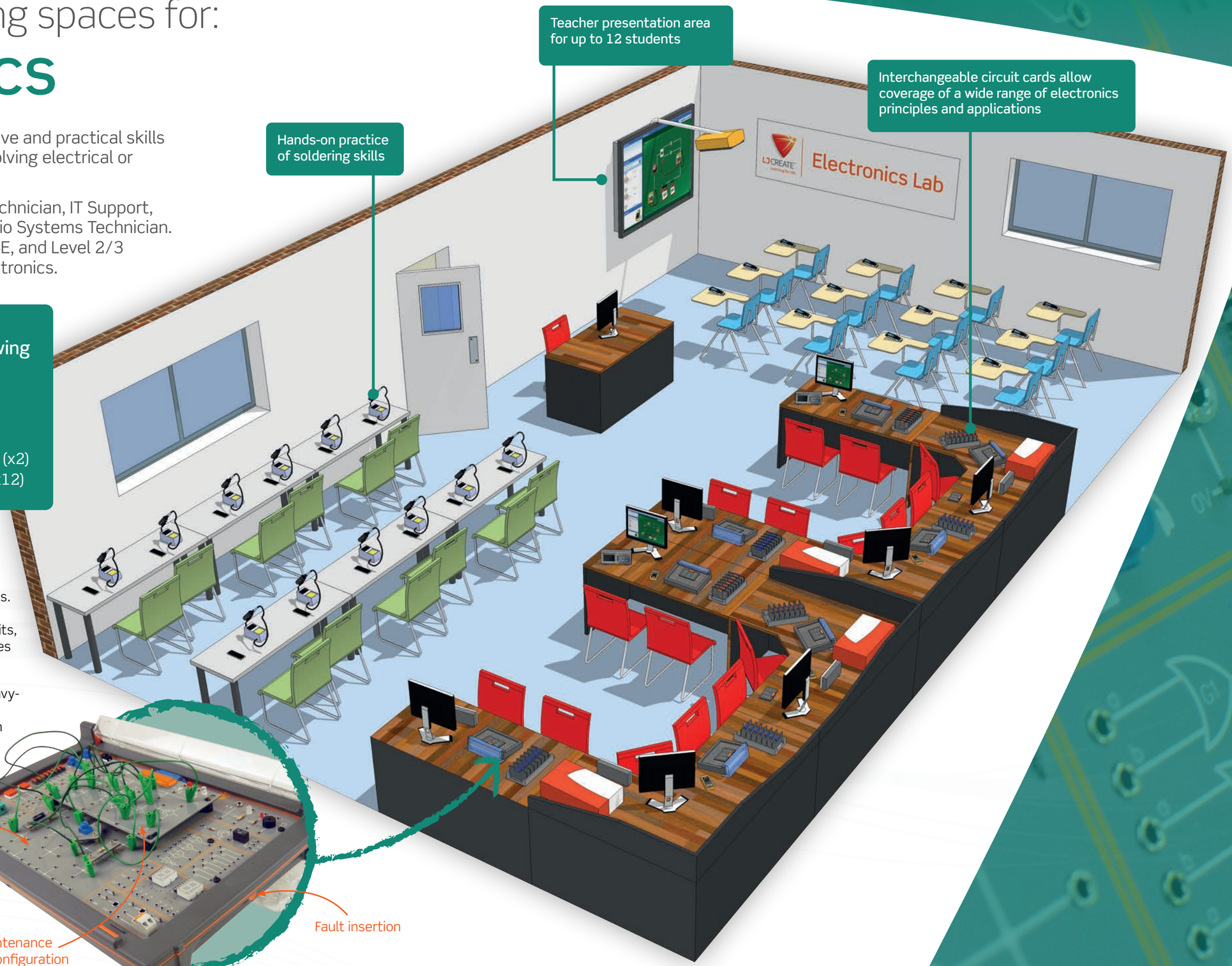
This typical Electronics Lab configuration includes the following resources:

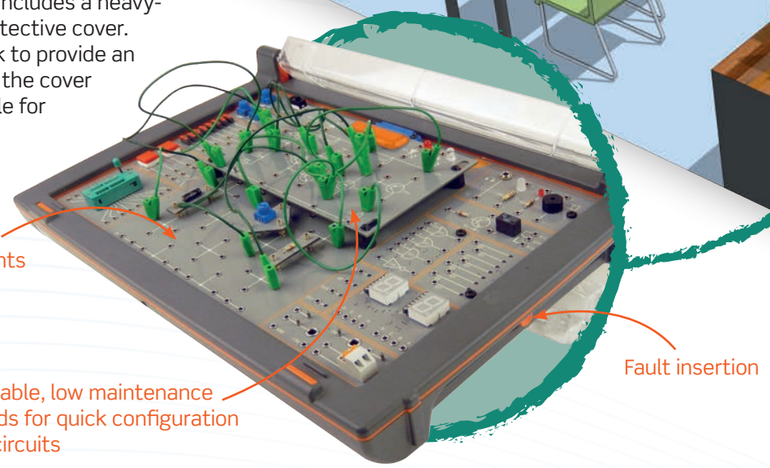
- Electronics Study Trainer (x8)
- Instrumentation Pack (x10)
- Circuit Card Set (x8)
- Electronic Circuits Consumable Pack (x2)
- Circuit Soldering Station and Tools (x12)

IN FOCUS: ELECTRONICS STUDY TRAINER (320-00)

This trainer is part of the core electronics series. It allows the practical study of a wide range of electronics subjects, including DC and AC circuits, electrical networks, semiconductors, logic gates and fault-finding techniques.

The unique design of the trainer includes a heavy-duty casing with transparent protective cover. When in use, the cover folds back to provide an angled support for the unit. With the cover closed, trainers become stackable for easy storage.





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Innovative learning spaces for:

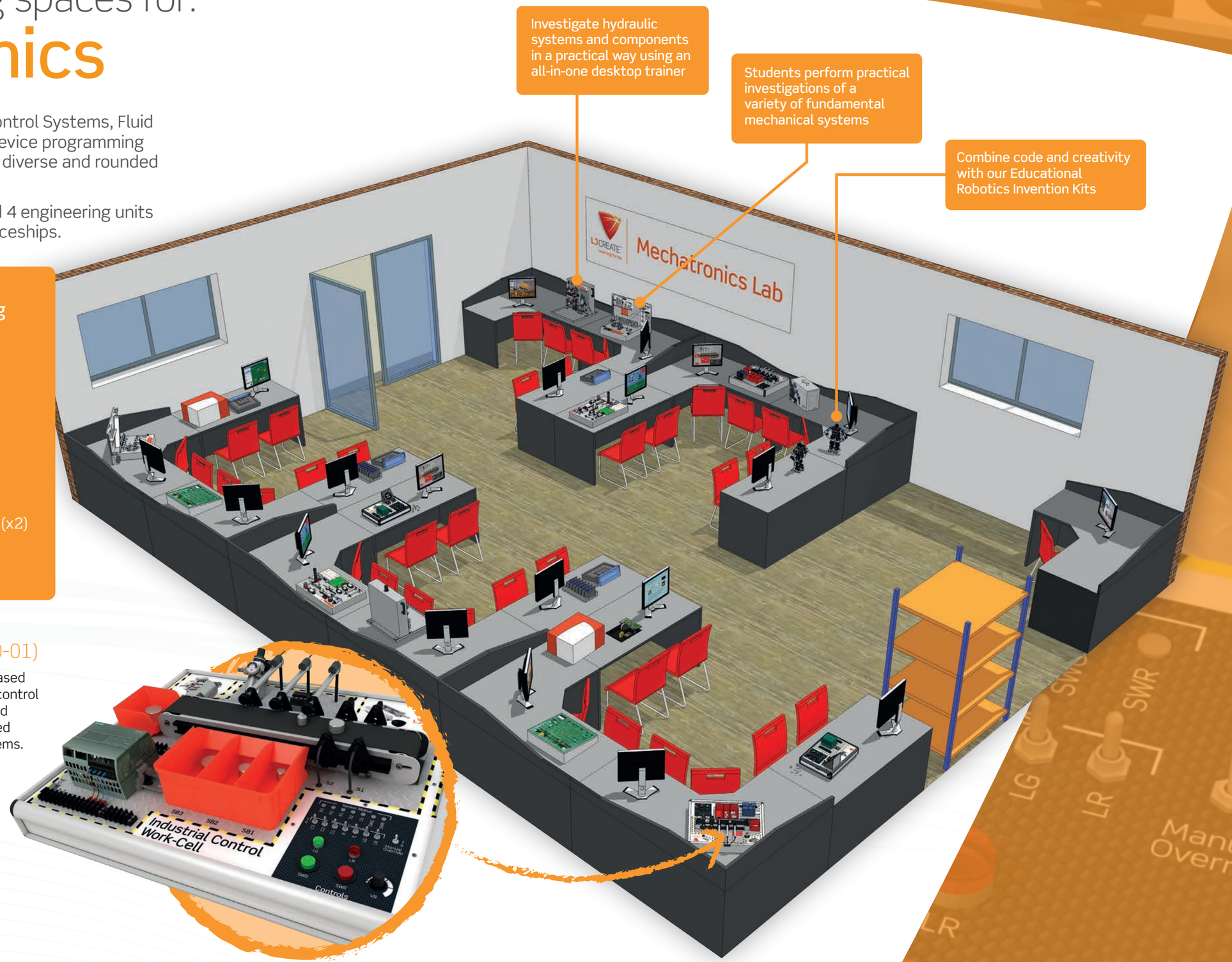
Mechatronics

Students study Mechanical Systems, Control Systems, Fluid Power, and Electronics. Computer and device programming is included in many different forms for a diverse and rounded engineering experience.

Qualifications addressed are Level 3 and 4 engineering units as well as appropriate skills for apprenticeships.

This typical Mechatronics Lab configuration includes the following resources:

- Electronics Study Trainer (x4)
- Circuit card Set (x2)
- Educational Robotics Invention Kits (x2)
- Hydraulics Trainer (x2)
- Mechanisms Trainer (x2)
- Pneumatics Trainer (x2)
- Industrial Controls Trainer (x2)
- PLC Trainer (x2)
- Transducer and Instrumentation Trainer (x2)
- Motor Controls and Data Acquisition Teaching Set



IN FOCUS:
INDUSTRIAL CONTROL TRAINER (290-01)

The Industrial Control Trainer offers a classroom based resource for practical investigation of automated control systems. Users can select from a range of prepared demonstration programs to explore how step-based ladder logic programs are used in automated systems.

Alternatively students can create their own programs and see them in action on the trainer using the included simulation package. This trainer includes a curriculum CD containing theory and practical learning tasks, as well as tutor support materials.

To find out more, visit:
ljcreate.com

Innovative learning spaces for:

Auto Engineering

The modern automobile is a complex collection of electronic and mechanical systems.

This laboratory is designed to limit the amount of text-based learning that future automotive technicians complete and replaces it with interactive experiences and skills practice across all the vehicle systems including engines, braking, steering and suspension, air conditioning and transmission systems.

This typical Automotive Engineering Lab configuration includes the following:

- Ignition and Charging Systems Panel
- Distributorless Ignition System Trainer
- Displays and Accessories Panel
- Engine Management Panel
- Sectioned Petrol Engine
- Sectioned Diesel Engine
- Sectioned Manual Gearbox
- Air Conditioning Panel
- Air Conditioning Trainer
- ABS Braking Panel
- Braking Systems Trainer
- Steering and Suspension Trainer

IN FOCUS:
ABS PANEL TRAINER (755-01)

This trainer provides students and instructors with the opportunity to demonstrate, investigate and fault-find a simulation of a typical 4-wheel anti-lock braking system.

The trainer demonstrates ABS hydraulic and electrical system operation, as well as provide the ability to simulate changes in road conditions that impact ABS operation.

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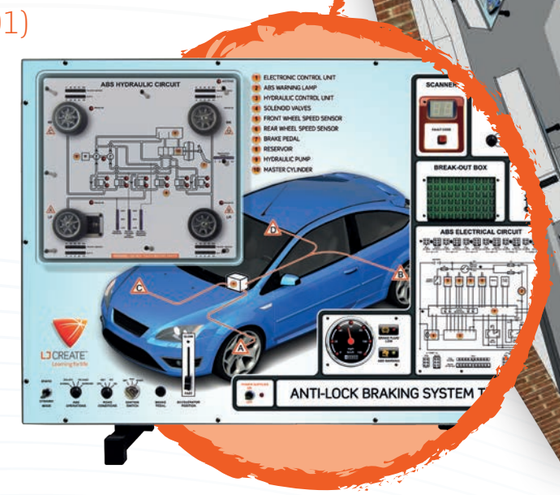
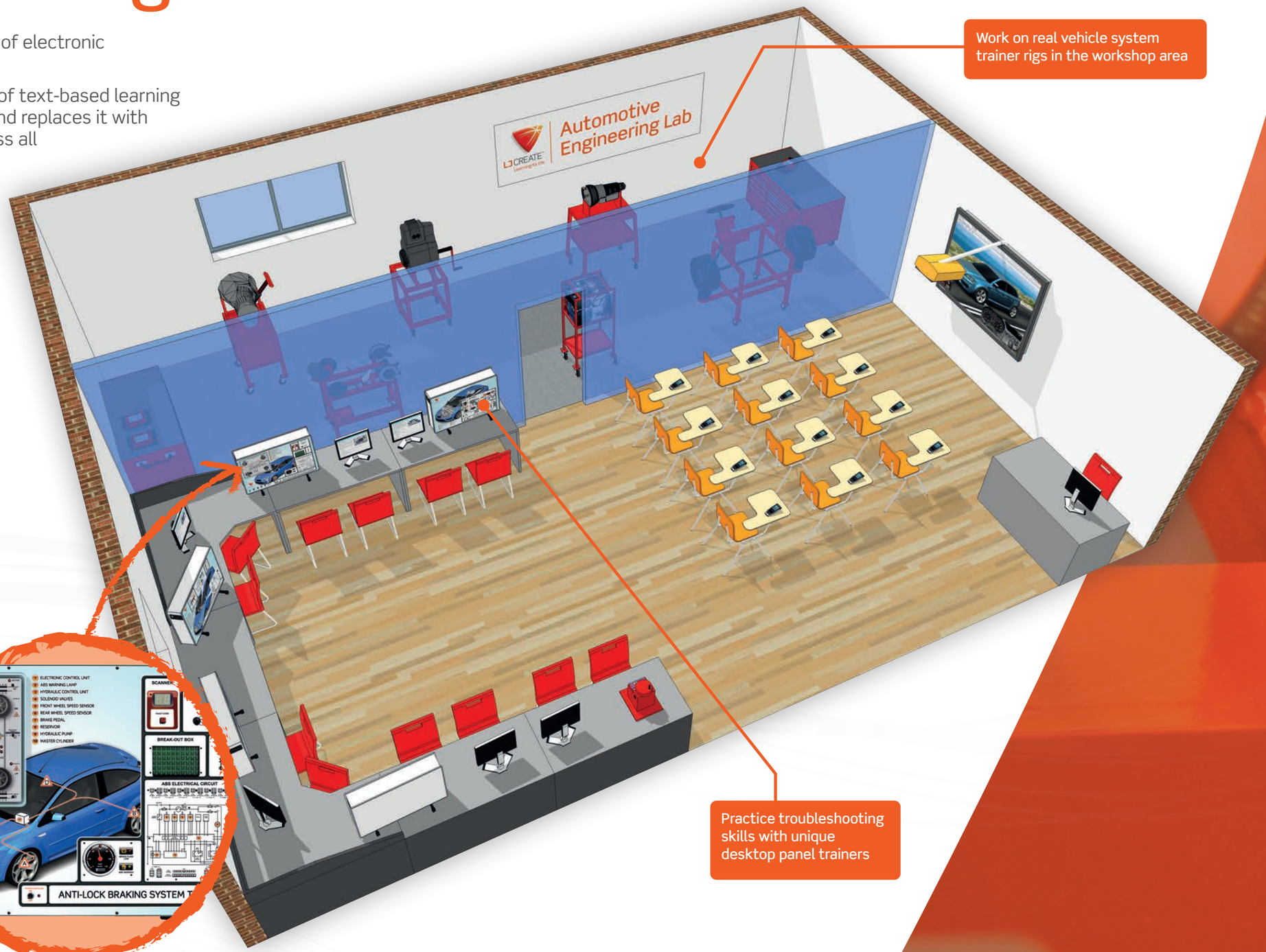




Innovative learning spaces for:

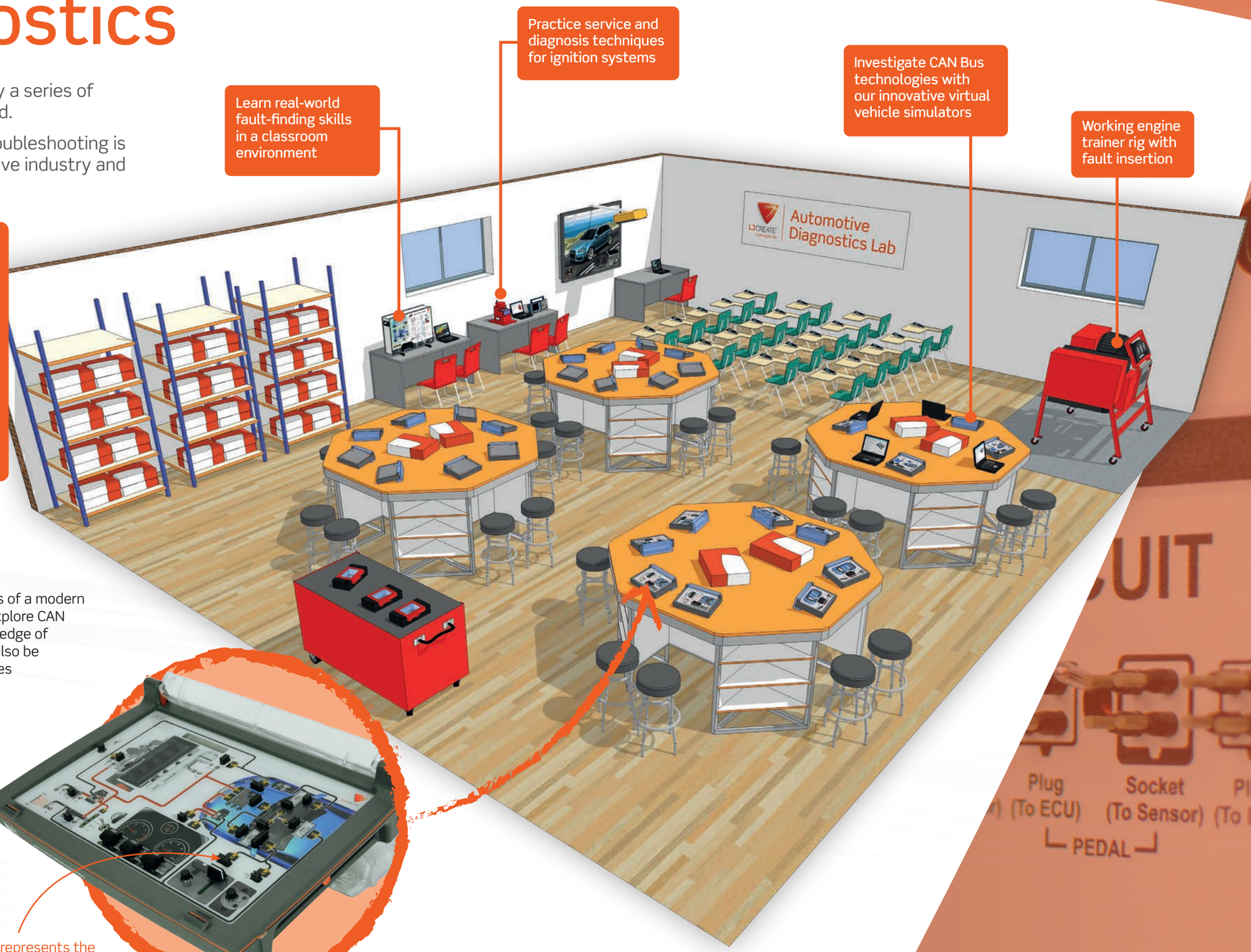
Auto Diagnostics

Modern vehicle systems are linked together by a series of computers, which run everything at high speed.

The use of diagnosis tools and subsequent troubleshooting is the most required skill in the current automotive industry and is taught to Levels 3 and 4 in this laboratory.

This typical Automotive Diagnostics Lab configuration includes the following:

- Auto Electronics Trainer (x16)
- Modern Starting and Charging Systems Trainer (x4)
- Modern Auto Lighting Circuits Trainer (x4)
- Modern Auxiliary Systems Trainer (x4)
- Engine Trainer with Fault Insertion
- Distributorless Ignition System Trainer
- Hybrid Systems Panel



IN FOCUS:
MODERN STARTING AND CHARGING SYSTEMS BOARD (720-02)

The board is focused on the starting and charging systems of a modern vehicle. Students are set tasks that encourage them to explore CAN Data Bus systems practically and also improve their knowledge of components, circuits, signals and systems. Students will also be directed to work through a number of fault-finding activities (8 in all), encouraging fault-diagnosis skills.

Typical Activities Include:

- Explore CAN Bus conventional and advanced starting and charging systems
- Investigate high speed CAN Data Bus
- Perform CAN Bus conventional and advanced starting and charging system measurements
- Perform CAN Bus consumers measurements
- Diagnose 8 different CAN Bus starting and charging faults

Unique connection system represents the connectors on an actual vehicle, enabling realistic troubleshooting in the lab

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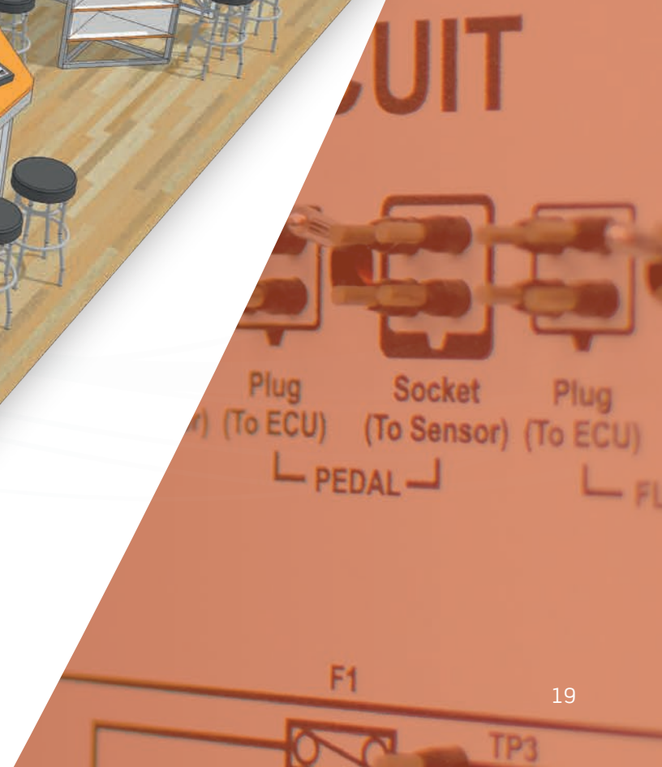

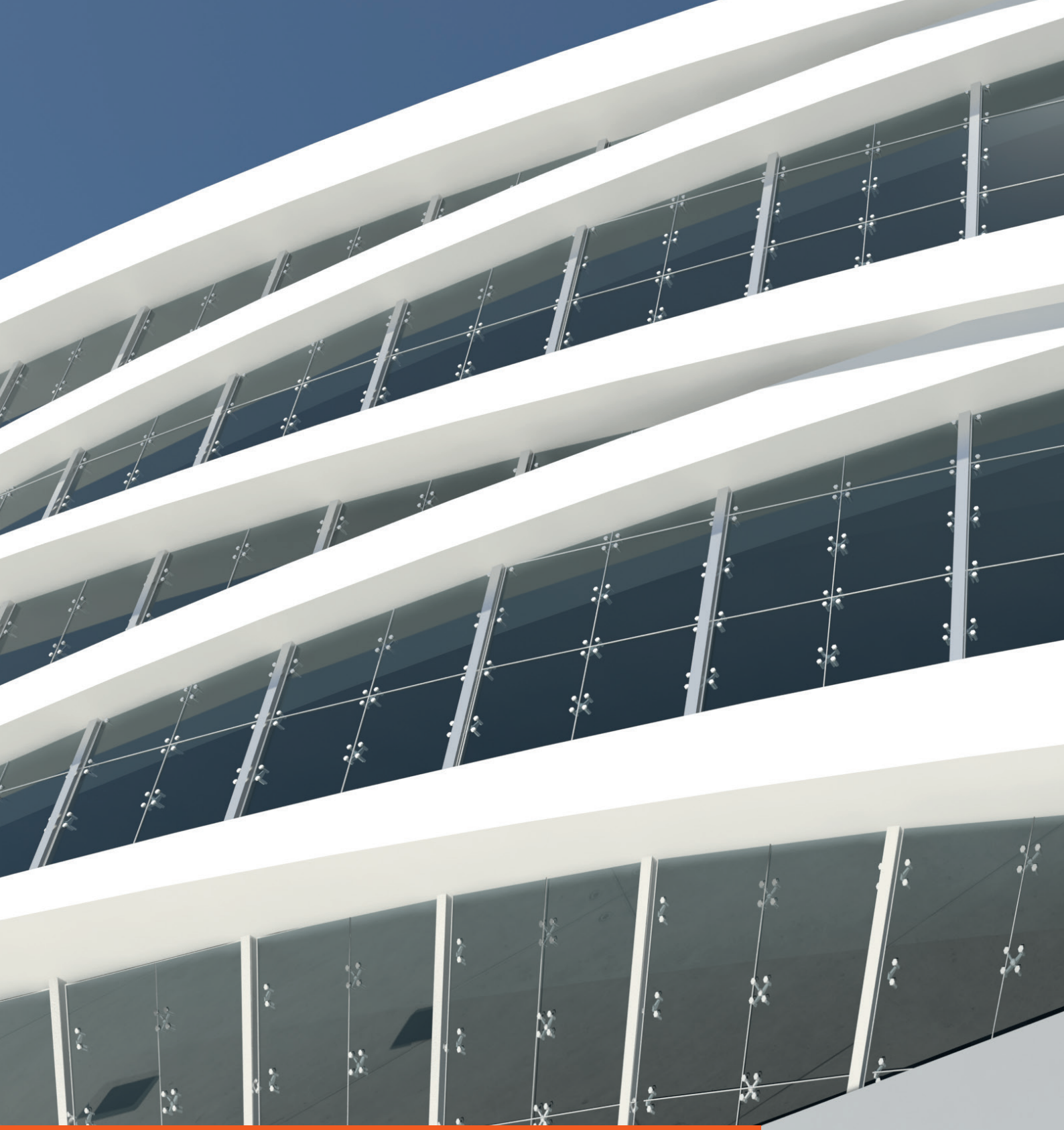

For more information on our range of learning resources, please contact:

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