LEGO® Education Catalog 2018

Playful learning experiences that enable every student to succeed

LEGOeducation.com

LEGO education

Welcome to LEGO® Education. Curiosity. Creativity. Confidence.

Are you ready to unleash the power of curiosity in your classroom?

We know the importance of instilling confidence in our learners, encouraging them to wonder and question. To create and tinker. To explore and discover. We know the importance of helping children to develop the skills necessary to grow, and the courage necessary to innovate. Our passion is providing exciting, hands-on experiences using a combination of LEGO® bricks and relevant curriculum-supporting tools and materials. Through these experiences, we encourage children to look beyond what is simply in front of them.

For more than 35 years, LEGO® Education has provided playful learning experiences that combine relevant curriculum materials, the LEGO system of bricks, teacher training and professional development with our unique teaching and hands-on learning principles. Through our continuum of rich STEM-based solutions, we are helping teachers to develop successful students who are eager to learn in depth about STEM subjects while developing strong 21st century skills.

Working together, we can empower every child to turn their natural curiosity into creative solutions. We can channel their natural enthusiasm and self-belief, provide them with the freedom to explore and encourage teamwork and collaboration.

Our children inhabit an unpredictable world that is full of ever-changing expectations. If we can't predict the future, we must be ready to build it.

Warmest regards,

Esben S. Joergensen

Contents

In this catalog, you will find a description of our learning solutions, listed according to subjects covered in three different school levels: middle school, elementary and preschool.

education

Power of curiosity

"Children are born curious and their desire to learn can last a lifetime. At LEGO® Education we aim to ignite this desire and enable children to learn skills vital for the future."

Wenting Liu, Educational Content Specialist, LEGO Education

"The best learning experiences come when people are actively engaged in designing things, creating things, and inventing things – expressing themselves. We need to think about educational institutions as a place that embraces playful experimentation."

Mitch Resnick, MIT Media Lab

"All children deserve an education that promotes inquiry and awakens the joy of discovery."

Breigh Rhodes, Rollins Place Elementary, Zachary, LA

"The 'aha' moment. That feeling of 'wow' from the students. That is at the heart of LEGO Education solutions."

Pernille France, Head of Marketing and Development, LEGO Education

Playful learning, positive outcomes

Persistence
Curiosity
Adaptability
Problem solving
Communication and collaboration
critical thinking
Creativity

Discover how to engage every student at LEGOeducation.com

Engaging students, supporting teachers

Ultimate playful learning system
LEGO® bricks are the ultimate playful learning system for developing lifelong skills in creativity and innovation. ✓

Instant engagement
Our learning approach is familiar and intuitive, providing the perfect platform for long-term engagement. ✓

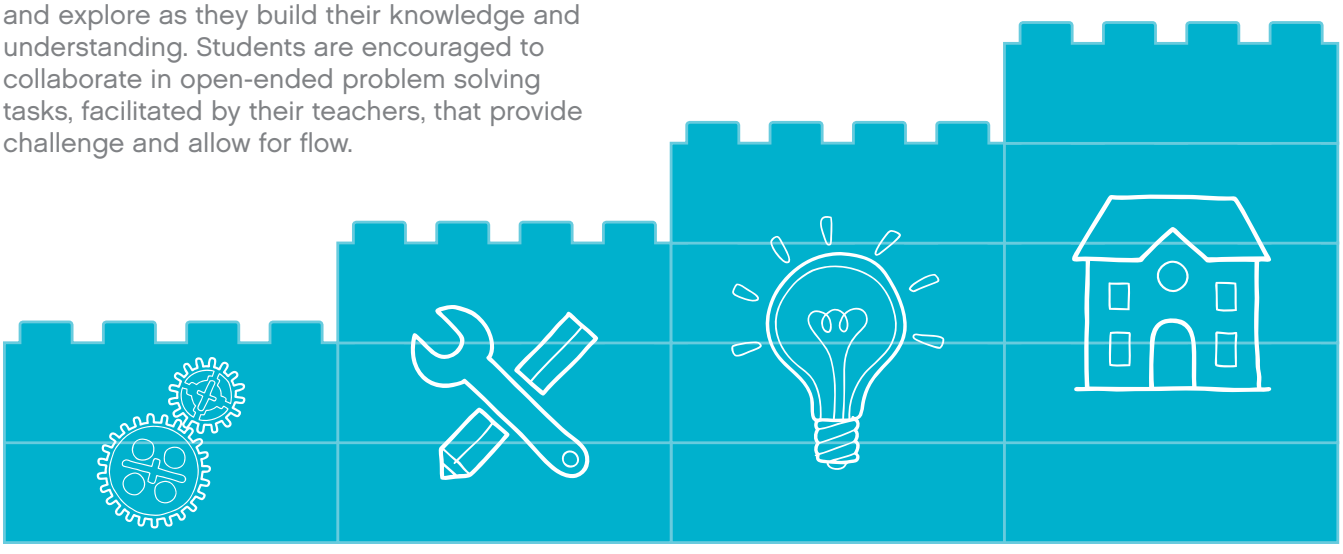
Depth of STEM learning
Using our proven, hands-on approach to STEM, students are encouraged to learn skills, such as creativity, problem solving, critical thinking and collaboration at their own pace, naturally building their confidence. ✓

Support for every teacher
We provide the resources, training and advice you need to encourage engaged, lifelong learners. ✓

Based on recognized standards
Our approach ties to national standards where available in key curriculum areas, enabling students to build essential skills for the future. ✓

The building blocks for success

Our approach to learning is founded on a '4C' framework that supports students to experiment and explore as they build their knowledge and understanding. Students are encouraged to collaborate in open-ended problem solving tasks, facilitated by their teachers, that provide challenge and allow for flow.



Connect with new experiences

The task is introduced, allowing students to ask clarifying questions and build on their own knowledge.

Construct your ideas

Every task includes a building activity to promote experimentation and exploration, and construct artifacts that can be recalled later.

Time to Contemplate

Students consider what has been learned and share insights with each other.

Continued development

Every task ends with a new task that builds on what has just been learned, keeping students motivated and curious.

education

Everything teachers need to enable every student to succeed

Our solutions include a range of learning materials that enable teachers to deliver hands-on, playful learning experiences for their students.

What's included in a solution?

LEGO® Education Core Set ✓

A tailored brick set to facilitate engaging and meaningful hands-on, playful learning experiences.

Curriculum content ✓

Subject-specific activities and materials built on national curriculum standards.

Teaching software ✓

Easy-to-use software and apps for a range of devices, including PC, Mac, tablets and Chromebooks.

Assessment tools ✓

Tools, rubrics and teacher guidance for assessing student progress.

eLearning program ✓

Step-by-step tutorials to help you get started.

Technical support ✓

Ongoing phone and online support to help you with any questions.

What can I add on?

Curriculum packs/ Expansion sets ✓

Additional curriculum packs and expansion sets are available to expand and deepen the teaching and learning experience.

Training and professional development ✓

Face-to-Face training is available, led by a certified LEGO® Education Academy trainer.

Accessories ✓

Additional accessories are available to build upon core and expansion sets.

Replacement packs ✓

Replacement bricks are available for each core set.

Curriculum content, teaching software, assessment tools and eLearning programs are available for free download from **LEGOeducation.com/start**

Training and ongoing support

At LEGO® Education, we want every teacher to succeed in using our solutions in their classroom. To ensure this, we offer Face-to-Face training, global consumer services and online resources.

Our Face-to-Face training is conducted by LEGO Education certified teacher trainers. Our certified teacher trainers will give you the tools and resources you need to successfully integrate our classroom solutions into your existing STEM curriculum and daily lesson planning, in order to help you engage every student through playful learning.

Quality is important to LEGO Education. Each program has been tested with educators and we continue to monitor our trainers to make certain that they offer the best possible training experiences.

You will have the opportunity to experience lessons from a student's perspective, master classroom management and explore best practices in classroom implementation of the material.

Our global consumer service team is available to support you by answering any questions you may have regarding the LEGO Education solutions.

Our online resources offer you additional options for accessing detailed support. Our online platform offers you guides for getting started, eLearning and FAQ support.

Professional training and development

+

Global consumer services

+

Online resources

education

Competitions

Driving teamwork, problem solving and excitement in STEM

Bring your students to a competition and kickstart their engagement and excitement! LEGO® Education is a partner and official supporter of the *FIRST*® LEGO® League Jr., *FIRST*® LEGO® League and World Robot Olympiad™ (WRO) international programs.

> "I have loved every minute of being involved with *FIRST*® LEGO® League Jr. and *FIRST*® LEGO® League, and nothing compares to seeing the look on the students' faces as they proudly present their work, knowing that they built something unique—a real magic moment of education!"
>
> **Samantha Sadler, North Birmingham Academy Teacher, UK**

- 68,000+ Participants
- 11,500 Teams
- 11,500 Robots
- 400 Events
- 41 Countries

***FIRST*® LEGO® League Jr.** captures young children's (aged 6-10) curiosity and directs it toward discovering the wonders of science and technology. This program focuses on a real-world scientific concept that is explored through research, teamwork, construction and imagination. Guided by adult coaches, teams of children use LEGO Education WeDo elements to build and program a moving model and develop a 'Show Me' poster to illustrate their journey.

FIRST LEGO LEAGUE JR.

255,000+ Participants

32,000 Teams

32,000 Robots

1,464 Events

88 Countries

Find out how to get involved at **www.FIRSTLEGOLeaguejr.org** and **www.FIRSTLEGOLeague.org**

In ***FIRST*® LEGO® League**, children and teenagers (aged 9-16) are immersed in real-world science and technology challenges. Teams design their own solutions to a current scientific question or problem, and build autonomous LEGO® MINDSTORMS® robots that perform a series of missions based on an annual theme. Through their participation, students develop valuable life skills and discover exciting career possibilities, while learning that they can make a positive contribution to society.

FIRST LEGO LEAGUE

World Robot Olympiad™ (WRO) is a global robotics competition offering a variety of categories to inspire collaborative creativity, strengthen math and science knowledge, promote teamwork, develop presentation skills and increase enthusiasm for global robotics technology.

Over 23,000 teams participate in national competitions each year, and winners are invited to the World Robot Olympiad. These students have an amazing opportunity to meet other competitors from over 55 different countries and potentially bring home the world title!

WRO™ WORLD ROBOT OLYMPIAD

Find out how to get involved at **www.wroboto.org**

education

Engage preschool, elementary and secondary students in subjects From science to humanities

LEGO® Education provides a continuum of curriculum content that is relevant to students' everyday lives and real-world contexts. From preschool through middle school and beyond, the content is created by a full development team of educators and education experts. We offer resources for teaching science, technology, engineering and math, as well as educational resources for preschool teachers to address humanities, language and literacy.

Key icons to look out for:

- Total number of elements in a set
- Storage box included
- Recommended number of students for using a single set
- yrs — Suitable age range of set
- 1 — Number of sets available in a solution
- App available for free download in different App Stores
- www — Resources available for free download from LEGOeducation.com/start
- Number of projects/activities/lessons included in a curriculum
- Duration of each project/activity/lesson included in a curriculum

	Social & Emotional Development	Language & Literacy	Science	Technology	Engineering	Math	Coding
Middle School Ages 11 and Up			■	■	■	■	■
Elementary Ages 5-10			■	■	■	■	■
Preschool Ages 3-5	■	■	■	■	■	■	

LEGO® Education Middle School

Grow critical thinking and creativity

education

LEGO® Education Middle School & Beyond

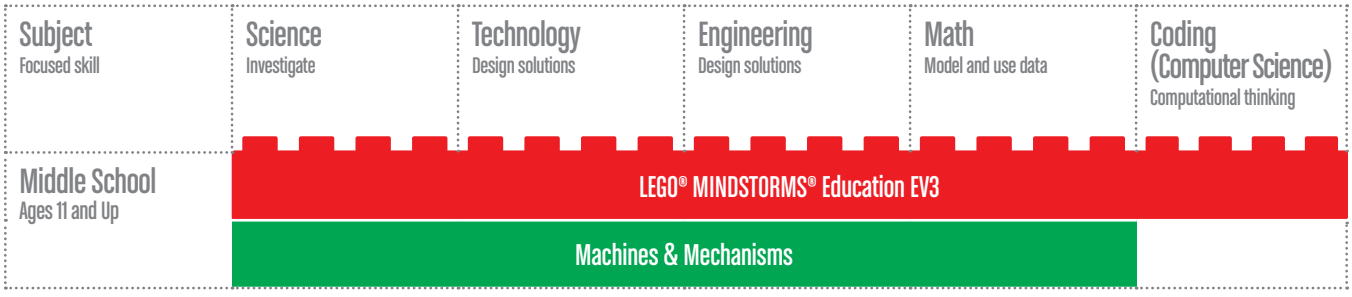
Grow students' critical thinking and creativity for a digital future

LEGO® Education enables every student to succeed in middle school and beyond through activities based on real-life themes and physical and digital creation, supporting teachers with effective, structured and curriculum-relevant STEM solutions.

These solutions empower all students to build their own understanding of challenging subjects, encouraging them to develop critical thinking skills, grow their ideas and make their own creations through playful learning experiences.

The right STEM resource for your needs

We provide two main platforms to teach STEM at the middle school level with LEGO Education resources: LEGO® MINDSTORMS® Education EV3 and Machines & Mechanisms. These solutions offer choices to match where the students are in the learning process and the desired level of computing in lessons.



Discover how to engage every student at LEGOeducation.com

LEGO® MINDSTORMS® Education EV3

Instant STEM learning with best-in-class robotics solutions

Computer Science
Science
Technology
Engineering
Math

LEGO® MINDSTORMS® Education

BUILT ON NATIONAL CURRICULUM

LEGO® MINDSTORMS® Education EV3 grows students' critical thinking and creativity in computing, science, design & technology, engineering and math. The greatest challenge teachers will face is getting students to leave the classroom!

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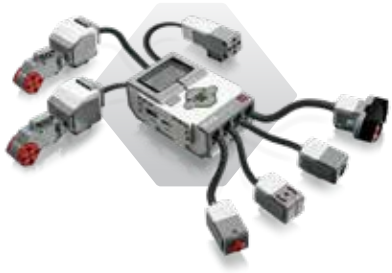
Learning powered by LEGO® MINDSTORMS® Education EV3



Ignite student engagement and energize learning through real-life problem solving in computer science, science, technology, engineering and math. LEGO® MINDSTORMS® Education EV3 brings a hands-on, minds-on approach through a comprehensive and inspiring teaching solution targeting students from 11+ years, that helps every student reach their curriculum targets.

Based on easy-to-use robotics technology and the EV3 Core Set, LEGO MINDSTORMS Education EV3 offers all teachers need to get started in the classroom, including LEGO® building bricks and hardware, programming and data logging software, student-ready teaching material, online teacher eLearning and more.

Everything needed to make teaching EV3 a success

What's included in the solution?

Core Set ✓

Contains all of the LEGO® bricks and technology elements needed to get students curious and excited about STEM learning and robotics.

Curriculum content ✓

Multiple student-ready curriculum materials based on national standards to ensure students achieve STEM and computer science learning outcomes.*

Teaching software ✓

Intuitive software and app for easy programming and robot control. Includes student tutorials and teacher support.*

Assessment tools ✓

Tools to assess students' comprehension using the integrated rubrics, observation checklists, and student self-assessment tools. Student creativity assessment tool is also included.*

eLearning program ✓

Step-by-step tutorials to help you get started.*

Technical support ✓

Ongoing telephone and online support to help you with any questions.

+

What can I add on?

Additional curriculum content ✓

Additional STEM curricula packs are available to expand the EV3 learning experience.*

Expansion sets ✓

Additional brick sets are available to expand and deepen the teaching and learning experience.

Accessories ✓

Additional sensors, motors and other technology parts are available to supplement the EV3 Core Set.

Training and professional development ✓

Face-to-Face training courses are available, led by a certified LEGO® Education Academy trainer.

Replacement Packs ✓

Replacement bricks are available for the EV3 Core Set.

*Available for free download from **LEGOeducation.com/start**

How to get ahead in STEM learning

LEGO MINDSTORMS Education EV3 motivates students to design, build and program robots using motors, sensors, gears, wheels, axles and other technical components, to gain a better understanding of how technology works in real-world applications.

The solution enables students to understand and interpret two-dimensional drawings to create three-dimensional models; build, test, troubleshoot and revise designs; apply math and science concepts on real-life applications; and master programming and data logging functions.

"It's exciting in life when you can make your own stuff and be creative, and when you give students the opportunity to come up with their own ideas and a diversity of solutions; this is the right way to do it."

Bill Church, Profile Jr/Sr High School, Bethlehem, NH

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Everything educators need to achieve their teaching goals

LEGO® MINDSTORMS® Education EV3 Core Set

5003400 $411.95

1-3 | 541 | 10-21yrs

This set contains everything you need to start teaching STEM and computer science using the exciting LEGO® MINDSTORMS® concept. It offers full teacher support, including STEM and computing teaching materials and a comprehensive eLearning program.

The system includes the Intelligent EV3 Brick, a compact and powerful programmable computer that makes it possible to control motors and collect sensor feedback using the intuitive icon-based programming and data logging software that is delivered with the set.

The set is delivered in a sturdy storage bin with a sorting tray, three Servo Motors, five Sensors (Gyro, Ultrasonic, Color and 2x Touch), a Rechargeable Battery, Battery Charger, connecting cables and building instructions.

Solution includes

- LEGO MINDSTORMS Education EV3 Core Set — 1
- EV3 Lab and EV3 Programming — www
- EV3 Design Engineering Projects Curriculum — 15 | 45-180 | www
- EV3 Coding Activities — 9 | 60-135 | www
- EV3 Maker Activities — 6 | 90-120 | www
- EV3 eLearning — www

Easy-to-use software

EV3 Lab and EV3 Programming

LEGO MINDSTORMS Education EV3 software is available in two versions. The desktop application, called EV3 Lab, offers a complete selection of learning possibilities, including 48 tutorials, a built-in content editor and data logging. The touch device application, called EV3 Programming, provides simple programming functionalities, including six tutorials and classroom mobility. Using either version with the EV3 Core Set, students learn to program by dragging and dropping icons into a line to form commands. The software allows everyone, students as well as teachers, to get started and to take their programming skills to the next level.

Get up and running in less than 45 minutes

Robot Educator is the name of both the basic robot and the tutorials included in EV3 Lab and EV3 Programming. Robot Educator provides students with a quick-build introduction to the world of robotics, while the tutorials guide both the teacher and the students through the essentials of programming, data logging and hardware in a structured and engaging way.

Tutorial flow

1. Understand the objective

2. Build and program your robot

3. Test it

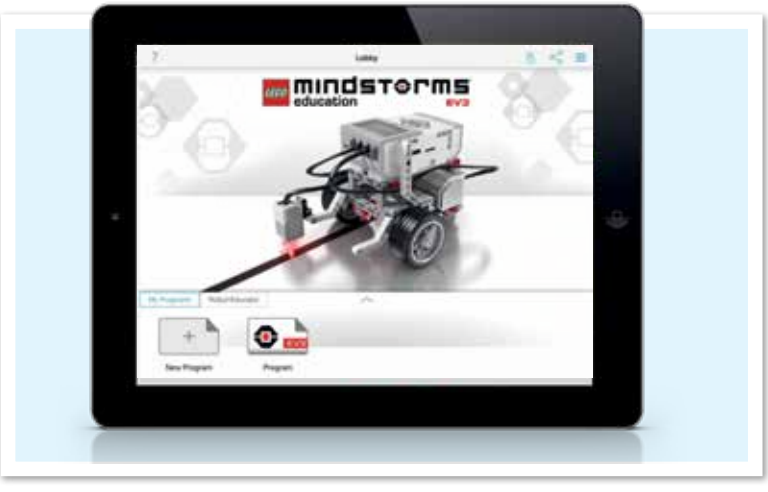
4. Modify it

Find your system requirements and compatibility information by visiting **https://education.lego.com/en-us/support/mindstorms-ev3/software-requirements**

Program with touch devices

With a set of carefully selected features and functionalities, EV3 Programming provides classroom mobility and the basic tools necessary to engage and motivate students.

Not all curriculum packs are available within EV3 Programming – please check our website for full details.



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Students become real engineers through problem solving

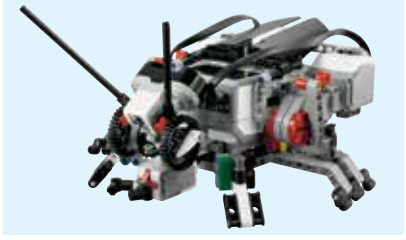
EV3 Design Engineering Projects Curriculum

15 45-180 www

This curriculum pack presents students with open-ended problem solving activities, in a context that makes it fun and engaging to learn science, technology, engineering and math. Each activity provides a design brief and culminates in a final project that can be presented and shared.

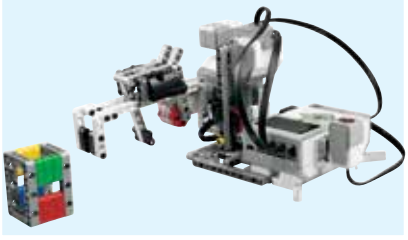
Students capture their work with the built-in digital workbook, making it easy to follow and assess their progress.

The Design Engineering Projects Curriculum is available both for EV3 Lab and EV3 Programming.



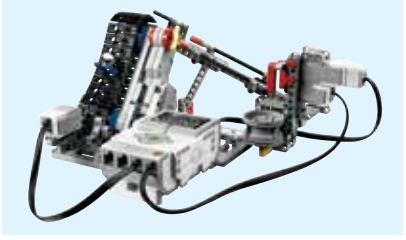
Make it move

Design and build autonomous robots that move and measure distance and speed up an incline or in a regular polygon pattern. Program the motor using the built-in Rotation Sensor.



Make it smarter

Design and build smarter autonomous robots that react to the environment. Program the EV3 brick to use Color, Gyro, Touch and Ultrasonic Sensors to sense a range of data.



Make a system

Design and build robotic systems that perform complex tasks. Identify tasks within the design brief and use subsystems to target smaller behaviors, so the whole design brief task can be completed accurately and reliably.

Key learning values

- Understand and use mathematical concepts, such as proportions and ratios, graphing data and multi-digit computation
- Apply knowledge of science concepts, such as speed and power, motion and stability
- Troubleshoot, innovate and experiment in problem solving

Teach computing with real-life examples

EV3 Coding Activities

9 | 60-135 | www

This curriculum pack provides extensive content to deliver the Computing or Computer Science curriculum, providing ample cross-curricular opportunities in science, design & technology and math. The material will enable students to apply and develop their programming knowledge and inspire them to discover the importance of coding in their everyday lives.

Key learning values

- Understand several key algorithms that apply computational thinking skills
- Make appropriate use of data structures such as lists, tables and arrays
- Design, use and evaluate computational abstractions that model the state and behavior of real-world problems and physical systems

The EV3 Coding curriculum is available both for EV3 Lab and EV3 Programming.

Step-by-step teacher training

EV3 eLearning

www

eLearning for LEGO® MINDSTORMS® Education EV3 consists of self-paced video lessons. Taking you from complete beginner to classroom-ready, each of the 15 courses lasts approximately 90 minutes, including build time and activities.

Get started at LEGOeducation.com/start

education

Harness the creative power of Maker

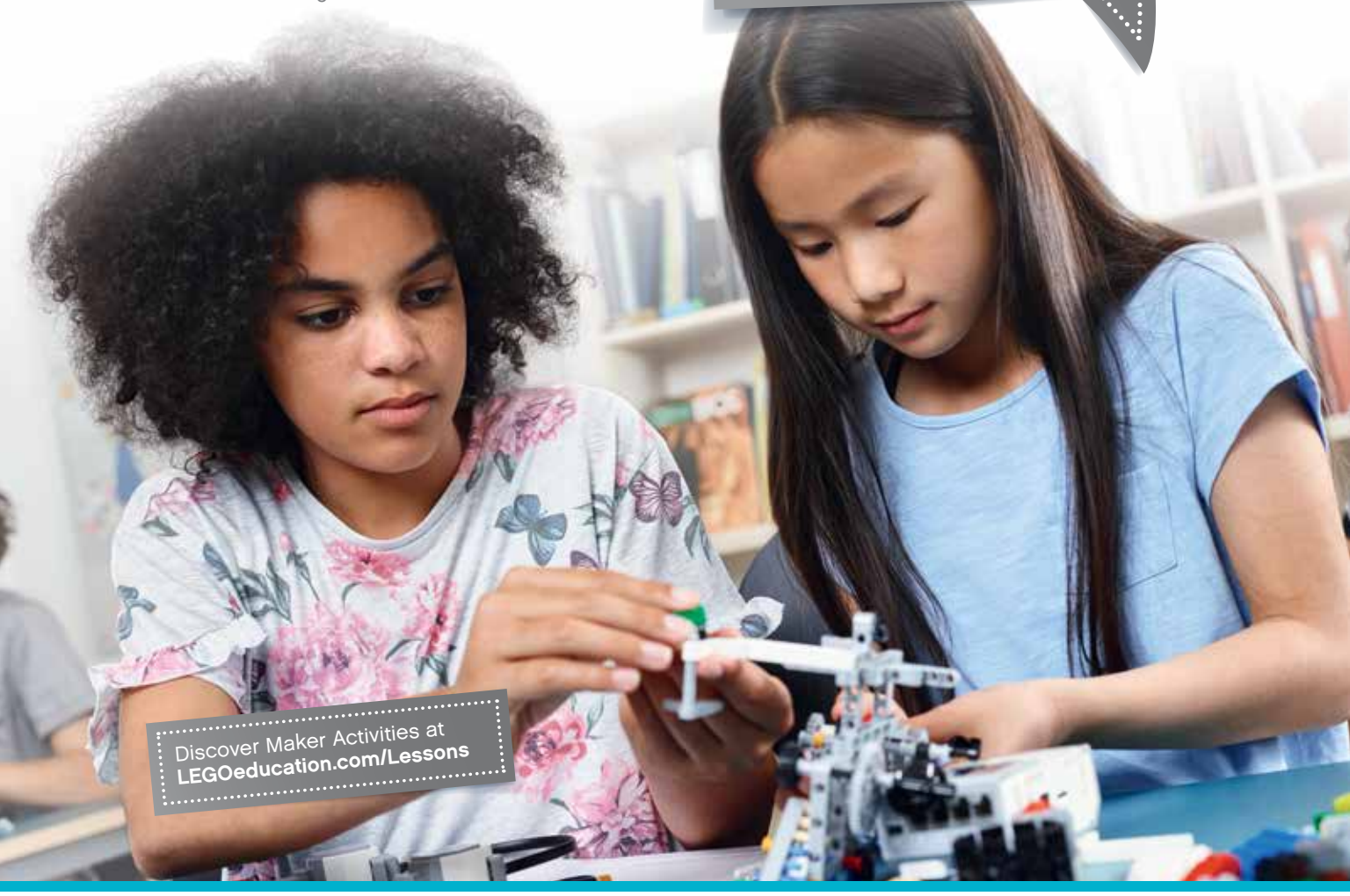
EV3 Maker Activities

9 | 90-120 | www

Teach middle school students how to combine the building, coding and learning power of LEGO® MINDSTORMS® Education EV3 with the creative freedom of Maker. This curriculum pack puts teachers in the role of facilitator, as they guide their students through a series of open-ended, problem-based design brief challenges linked to real-life scenarios. They go hands-on to share creative ideas, define design criteria, tinker with advanced prototypes and bring them to life using the advanced coding capabilities of the LEGO MINDSTORMS Education EV3 Core Set. Students also document and reflect on their progress using the worksheets included in the pack, which teachers can use to assess the progress of their students throughout the course of each challenge.

"It's not just new technologies in the maker space, it's also a teaching practice with a teacher in the role of the facilitator - helping students to think, learn how to learn, be more flexible, adaptive and imaginative. Encouraging students to have confidence when trying something new, and being resourceful when looking for the answers to a problem."

Maureen Reilly, STEAM Teacher, NY



Discover Maker Activities at **LEGOeducation.com/Lessons**

A teacher's journey with the evolution of LEGO® MINDSTORMS® Education EV3

Cardigan Mountain School has been using LEGO® Education solutions in their robotics club for decades. David Auerbach helped to design and create the EPIC Center, a place at the school where students can research, brainstorm, tinker, create, build with LEGO® bricks and more.

"Competing with digital and social media, and at the same time instilling a sense of wonder in students, provides one of the greatest challenges for educators today," explains Auerbach. "LEGO Education products inspire creativity, and the by-product is an increase in motivation and self-actualization."

Auerbach's robotics club uses three versions of LEGO MINDSTORMS Education EV3.

"My school has been using LEGO Education products for a long time. It is important to stay ahead of the curve so that our program and equipment remain fresh and up-to-date to pique the interest of prospective students," says Auerbach.

"Over the years, we have found that each successive generation of LEGO MINDSTORMS has become more versatile, with improvements in both software and hardware. The evolution of the platform has brought excellent changes.

"LEGO Education products help me maintain a high level of interest in the sciences because any child can find success at a level commensurate with their abilities," ends Auerbach.

> "I believe that engineers are created in middle school. LEGO® Education products inspire creativity, and the by-product is an increase in motivation and self-actualization."
>
> **David Auerbach, Cardigan Mountain School, Cardigan, NH**

education

Create customized solutions

While the LEGO® MINDSTORMS® Education EV3 Core Set offers everything that a teacher needs to get started, add an extra dimension to lessons with the EV3 Science Add-on Pack, EV3 Space Challenge Set, the expansion brick set and Face-to-Face teacher training.

EV3 Science Add-on Pack

5005270 $152.95 14 45-90 www

EV3 Space Challenge Set

45570 $229.95 20 45-180 1-6 1418 10-21 yrs

EV3 Expansion Set

45560 $103.95 1-3 853 10-21 yrs

Bring physical science to life

EV3 Science Add-on Pack

5005270 **$152.95** 14 45-90 www

This add-on consists of physical science experiments centered on energy, heat and temperature, force and motion and light. Developed together with Fraunhofer IAIS, Europe's largest application-oriented research organization, and real-world science teachers, the pack utilizes the data logging capabilities of the hardware and software.

The EV3 Science Add-on Pack (5005270) includes the Temperature Sensor (9749) on page 26 and the Renewable Energy Add-on Set (9688) on page 31.

Force and motion

Experiments related to mechanical and kinematic phenomena, including gears, friction and inclined planes and free fall.

Energy

Experiments related to energy – from manual energy transfer, to wind and solar energy, to electric vehicles.

Key learning values

- Ask questions, develop and use models
- Plan and carry out investigations
- Analyze and interpret data
- Use mathematics, informational and computer technology and computational thinking
- Construct explanations and design solutions

Light

The phenomenon of light intensity is investigated using this experiment.

Heat and temperature

The heat and temperature experiments are used to study the phenomena of insulation and heat transfer.

This set requires the LEGO® MINDSTORMS® Education EV3 Core Set (5003400).

Teach STEM with a Mission to Mars

EV3 Space Challenge Set

45570 $229.95 20 | 45-180 | 1-6 | 1418 | 10-21yrs

This set and curriculum conforms to national curriculum standards and contains challenge and learning missions based around the theme of space. Three research projects, co-developed with NASA, provide rich opportunities for students to explore and create innovative solutions to current space exploration topics. The EV3 Space Challenge Set includes three learning mats, a challenge mat, dual lock tape and all of the LEGO® elements required to build the challenge models. The accompanying digital content provides student-ready materials, teacher notes and building instructions.

The EV3 Space Challenge Set (45570) requires the LEGO® MINDSTORMS® Education EV3 Core Set (5003400).

Key learning values

- Get started easily with robotics and STEM subjects
- Discover real-world applications using problem solving skills
- Develop solutions through teamwork skills
- Learn to build, test and evaluate robots
- Gain a hands-on experience with programming, sensors, motors and intelligent units

Expanding learning possibilities

EV3 Expansion Set

45560 $103.95 1-3 853 10-21 yrs

This set contains a wide range of supplementary elements to continue the theme of critical thinking and creativity featured in the EV3 Core Set. Students deepen their robotics experience with new structural and mechanical elements, as well as additional building instructions and programs.

This set requires the LEGO® MINDSTORMS® Education EV3 Core Set (5003400).

Main components

Transformer 10V DC

45517 $31.95 1 8+ yrs

EV3 Rechargeable DC Battery

45501 $88.95 1 10-21 yrs

EV3 Medium Servo Motor

45503 $21.95 1 10-21 yrs

EV3 Intelligent Brick

45500 $197.95 1 10-21 yrs

EV3 Large Servo Motor

45502 $26.95 1 10-21 yrs

EV3 Cable Pack

45514 $16.95 7 10-21 yrs

Sensor elements

EV3 Ultrasonic Sensor

45504 $31.95 1 10-21 yrs

EV3 Color Sensor

45506 $41.95 1 10-21 yrs

EV3 Infrared Beacon

45508 $31.95 1 10-21 yrs

EV3 Gyro Sensor

45505 $31.95 1 10-21 yrs

EV3 Touch Sensor

45507 $21.95 1 10-21 yrs

EV3 Infrared Sensor

45509 $31.95 1 10-21 yrs

Temperature Sensor

9749 $40.95 1 8+ yrs

Replacement packs

LEGO® Education Replacement Packs are the ideal way to replace key elements for your LEGO Education products.

LE Replacement Pack LME 1

2000700 $11.95 70 8+ yrs

This pack includes elements for LME EV3 Core Set, part of 5003400, LME EV3 Expansion Set (45560), LME Base Set (9797) and LME Resource Set (9695).

LE Replacement Pack LME 2

2000701 $11.95 32 8+ yrs

This pack includes elements for LME EV3 Expansion Set (45560), LME Base Set (9797) and LME Resource Set (9695).

LE Replacement Pack LME 3

2000702 $16.95 4 8+ yrs

This pack features a ball and ball joint for the LME EV3 Core Set (5003400).

LE Replacement Pack LME 5

2000704 $11.95 24 8+ yrs

This pack includes elements for EV3 Space Challenge Set (45570).

LE Replacement Pack LME 6

2000705 $11.95 30 8+ yrs

This pack features elements for LME Base Set (9797), LME Resource Set (9695), LME EV3 Expansion Set (45560) and LME EV3 Core Set (5003400).

LE Replacement Pack LME 7

2000706 $11.95 8 8+ yrs

This pack features elements for LME Base Set (9797), LME Resource Set (9695), LME EV3 Expansion Set (45560) and LME EV3 Core Set (5003400).

LE Replacement Pack LME 8

2000707 $11.95 8 7+ yrs

This pack features eight rubber bands in white, red, blue and yellow for LME EV3 Expansion Set (45560), LME Base Set (9797), LME Resource Set (9695), Simple & Powered Machines Set (9686).

LE Replacement Pack LME 4 is no longer available. Please contact us for assistance.

LEGO® Education Machines & Mechanisms

Discover how the real world works

LEGO® Education
Machines & Mechanisms
BUILT ON NATIONAL CURRICULUM

Machines & Mechanisms from LEGO® Education is a range of three challenging hands-on solutions that link textbook instruction in science, technology, engineering and math to real-world phenomena.

Facilitate real-world STEM learning

Machines & Mechanisms (Early Simple Machines, Simple Machines, and Simple & Powered Machines) provides a compelling means of investigating mechanical principles, while encouraging students to engage in scientific inquiry and engineering design. Machines & Mechanisms is easy to incorporate into everyday classwork, where it adds variation and motivates students to acquire curriculum-relevant STEM knowledge and skills.

A stimulating STEM solution

What's included in the solution?

Core Set ✓

Contains LEGO® bricks and gears to create small models to build and explore real-world mechanisms and energy concepts, motivating students' STEM learning.

Curriculum content ✓

Curriculum material based on national standards that supports teachers with easy, accessible activities to deliver highly engaging STEM learning.*

Assessment tools ✓

Assessment of students' learning through creative assessment, teacher checklists and student self-assessment tools.*

Quick start guide ✓

Online step-by-step tutorials to help you get started.

Technical support ✓

Ongoing telephone and online support to help you with any questions.

What can I add on?

Expansion sets ✓

Two add-on packs are available, each with curriculum included. These are the Renewable Energy Add-on and the Pneumatics Add-on.

Training and professional development ✓

Inspiring Face-to-Face training is available, led by a certified LEGO® Education Academy trainer.

Complementary products ✓

Technology components are also available as separate products. Please see page 34 for more information.

Replacement Packs ✓

Replacement bricks are available. Please see page 34 for more information.

*Available for free download from **LEGOeducation.com/start**

Easy STEM access for students and teachers

LEGO® Education Machines & Mechanisms gives teachers the tools and activities to teach real-world technology, and engineering problems and solutions.

Build and explore machines and mechanisms, investigate motorized machines, capture wind and study gearing mechanisms. This range of tools takes learning out of books and places it directly in the hands of students.

"Machines & Mechanisms helps the students see a coherent view of the sciences and engineering, by starting with curiosity about what they already know and then guiding them to a more detailed understanding."

Laura Jackson, 8th Grade Science at Summit Lakes Middle School, KS

education

Simple & Powered Machines

Simple & Powered Machines gives students in grades 6-8 in-depth understanding of how simple machines and mechanisms work, while helping them further investigate concepts such as forces, motion, measuring and energy. Students will ask relevant scientific and technical questions, reflect on what they observe, discuss their results, formulate conclusions based on evidence and communicate just like real scientists and engineers.

Key learning values

- Build and explore real-life machines and mechanisms
- Investigate powered machines with motors
- Investigate the principles of simple machines, mechanisms and structures
- Understand the concept of work and mechanical advantage
- Learn and use the design engineering process

Simple & Powered Machines Core Set

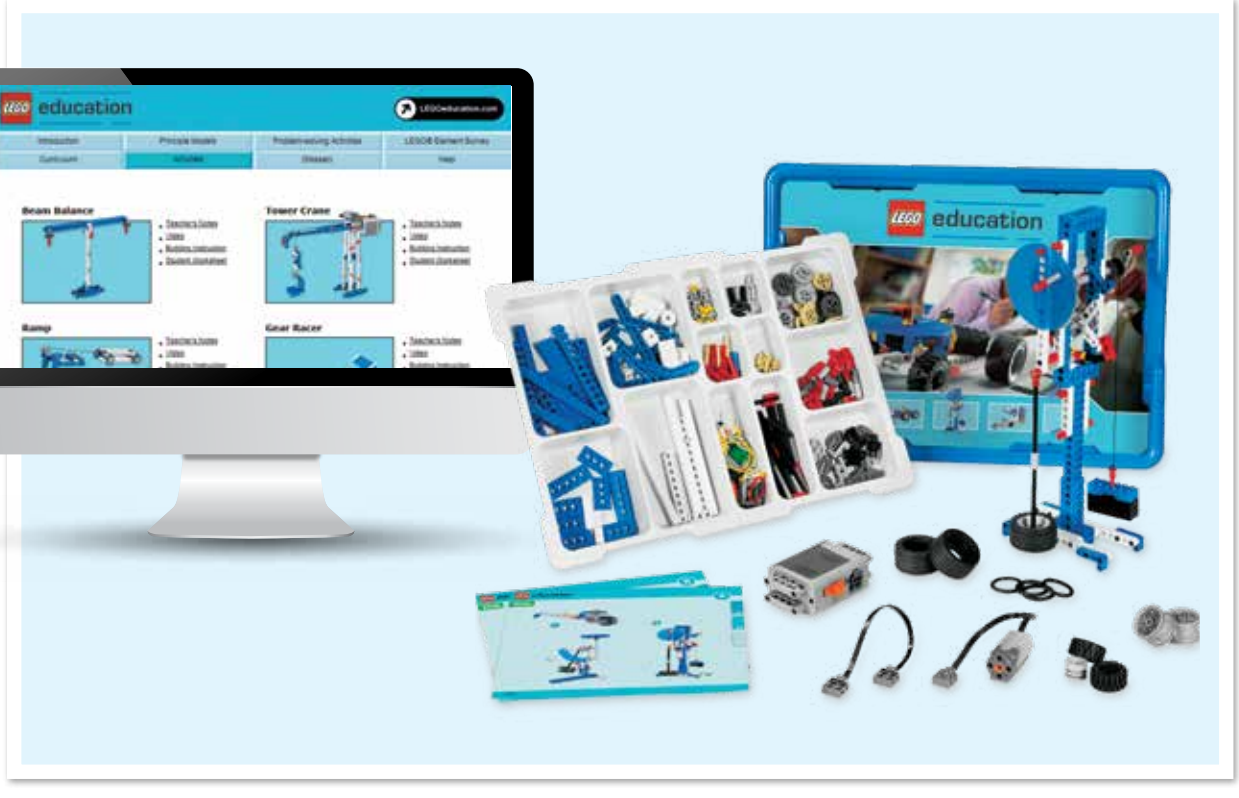
9686 **$179.95**

1-3 | 396 | 8+ yrs

This set contains a brick assortment and curriculum materials for exploring design engineering with more advanced mechanisms, structures and forces. Use this set with the accompanying curriculum pack to promote students' fundamental STEM understanding of simple and powered machines, structures and mechanisms. The curriculum pack provides full lessons, extension activities and problem solving tasks, as well as teacher guides and student worksheets.

Solution includes

- Simple & Powered Machines Core Set — 1
- Introducing Simple & Powered Machines Activity Pack — 48 | 45-90 | www
- Advancing with Simple & Powered Machines Activity Pack — 28 | 45-90 | www
- Simple & Powered Machines Maker Activities — 6 | 90-120 | www



Discover how to engage every student at LEGOeducation.com

Explore Renewable Energy

Renewable Energy is an add-on set, which, when combined with the Simple & Powered Machines solution, enables students in grades 6-8 to explore solar, wind and water energy, plus meet curriculum goals in science, technology and engineering, by building their own real-life models.

Key learning values

- Build and explore renewable energy through real-life LEGO® models
- Explore energy supply, transfer, accumulation, conversion and consumption
- Understand and use energy variables, Volt, Amp, Watt and Joules
- Engage students in engineering and design

Renewable Energy Add-on Set

9688 **$117.95** 12 8+ yrs

When used together with the Simple & Powered Machines Set (9686), this exciting add-on set facilitates the exploration of major renewable energy sources. This set includes a solar panel, turbine blades, a motor/generator, LED lights, an extension wire, a LEGO® Energy Meter and full-color building instructions for six real-life LEGO models. The accompanying curriculum pack includes new lesson plans and problem solving activities, as well as teacher guides and student worksheets.

Solution includes

- Renewable Energy Add-on Set 1
- Renewable Energy Activity Pack 20 45-90 www

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Investigate with Pneumatics

Pneumatics is an add-on set which, when combined with the Simple & Powered Machines solution, encourages logical and creative thinking, and motivates students in grades 6-8 to engage in scientific inquiry and engineering design by building air-powered LEGO® models such as a scissor lift, a robot arm and a stamping press.

Key learning values

- Build and explore pneumatics through real-life LEGO® models
- Investigate power systems and components
- Pressure measuring in psi and bar
- Explore kinetic and potential energy

Pneumatics Add-on Set

9641 **$74.95** 31 10+yrs

This add-on set is intended to be combined with the Simple & Powered Machines Set (9686). It includes pumps, tubes, cylinders, valves, air tank, a manometer, and full-color building instructions for four real-life pneumatics models. The accompanying curriculum pack provides new lesson plans and problem solving activities, as well as teacher guides and student worksheets.

Solution includes

- Pneumatics Add-on Set 1
- Pneumatics Activity Pack 12 45-90 www

Use the creative power of Maker to enable playful learning experiences

Simple & Powered Machines Maker Activities

6 | 90-120 | www

These activities bring the innovative creativity of Maker into the middle school classroom. Acting as facilitators, teachers guide students through a series of open-ended, problem-based design brief challenges based on real-life scenarios. In a safe, supportive and inspiring learning environment, they team up to brainstorm ideas, define design criteria, tinker with rapid prototyping, and apply their findings to develop and build innovative and achievable solutions using the LEGO® Education Simple & Powered Machines set and materials from around the classroom. They also document and reflect on their progress using the worksheets included in the activities.

Key learning values

- Define a clear design need
- Develop the ability to iterate and improve design solutions
- Develop problem solving and communication skills

Discover Maker Activities at **LEGOeducation.com/Lessons**

Energy elements

Energy Display

9668 $62.95 1 8+ yrs

Energy Storage

9669 $31.95 1 8+ yrs

E-Motor

9670 $26.95 1 7+ yrs

Power Functions Light

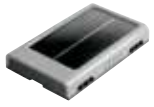
8870 $6.49 1 7+ yrs

Power Functions Battery Box

8881 $6.99 1 7+ yrs

LEGO® Solar Panel

9667 $51.95 1 8+ yrs



Power Functions

Power Functions Extension Wire 20"

8871 $3.99 1 7+ yrs

Build your models bigger, better and more mechanized and motorized than ever before, by adding this 20-inch (50cm) extension wire.

Power Functions Extension Wire 8"

8886 $2.99 1 7+ yrs

Build your models bigger, better and more mechanized and motorized by adding this 8-inch (20cm) extension wire.

Transformer 10V DC

45517 $31.95 1 8+ yrs

This standard 10V DC transformer allows you to recharge the 9693 Rechargeable Battery DC, the 45501 EV3 Rechargeable DC Battery, the 8878 Power Functions Rechargeable Battery Box, and the 45302 Smarthub Rechargeable Battery.

Power Functions Rechargeable Battery Box

8878 $49.99 1 7+ yrs

This rechargeable battery box has built-in Lithium polymer batteries for low weight and maximum power.

Use the 10V DC LEGO® Transformer (45517) to charge the battery.

- Motor speed can be controlled via the battery box speed control dial
- Output voltage is 7.4V

Power Functions M-Motor

8883 $7.49 1 7+ yrs

Build an extra medium-strength, medium-sized M-Motor into your LEGO creations and watch things start moving.

Power Functions XL-Motor

8882 $9.99 1 7+ yrs

Add an extra XL-Motor to your models! This super-strong motor will give plenty of power to your models, whether it's spinning a wheel or turning a system of gears. Use the M-Motor to animate larger builds. Requires battery box (Item 8881), not included.

LE Replacement Pack M&M 1

2000708 $11.95 60 8+ yrs

LEGO® Education Replacement Packs are the ideal way to replace key elements for your LEGO Education products. This pack includes elements for the Simple & Powered Machines Set (9686).

LE Replacement Pack M&M 2

2000709 $11.95 42 7+ yrs

LEGO Education Replacement Packs are the ideal way to replace key elements for your LEGO Education products. This pack includes elements for Simple Machines Set (9689).

LE Replacement Pack LME 8

2000707 $11.95 8 7+ yrs

LEGO Education Replacement Packs are the ideal way to replace key elements for your LEGO Education products. This pack features eight rubber bands in white, red, blue, and yellow for LME EV3 Expansion Set (45560), LME Base Set (9797), LME Resource Set (9695) and Simple & Powered Machines Set (9686).

LEGO® Education Elementary

Ignite enthusiastic, effective and lifelong learning

LEGO® Education Elementary

Spark students' engagement and enthusiasm for lifelong learning

LEGO® Education enables every student to succeed in elementary school through engaging, hands-on solutions. We support elementary school teachers as they lay the foundation for students to become fully engaged and resilient learners.

With our playful learning experiences, students will not only learn STEM subject knowledge more effectively, but they will also improve their collaboration, communication, creativity and problem solving skills.

Succeed with STEM in elementary

We provide two main platforms to teach STEM at the elementary level with LEGO Education resources: WeDo 2.0 and Machines & Mechanisms. These solutions meet students where they are in their learning process and provide teachers with support and teaching resources.

Subject Focused skill	Science Investigate	Technology Design solutions	Engineering Design solutions	Math Model and use data	Coding Computational thinking
Elementary Ages 5-10	WeDo 2.0				
	Machines & Mechanisms				

LEGO® Education WeDo 2.0

Make STEM come to life

Designing
Investigating
Modeling
Coding

LEGO® Education
WeDo 2.0

BUILT ON NATIONAL CURRICULUM

Using real-world STEM projects that include science, technology, engineering and coding, students experience how STEM comes to life with the WeDo 2.0 classroom solution. WeDo 2.0 builds students' confidence to ask questions, define problems and design their own solutions, by putting discovery in their hands and minds.

education

Put scientific discovery in students' hands

LEGO® Education WeDo 2.0 makes elementary STEM come to life. The unique solution combines the LEGO® brick, classroom-friendly software, engaging, standards-based projects, and every student's desire to discover the world around them. With WeDo 2.0, students will explore, create, test and share their scientific discoveries as they build, program and modify projects. As they collaborate, they deeply engage with science, technology, engineering and coding, sparking a love for experimentation and investigation. Teachers are well supported with training, curriculum and built-in assessment. The result is a resource that builds students' confidence to ask questions, define problems and design their own solutions, by putting scientific discovery in their hands.

A captivating STEM teaching solution

What's included in the solution?

Core Set ✓

Contains the LEGO® bricks and technology elements needed to motivate elementary students and make STEM projects come to life.

Curriculum content ✓

Real-life projects based on national standards to develop students' practices within science, including engineering, technology and computing.*

Teaching software ✓

Intuitive software including integrated curriculum content, easy drag-and-drop programming and teacher's guide.*

Assessment tools ✓

Project integrated assessment grids and rubrics for both teacher and student-led assessment.*

eLearning program ✓

Five eLearning modules to give full teaching support from implementation to activation.*

Technical support ✓

Ongoing telephone and online support to help you with any questions.

What can I add on?

Training and professional development ✓

Face-to-Face teacher training courses are available, led by a certified LEGO® Education Academy trainer.

Complementary products ✓

Rechargeable power add-on solution for easy battery management is available to complement the WeDo 2.0 solution. Please see page 43 for more information.

Replacement Packs ✓

The ideal way to replace key LEGO® elements for the WeDo 2.0 sets. Please see page 43 for more information.

*Available for free download from **LEGOeducation.com/start**

Structured projects built on science standards

WeDo 2.0 strengthens students' understanding of the eight science and engineering practices, including asking questions and solving problems, modeling, prototyping, investigating, analyzing and interpreting data, computational thinking, creating evidence-based arguments, and obtaining, evaluating and communicating information. Students develop competency through hands-on projects across key science topics such as physical sciences, life sciences, earth and space sciences, engineering, technology and application of science, all while integrating the use of relevant digital tools to improve computational thinking skills.

"In the history of education, no kid has fallen in love with a textbook. We're all born natural scientists, curious and yearning to make sense of our world. Science teaching and learning should be just as active and hands-on. LEGO® bricks are such a valuable tool for teaching science because they're durable, safe and easy for elementary learners to use, and the possibilities really are endless as far as what students can create."

Breigh Rhodes, 2nd Grade Teacher
Rollins Place Elementary Zachary, LA

Key learning values

- Investigate, model and design solutions
- Engage students in science by making it real and relevant
- Basic programming, critical thinking and problem solving skills
- Collaboration and presentation skills

education

Build students' confidence to ask questions and solve problems

Ignite students' curiosity and enhance their skills in science, technology, engineering and coding. The unique WeDo 2.0 solution combines the LEGO® brick, classroom-friendly software, engaging, standards-based science projects and every student's desire to explore.

LEGO® Education WeDo 2.0 empowers teachers to deliver engaging science projects through a combination of accessible software and intelligent components, harnessing all the excitement of discovery across the sciences in the curriculum.

WeDo 2.0 Core Set

45300 **$189.95**

1-2 | 280 | 7+ yrs

This set is based upon the latest science standards and was created to enhance students' curiosity and science skills. The set is delivered in a storage bin along with sorting trays, labels, a Smarthub, a Medium Motor, Motion Sensor, a Tilt Sensor and enough building elements for two students. The accompanying desktop and tablet supported software provides an easy-to-use programming environment and includes the WeDo 2.0 Curriculum Pack, which covers life, physical, earth and space sciences, as well as engineering. The accompanying eLearning program helps teachers to become confident users of the WeDo 2.0 Core Set.

Solution includes

- WeDo 2.0 Core Set — 1
- WeDo 2.0 Software & Curriculum — 25 | 45 | www
- WeDo 2.0 eLearning — www
- WeDo 2.0 Maker Activities — 6 | 90-120 | www

⚠ Warning **CHOKING HAZARD** - Small parts & small ball. Not for children under 3 yrs.

WeDo 2.0 Curriculum

25 45 www

This curriculum pack promotes investigation and experimentation in life, physical, earth and space sciences. Built on the latest science standards, the pack aids elementary educators in delivering key science content, while incorporating activities across engineering, technology and computing.

Visit **LEGOeducation.com/start** to download the software and access the eLearning program.

WeDo 2.0 eLearning

www

LEGO® Education WeDo 2.0 eLearning is an easy, manageable solution with full teaching support for implementing the WeDo 2.0 curriculum. Using an accessible blend of text, video, animation and curriculum links, it provides thorough training on using the different teaching tools and types of lessons, including open-ended and guided projects. Available in English and German.

education

If you think it, you can make it with WeDo 2.0 Maker

WeDo 2.0 Maker Activities

6 90-120 www

If you can think it, you can make it. The WeDo 2.0 Maker Activities introduce an open-ended design process for elementary students. Teachers and students get the support they need to question, to create and tinker, to make and innovate, and remake again.

The creative freedom of WeDo 2.0 Maker Activities engages every student in discovery.

Discover Maker Activities at
LEGOeducation.com/Lessons

Additional components

While the WeDo 2.0 solution offers everything teachers need to get started, extra dimensions can be added for classroom management with the Smarthub Rechargeable Battery, Transformer 10V DC, Replacement Pack and Face-to-Face teacher training.

Smarthub Rechargeable Battery

45302 $62.95 1 7+ yrs

Rechargeable lithium-ion battery for the WeDo 2.0 Smarthub. Includes a built-in LED to indicate charge status.

Transformer 10V DC

45517 $31.95 1 8+ yrs

This standard 10V DC transformer allows you to recharge the 9693 Rechargeable Battery DC, the 45501 EV3 Rechargeable DC Battery, the 8878 Power Functions Rechargeable Battery Box, and the 45302 Smarthub Rechargeable Battery.

WeDo 2.0 Add-on Power Pack

5004838 $89.95 2 8+ yrs

Do not let battery failure put a stop to your WeDo 2.0 projects. The Add-on Power Pack is a rechargeable battery and charger that ensures your teaching is never interrupted by flat or missing batteries.

WeDo 2.0 uses Bluetooth® Low Energy

For WeDo 2.0, we have integrated the latest Bluetooth® technology into our solution to let you take 'live' control of the models you create for near-instantaneous response.

To ensure the best possible WeDo 2.0 experience, desktops, laptops and tablet devices must meet a minimum set of system requirements.

www.education.lego.com/en-us/support/wedo-2/bluetooth-low-energy

Replacement Pack WeDo 2.0

2000715 $11.95 109 8+ yrs

Don't let a missing piece spoil your enjoyment of WeDo 2.0. This Replacement Pack includes elements for the LEGO® Education WeDo 2.0 Core Set (45300).

⚠Warning **CHOKING HAZARD** - Small parts & small ball. Not for children under 3 yrs.

education

LEGO® Education Machines & Mechanisms

Discover how the real world works

LEGO® Education
Machines & Mechanisms
BUILT ON NATIONAL CURRICULUM

Machines & Mechanisms explores real-world machines and mechanisms through three solutions.

With the Early Simple Machines solution, students in grades K-2 are introduced to the basic mechanical principles behind gears, levers, pulleys, wheels and axles.

With the Simple Machines solution, students in grades 3-5 build their knowledge of the design engineering process by enabling them to test, predict, measure, collect data and describe outcomes.

With the Simple & Powered Machines solution, students in grades 6-8 further develop, experiment and investigate powered forces and motion, speed and pulling power, through basic mechanical principles and advanced motor-powered machines.

Early Simple Machines
Grades K-2 Page 45

Simple Machines
Grades 3-5 Page 47

Simple & Powered Machines
Grades 6-8 Page 49

Lay the STEM Foundation with Early Simple Machines

Early Simple Machines is an engaging hands-on tool that uses real-life LEGO® elements to help kindergarteners, first graders and second graders learn how gears, levers, pulleys, wheels and axles work, while gaining early insight into science and engineering.

Key learning values

- Explore basic mechanical principles such as gears, levers, pulleys, wheels and axles
- Investigate force, buoyancy and balance
- Solve problems through design
- Work with others and share findings

The Early Simple Machines Solution

What's included in the solution?

Core Set ✓

LEGO® DUPLO® bricks, gears, wheels and axles enable easy handling and simple builds, motivating students to explore more.

Curriculum content ✓

Highly motivating teacher's notes and student worksheets that are based on national curriculum standards.*

Assessment tools ✓

Assessment of students' learning through rubrics, observation checklists and student self-assessment tools.*

Quick start guide ✓

Online step-by-step tutorials to help you get started.

Technical support ✓

Ongoing telephone and online support to help you with any questions.

What can I add on?

Training and professional development ✓

Face-to-Face training is available.

*Available for free download from **LEGOeducation.com/start**

Early Simple Machines Core Set

9656 **$159.95**

1-3 | 102 | 5+ yrs

This set features a brick assortment and eight double-sided, full-color building instructions. The set includes gears, levers, pulleys, wheels and axles, as well as a plastic punch-out sheet with eyes, sails, scales and wings. Use this set with the accompanying curriculum pack to conduct full lessons, extension activities and problem solving tasks. The support materials provided in this curriculum pack include teacher guides and student worksheets.

Solution includes

- Early Simple Machines Core Set — 1
- Early Simple Machines Activity Pack — 16 | 45-90 | www

⚠ Warning **CHOKING HAZARD** - Small parts not for children under 3 yrs.

Build STEM learning with Simple Machines

Simple Machines is an engaging hands-on STEM tool that introduces third, fourth and fifth graders to the basic principles behind gears, wheels, axles, levers and pulleys, while laying the groundwork for further learning about science and engineering.

Key learning values

- Observe and investigate simple machines: gears, wheels and axles, levers and pulleys
- Develop scientific inquiry skills
- Follow a design brief as part of the engineering design process
- Learn and apply relevant vocabulary for simple machines
- Test, predict and measure; collect data and describe outcomes

The Simple Machines Solution

What's included in the solution?

Core Set ✓

Carefully selected LEGO® bricks support students motivation to develop basic STEM capabilities, through building and investigation of real-life machines and mechanisms models.

Curriculum content ✓

Built on national standards and developed by teachers, lesson materials inspire and support educators and students to develop foundational STEM skills.*

Assessment tools ✓

Assessment of students' learning through rubrics, observation checklists and student self-assessment tools.*

Quick start guide ✓

Online step-by-step tutorials to help you get started.

Technical support ✓

Ongoing telephone and online support to help you with any questions.

What can I add on?

Training and professional development ✓

Face-to-Face training is available.

Replacement Packs ✓

Replacement bricks are available.
Please see page 51 for more information.

*Available for free download from **LEGOeducation.com/start**

Simple Machines Core Set

9689 **$79.95**

1-3 | 204 | 7+ yrs

This set features a brick assortment that includes gears, wheels and axles, levers and pulleys. Use this set with the accompanying curriculum pack to engage students in investigating and understanding the operation of simple and compound machines found in everyday life. The support materials provided in this curriculum pack include teacher guides and student worksheets.

Solution includes

- Simple Machines Core Set — 1
- Simple Machines Activity Pack — 20 | 45-90 | www
- Simple Machines Maker Activities — 6 | 90-120 | www

Develop Further with Simple & Powered Machines

Simple & Powered Machines is a hands-on STEM tool that helps students in grades 6-8 investigate everything from basic mechanical principles to advanced motor-powered machines, while also acquiring key insights into science and engineering practices and skills.

Key learning values

- Investigate the principles of simple machines, mechanisms and structures
- Experiment with balanced and unbalanced forces
- Experiment with friction
- Capture, store and transfer wind energy
- Measure distance, time, speed and weight
- Calibrate scales
- Investigate powered forces and motion, speed and pulling power

The Simple & Powered Machines Solution

What's included in the solution?

Core Set ✓

Contains LEGO® bricks and gears to create small models to build and explore real-world mechanisms and energy concepts motivating students' STEM learning.

Curriculum content ✓

Curriculum materials based on national standards that support teachers with easy, accessible activities to deliver highly engaging STEM learning.*

Assessment tools ✓

Assessment of students' learning through rubrics, observation checklists and student self-assessment tools.*

Quick start guide ✓

Online step-by-step tutorials to help you get started.

Technical support ✓

Ongoing telephone and online support to help you with any questions.

What can I add on?

Training and professional development ✓

Inspiring Face-to-Face training is available, led by a certified LEGO® Education Academy trainer.

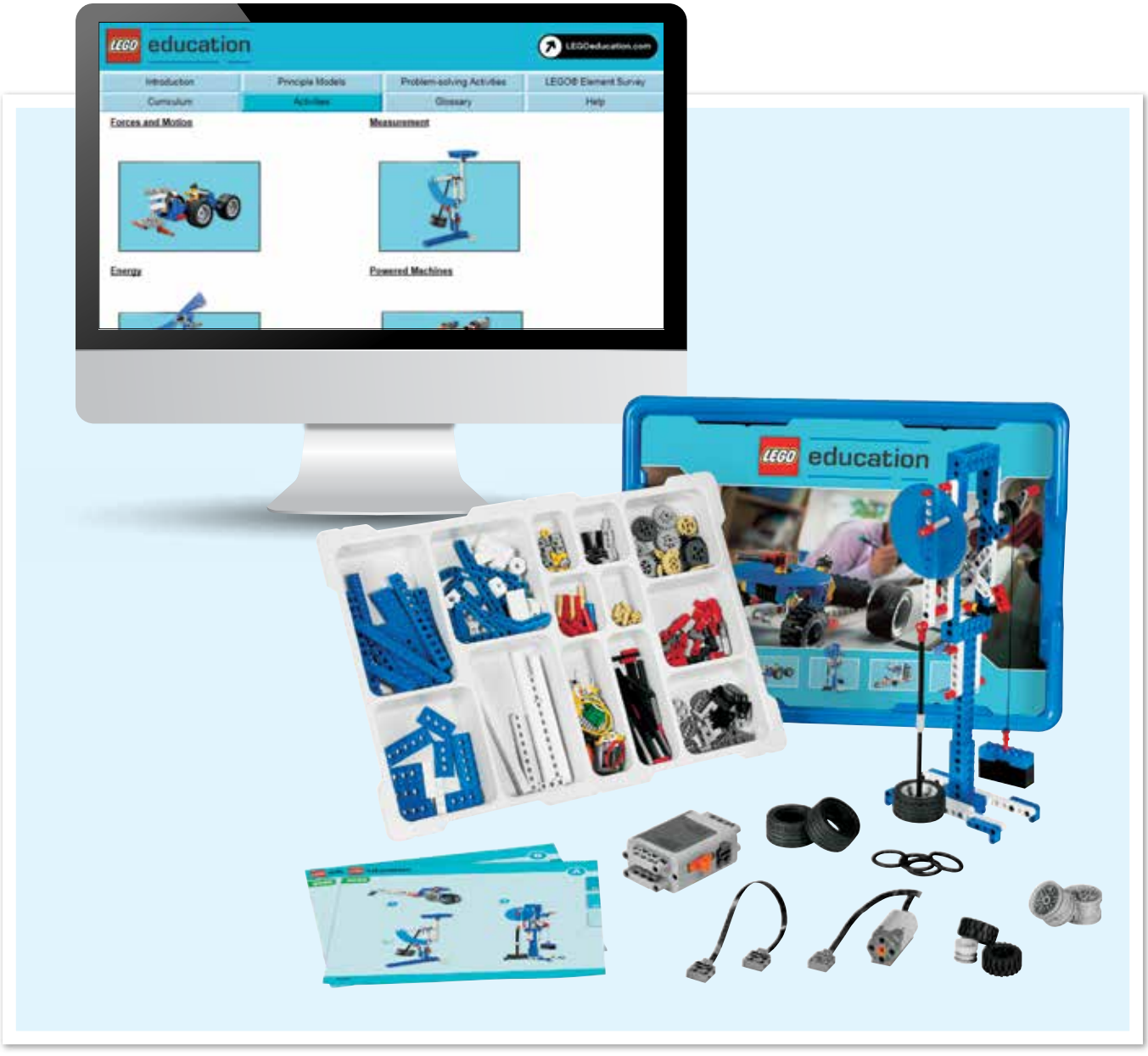
Complementary products ✓

Technology components are also available as separate products. Please see page 51 for more information.

Replacement Packs ✓

Replacement bricks are available. Please see page 51 for more information.

*Available for free download from **LEGOeducation.com/start**



Simple & Powered Machines Core Set

9686 **$179.95**

1-3 | 396 | 8+ yrs

This set contains a brick assortment and curriculum materials for exploring design engineering with more advanced mechanisms, structures and forces. Use this set with the accompanying curriculum pack to promote students' fundamental STEM understanding of simple and powered machines, structures and mechanisms. The curriculum pack provides full lessons, extension activities and problem solving tasks, as well as teacher guides and student worksheets.

Solution includes

- Simple & Powered Machines Core Set — 1
- Introducing Simple & Powered Machines Activity Pack — 48 | 45-90 | www
- Simple & Powered Machines Maker Activities — 6 | 90-120 | www

Simple Machines Maker Activities

6 | 90-120 | www

These activities introduce elementary students to the hands-on, creative freedom of Maker. Using open-ended, problem-based design brief challenges that reflect real-life scenarios, teachers can gain the creative confidence they need to help their students think up ideas, tinker with prototypes, and build and develop solutions using the LEGO® Education Simple Machines set and other materials from around the classroom. In a safe, supportive and inspiring learning environment, students document and reflect on their work using the included worksheets, which can also be used for teacher assessment. Discover Maker Activities at LEGOeducation.com/Lessons.

Key learning values

- Define a clear design need
- Develop the ability to iterate and improve design solutions
- Develop problem solving and communication skills

Power Functions

Power Functions Extension Wire 20"

8871 $3.99 | 1 | 7+ yrs

Build your models bigger, better and more mechanized and motorized than ever before, by adding this 20-inch (50cm) extension wire.

Power Functions Extension Wire 8"

8886 $2.99 | 1 | 7+ yrs

Build your models bigger, better and more mechanized and motorized by adding this 8-inch (20cm) extension wire.

Transformer 10V DC

45517 $31.95 | 1 | 8+ yrs

This standard 10V DC transformer allows you to recharge the 9693 Rechargeable Battery DC, the 45501 EV3 Rechargeable DC Battery, the 8878 Power Functions Rechargeable Battery Box, and the 45302 Smarthub Rechargeable Battery.

Power Functions Rechargeable Battery Box

8878 $49.99 | 1 | 7+ yrs

This rechargeable battery box has built-in Lithium polymer batteries for low weight and maximum power.

Use the 10V DC LEGO® Transformer (45517) to charge the battery.

- Motor speed can be controlled via the battery box speed control dial
- Output voltage is 7.4V

Power Functions M-Motor

8883 $7.49 | 1 | 7+ yrs

Build an extra medium-strength, medium-sized M-Motor into your LEGO creations and watch things start moving.

Power Functions XL-Motor

8882 $9.99 | 1 | 7+ yrs

Add an extra XL-Motor to your models! This super-strong motor will give plenty of power to your models, whether it's spinning a wheel or turning a system of gears. Use the M-Motor to animate larger builds. Requires battery box (Item 8881), not included.

LE Replacement Pack M&M 1

2000708 $11.95 | 60 | 8+ yrs

LEGO® Education Replacement Packs are the ideal way to replace key elements for your LEGO Education products. This pack includes elements for Simple & Powered Machines Set (9686).

LE Replacement Pack M&M 2

2000709 $11.95 | 42 | 7+ yrs

LEGO Education Replacement Packs are the ideal way to replace key elements for your LEGO Education products. This pack includes elements for Simple Machines Set (9689).

LE Replacement Pack LME 8

2000707 $11.95 | 8 | 7+ yrs

LEGO Education Replacement Packs are the ideal way to replace key elements for your LEGO Education products. This pack features eight rubber bands in white, red, blue, and yellow for LME EV3 Expansion Set (45560), LME Base Set (9797), LME Resource Set (9695), Simple & Powered Machines Set (9686).

More power functions are available at **LEGOeducation.com.**

LEGO® Education Preschool

Stimulate children's curiosity to explore and learn through play

LEGO® Education Preschool

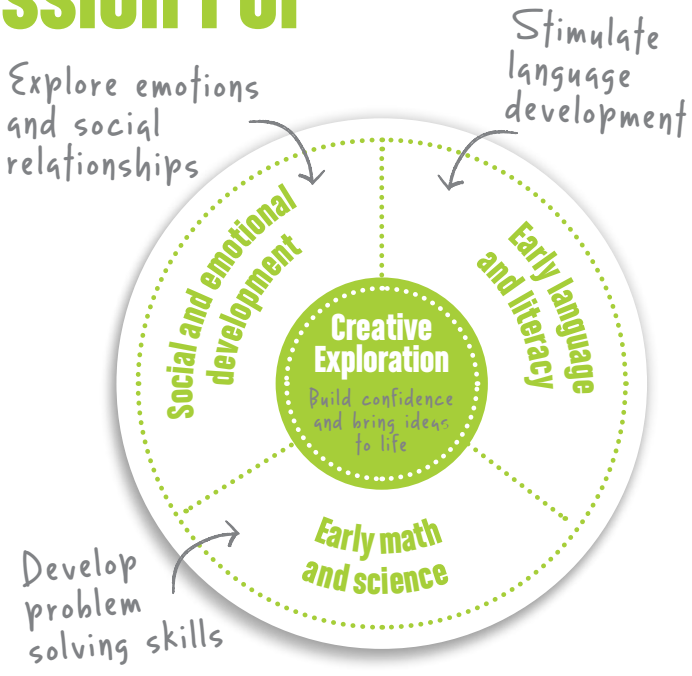
SO MANY WAYS TO LEARN, TOGETHER

LEGO® Education Preschool

Ignite children's passion for lifelong learning

The preschool years lay the foundation for children's future character. At this age, children learn primarily through play, and preschool teachers help to develop creative and curious lifelong learners by facilitating fun and effective learning experiences that enable children to build essential life skills.

Our unique solutions are built for this. Combining the LEGO® and LEGO® DUPLO® bricks with rich teaching resources, we help preschool teachers to develop strong foundations within four key learning areas: Early Math and Science, Social and Emotional Development, Early Language and Literacy, and Creative Exploration.



An example of a Preschool solution

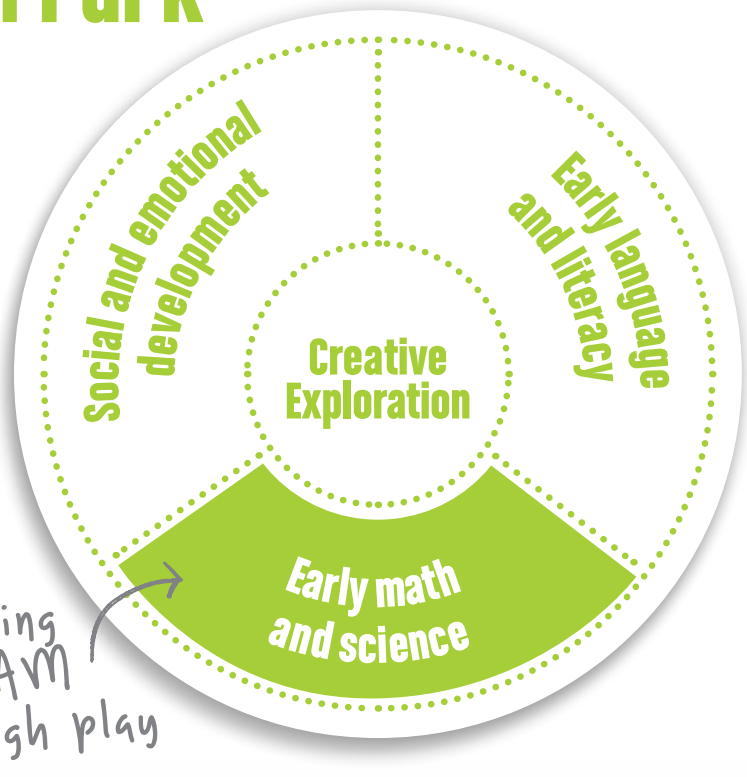
LEGO education

Welcome to STEAM Park

STEAM Park

45024 $149.95 8 1-8 295 3-5yrs

STEAM Park builds on every child's natural curiosity and desire to create, explore and investigate the world of early science, technology, engineering, arts and math (STEAM) through creative play. The possibilities are endless, as you work with them to construct a STEAM Park full of dynamic moving rides, fun games, and scenes using the special selection of LEGO® DUPLO® bricks. With every trip to STEAM Park, children grow their understanding of gears, motion, measurement and solving problems together in a fun and engaging way.



Key learning values

- Cause and effect
- Observing and describing
- Problem solving
- Developing imagination
- Role-play and collaboration

NEW

A hands-on teaching solution for STEAM

Getting Started Activity Card - In Box

Tutorial Videos - Online

Building Inspiration Cards for 16 models - In Box

Teacher Guide - Online

Face-to-Face Training - Add-on

education

Early Math and Science

LEGO® Education Preschool solutions naturally inspire young minds to explore numbers, shapes and colors, and problem solving through playing together. Children learn to experiment by endlessly constructing and reconstructing their different creations. As they build together, the colorful bricks and figures provide an engaging, hands-on way to understand concepts such as cause and effect, motion, simple addition and subtraction.

Key learning values

- Problem solving
- Observing and describing
- Simple addition and subtraction
- Sorting and categorizing
- Creativity

"Our students are obsessed! The set [STEAM Park] is officially their favorite material in the classroom. I have loved the lessons and the more we have done, the more in-depth I see the kids getting with their independent exploration."

Kate Leis, Preschool Teacher, Boston, MA

Tubes Experiment Set

9076 **$125.95** 1-6 | 147 | 1½+yrs

Children love to find out how things work! With the Tubes Experiment Set, they'll develop fine motor and problem solving skills while discovering creative ways to construct the tubes. The set also ignites their inner scientist as they investigate, construct and test important concepts like cause and effect.

How it works

Ideal for exploring the concepts of cause and effect, position and weight.

Tech Machines

45002 **$188.95** 3 | 1-6 | 95 | 3-6yrs

Transform your children into expert builders! With the Tech Machines set in your classroom, you'll help children develop their fine motor and problem solving skills while simultaneously unleashing their creativity as they construct classic machines.

Teacher Guide!

The Tech Machines Teacher Guide is available for free download from **LEGOeducation.com/Preschoolsupport**

Math Train

45008 **$104.95** 6 | 1-6 | 167 | 2-5yrs

Discover counting, patterns, and simple addition and subtraction with a fun and imaginative set that also teaches the purpose of stations and trains. Children will role-play exciting transportation scenarios as they use the crane to load and unload colorful train cargo and construct stations along a delivery route that they create!

Teacher Guide & Face-to-Face training

Find the Teacher Guides for Math Train and Café+ available for free download online. Read more about our professional development courses at **LEGOeducation.com/Preschool**

Café+

45004 **$104.95** 6 | 1-6 | 131 | 3-6yrs

Stimulate children to play and collaborate as they construct various food items and learn to sort, count, match and pattern. The unique and colorful bricks, as well as menu and recipe cards, inspire language and role-play around restaurants, shopping and people's needs. Children will naturally be practicing basic math as they play with this engaging set.

Social and Emotional Development

Preschool teachers have the challenging task of preparing children for school and life. Building social skills is one of the most critical factors in children's development and will have an influence on the rest of their lives.

Children collaborate on a range of building experiences, while recognizing feelings, identifying similarities and differences and learning about their community.

Key learning values

- Recognizing and understanding emotions
- Understanding relationships
- Collaboration
- Sense of self
- Taking turns

Build Me "Emotions"

45018 **$72.95** 12 | 1-8 | 188 | 3-5yrs

Build Me "Emotions" invites preschoolers to explore emotions and physical characteristics in a fun and engaging way. As children collaborate on a range of character building experiences, they recognize feelings and identify similarities and differences. Building cards provide support and inspiration so children can continue to build and rebuild characters again and again!

Teacher Guide & Face-to-Face training

Find the Build Me "Emotions" Teacher Guide and lesson ideas online. Read more about our professional development courses at **LEGOeducation.com/Preschool**

Role-play

Respecting similarities and differences

Community People Set

45010 $67.95 2 1-6 21 2-5yrs

Encourage children to explore the world they live in through different people and occupations. As children role-play and talk about each of the 20 unique characters in the set, they will learn important lessons about gender, age, relationships, and the unique roles and responsibilities people have in their communities.

Roles and responsibilities

Activity idea

Use Community People Set and World People Set to enhance role-play. Learn about roles and responsibilities, and talk about respecting similarities and differences.

World People Set

45011 $57.95 1 1-6 16 2-5yrs

The World People Set is a powerful tool, which encourages discussions about respecting similarities and differences among people. The set invites children to role-play with four different families and opens their minds to exploring cultures, gender, age and family relationships.

Our Town

45021 **$121.95** 12 | 1-6 | 278 | 3-5yrs

There's a lot happening in Our Town. It's a busy community full of buildings, everyday heroes and activity. As children have fun collaborating and constructing different urban environments, they intuitively discover what it means to be part of a community.

Our Community Pack

You will find eight double-sided building inspiration cards featuring 16 models in the box. Read more about Our Community Pack on page 63 or online. You can download the Teacher Guide or find more inspiration at **LEGOeducation.com/Preschoolsupport**

Animal Bingo

45009 **$36.95** 1-6 | 49 | 2-5yrs

Everyone is a winner with Animal Bingo! Children will explore collaborative play, follow game rules and take turns as they build the colorful animal models depicted on the game cards. They will engage in shape and color recognition, match and count animals, and learn to follow instructions in a fun and engaging way.

Activity ideas

You will find eight double-sided game cards featuring 16 animal models in the box, and videos online for additional inspiration at **LEGOeducation.com/Preschoolsupport**

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Extended learning solutions for large groups

Let's Build Social Skills Together Pack

5005054 $230.95

1-24 | 418 | 3-5yrs

Using this solution of LEGO® Education Preschool sets, teachers can foster social skills in a relevant, hands-on and playful way. While engaging with the sets, children will practice recognizing and understanding emotions, building self-esteem, taking turns, collaborating, and developing respect for people's similarities and differences.

Pack content

- Animal Bingo (45009) 1
- Community People Set (45010) 1
- Build Me "Emotions" (45018) 1
- Creative LEGO® DUPLO® Brick Set (45019) 1
- Social Skills Teacher Guide www

Teacher Guide

You can find the Social Skills Teacher Guide available for free download from **LEGOeducation.com/Preschoolsupport**

Animal Bingo

Community People Set

Build Me "Emotions"

Creative LEGO® DUPLO® Brick Set

Extended learning solutions for large groups

Our Community Pack

5005272 $254.95

1-20 | 331 | 3-5yrs

This unique solution invites children to explore the world through the theme of community as they construct urban environments and role-play in real-life scenarios. Children will develop their creative and collaborative skills and discuss relevant topics such as community life, buildings, transportation and relationships, as they construct their community however they imagine it.

Pack content

- Our Town (45021) 1
- Community People Set (45010) 1
- Multi Vehicles (45006) 1
- Our Community Teacher Guide www

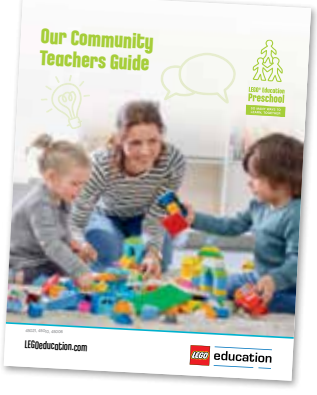
Our Town

Community People Set

Multi Vehicles

Teacher Guide

You can find the Our Community Teacher Guide available for free download from **LEGOeducation.com/Preschoolsupport**



Community Minifigure Set

45022 **$48.95**

Let children explore their world through the people that make a community function. They will construct characters representing different roles, professions and cultures while role-playing and playing fun games using the included game cards.

Warning CHOKING HAZARD - Small parts not for children under 3 yrs.

Game Instructions

You can find game instructions available for free download from **LEGOeducation.com/Preschoolsupport**

Role-play

Community Starter Set

9389 **$209.95**

So many pieces, so many possibilities! The set encourages children to communicate and collaborate, as they construct communities that exist in their imaginations. As they play, they will develop fine motor skills, learn how to express themselves and explore the world they live in.

Warning CHOKING HAZARD - Small parts & small ball. Not for children under 3 yrs.

1907 bricks

Collaboration

Early Language and Literacy

Children learn about communication as they begin to express their thoughts and ideas. LEGO® Education Preschool encourages this development and introduces basic storytelling by asking children to construct fantastic fairy tales and sensational imaginative short stories with LEGO® or LEGO® DUPLO® bricks, characters and inspirational backdrop cards. Enable preschoolers to stand in the spotlight - and share it with others - by telling expressive and imaginative stories together.

Key learning values

- Speaking and listening
- Creativity
- Storytelling
- Collaboration
- Role-play

StoryTales

45005 $120.95

Promote creativity, imaginative storytelling and language development with this unique and engaging storytelling set. Children will naturally collaborate and develop speaking and listening skills as they build their stories and role-play. Anyone can tell a story with StoryTales!

Teacher Guide

Find the StoryTales Teacher Guide available for free download online and read more about our professional development courses at **LEGOeducation.com/Preschool**

Fantasy Minifigure Set

45023 **$48.95** 7 | 1-6 | 213 | 4+ yrs

Unleash children's imagination with 21 unique LEGO® characters taken from real-life, make-believe and history. Watch as they immerse themselves in an exciting and inspiring world of role-play, collaborating with others as they play games and bring their stories to life.

Game Instructions

You can find game instructions available for free download from **LEGOeducation.com/Preschoolsupport**

⚠ Warning **CHOKING HAZARD** - Small parts & small ball. Not for children under 3 yrs.

Sceneries Set

9385 **$104.95** 4 | 8+ | 1207 | 4+ yrs

Spark children's creativity as you encourage collaborative building and storytelling. The very large set lets children build settings, models and characters as big as their imaginations! After they construct together, children will tell and listen to stories, enhancing their language development along the way.

⚠ Warning **CHOKING HAZARD** - Small parts & small ball. Not for children under 3 yrs.

1207 bricks

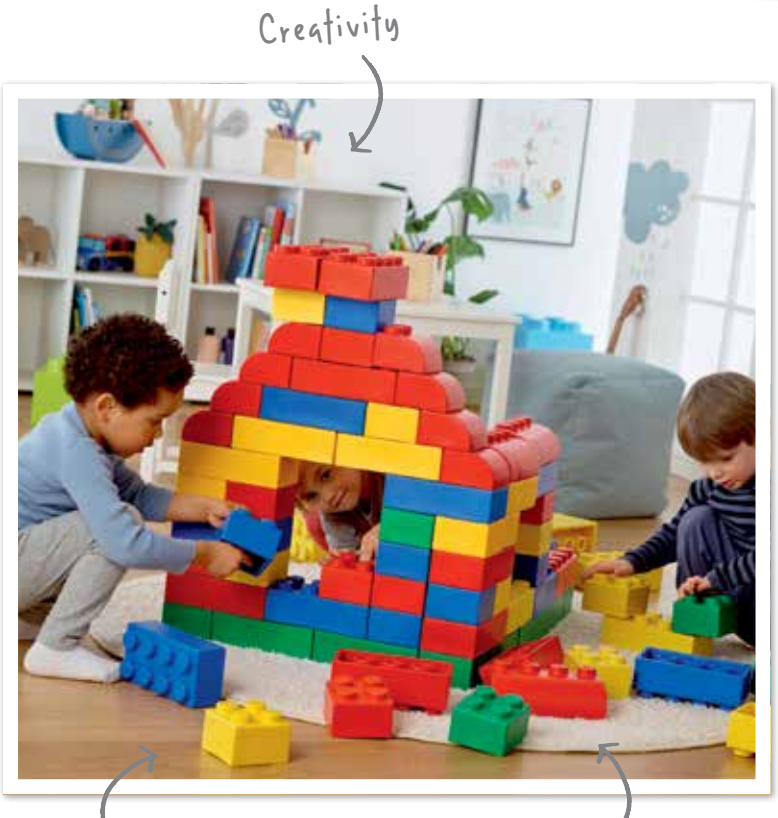
You can find fun and inspirational activities available for free download from **LEGOeducation.com/Preschoolsupport**

Creative Exploration

Children express themselves creatively and artistically while constructing the wonderful ideas from their imaginations. LEGO® bricks automatically engage multiple children, inviting them to construct together, where they discuss ideas and negotiate roles. They use the bricks as a tool for thinking, communicating and developing an understanding and appreciation of each other's ideas and contributions.

Key learning values

- Creativity
- Self-expression
- Exploring the world
- Sorting and categorizing
- Roles and responsibilities



LEGO® Soft Brick Set

45003 $576.95 6 1-8 84 2-5yrs

This award-winning set is packed with standard and curved LEGO Soft elements that make it easy for children to develop physical skills and spatial awareness as they build life-sized figures, walls, towers and obstacle courses. This set encourages exploration of space, shape and color, while it also develops gross motor skills. Observe as children creatively set the scene and retell stories using these unique bricks.

Activity Ideas

You can find fun and inspirational activities available for free download from **LEGOeducation.com/Preschoolsupport**

You can also use this set with the Café+ set on page 58 to build your own café, restaurant or kitchen.

XL LEGO® DUPLO® Bulk Set

9090 **$209.95** 10+ 560 1½+yrs

With 560 elements, this set is a dream come true for children to explore their creative potential by building all sorts of environments and models. This set features illustrations of suggested models and a world of figures and special elements.

560 bricks

Creative LEGO® DUPLO® Brick Set

45019 **$62.95** 1-6 160 3-5yrs

Set children's creativity free with this imaginative LEGO® DUPLO® Core Set. Not only will it inspire big ideas in young minds, it will encourage self-expression and develop fine motor skills as they build, deconstruct and build again. Building cards provide support and inspiration so children can enjoy endless building fun!

Wild Animals Set

45012 **$83.95** 1-6 104 2-5yrs

Invite children to explore the world through animals, animal families and habitats. As children construct a home and setting for each animal, they will learn about what animals need to survive and how they are different from one another. Teachers can even introduce early math through sorting and categorizing activities. The possibilities are endless!

Large Farm

45007 **$156.95** 1-6 154 2-5yrs

What's life like on a farm? With the Large Farm Set you can explore together! The set invites children to construct and role-play in this exciting world as they build their collaboration and language skills. They can even work on early math skills by sorting and categorizing the animals.

Activity Idea

You will find a Getting Started card included in the box with easy activities to get started with your preschoolers.

Roles and responsibilities

Exploring the world

Multi Vehicles Set

45006 **$78.95** 4 | 1-6 | 32 | 2-5yrs

Explore the world through the power of creative play! By role-playing both familiar and new exciting travel scenarios, children will learn about transportation, discover the importance of interpersonal relationships and explore our place in the wider world. It is also a great way to expand existing LEGO® DUPLO® sets!

How it works

Develops a focus on community services and how each person makes a contribution to community life.

Fine motor skills

Vehicles Set

9333 **$120.95** 1-6 | 934 | 4+ yrs

Explore the exciting world of wheels! The set lets children create and role-play with a variety of vehicles that represent all kinds of transportation and travel. They'll learn about the roles and responsibilities of vehicles in their communities as they further develop their fine motor skills.

⚠ Warning **CHOKING HAZARD** - Small parts & small ball. Not for children under 3 yrs.

Activity ideas

You will find fun and inspirational activities available for free download from **LEGOeducation.com/Preschoolsupport**

Creative LEGO® Brick Set

45020 $62.95 1-8 1000 4+yrs

Stimulate children's natural curiosity to explore and learn with this versatile brick set. With 1,000 bricks included, the set allows children to create all sorts of life-like or imaginary figures, objects and buildings. Children develop fine motor skills while constructing and the building cards will support and inspire their creativity. Where will their imaginations take them? A handful of LEGO® bricks can turn into absolutely anything!

⚠Warning **CHOKING HAZARD** - Small parts not for children under 3 yrs.

Self-expression

Creativity

Exploring the world

Fine motor skills

Space and Airport Set

9335 $ 156.95 4 1-6 1176 4+yrs

Take off to an exciting new world of play! Children work together to build and create stories about transportation and space travel as they further develop their speaking, listening and fine motor skills. The bricks and special elements make it easy to construct fun, unique buildings and vehicles.

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Activity ideas

You can find fun and inspirational activities available for free download from **LEGOeducation.com/Preschoolsupport**

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Create and Tinker with Preschool Maker

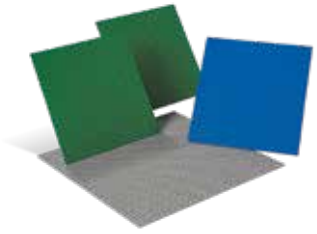
Preschool Maker Activities

9 | 30 | www

The LEGO® Education Preschool Maker Activities were developed to engage and motivate children in early making, and spark their interest in learning design, technology and engineering. The Preschool Maker Activities consist of two full lessons and seven smaller activities giving teachers and children the opportunity to question, to create and tinker, to make and explore, and remake again.

Discover Maker Activities at **LEGOeducation.com/Lessons**

Accessories



Large LEGO® Building Plates

9286 **$36.95** 4 4+ yrs

This set includes one grey 38 x 38cm building plate, two green 25 x 25cm building plates and one blue 25 x 25cm building plate. Let the blue represent the sea, the green for grass, etc.

Doors, Windows & Roof Tiles

9386 **$51.95** 278 4+ yrs

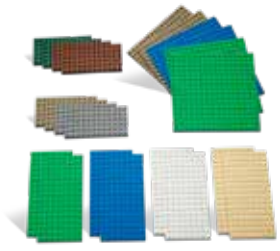
This set gives you a huge variety of windows with shutters, doors and roof tiles. Everything children need to give their constructions the finishing touches. Can be used with LEGO bricks.

⚠Warning **CHOKING HAZARD** - Small parts not for children under 3 yrs.

Medium Storage

45498 **$108.95** 5+ yrs

This storage box comes in packs of eight and is available in black. The boxes have transparent lids and are ideal for stacking. The box size is similar to the storage box for LEGO® MINDSTORMS® Education EV3 and Simple & Powered Machines.



Small LEGO® Building Plates

9388 **$41.95** 22 4+ yrs

Features 22 building plates in three different sizes and a variety of colors. Use as a foundation for your LEGO® creation, to create landscapes or for constructing tall buildings.

Wheels Set

9387 **$51.95** 286 4+ yrs

This set includes tires in four different sizes along with plates, axles and wheel hubs to make sets of wheels and vehicle chassis for up to 12 different vehicles at the same time.

⚠Warning **CHOKING HAZARD** - Small parts not for children under 3 yrs.

Large Storage

9840 **$125.95** 1½+yrs

This large storage box comes in packs of six. The boxes have transparent lids and are ideal for stacking. Each box has drainage holes so that LEGO elements can be washed in the containers.

Large LEGO® DUPLO® Building Plates

9071 **$41.95** 2 1½+yrs

Two large building plates - one red, one green - provide the perfect foundation for learning through play. Can be used with all kinds of LEGO® DUPLO® based products. Size 38 x 38cm.

Small Storage

45497 **$89.95** 5+ yrs

This storage box comes in packs of seven and is available in blue. The boxes have transparent lids and are ideal for stacking. The box size is similar to the storage box for WeDo 2.0.

Sorting Toptray

45499 **$72.95** 5+ yrs

This sorting tray comes in packs of 12. The tray is similar as used in WeDo 2.0, LEGO MINDSTORMS Education EV3 and Simple & Powered Machines. The tray fits to small (45497), medium (45498) and large (9840) LEGO® Education storage boxes.

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Still Curious?

Let's inspire lifelong learners together.

5 WAYS TO ORDER

1. Online: **www.LEGOeducation.com**
2. Email: **orders@LEGOeducation.us**
3. Phone: **800-362-4308**
4. Fax: **888-534-6784**
5. Mail: **LEGO Education**
   501 Boylston Street
   Suite 4103
   Boston, MA 02116

Learn more about grant opportunities and funding in your district at www.LEGOeducation.com/funding

Contact us for additional support

Customer Service 800-362-4308

Our friendly customer service staff will assist you in resolving any concerns.

Technical Support 866-349-LEGO (5346)

Our technical support staff is well trained and knowledgeable. Call if you need help or have challenges with any of our products.

HOURS

We're open Monday through Friday from 8:30 a.m. to 6:30 p.m. Eastern Time. We're closed on major holidays.

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$200-$449	$8	$55	$75
$450+	Free	$55	$75

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