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Robotics – LEGO® Education WeDo™.....18-23

Robotics – LEGO® MINDSTORMS® Education.....24-31

Storage Solution icon
Sets with this icon are delivered in a plastic storage box.

Piece Count icon
This icon shows how many elements the sets contain.

Web icon
This icon shows that you can find more materials on our website.
Creative Classroom Solutions from LEGO® Education

Machines & Mechanisms
Early Simple Machines
From 5 years
Children explore objects in the world around them, and build and play with models that help them to understand the movement of familiar things. They experiment with the concepts of balance, stability, buoyancy and much more.
See the primary school range pages 6-9.

Machines & Mechanisms
Simple & Powered Machines
From 8 years
Children deepen their understanding of how forces affect motion and explore concepts of energy. They build more complex mechanisms and use them to make accurate observations, measurements and records; and to design their own solutions.
See the primary and secondary school range pages 10-15.

Robotics
LEGO® Education WeDo™
From 7 years
The exciting LEGO® Education WeDo™ concept provides a fun and easy way to get started on simple robotics. Children build models, attach simple sensors and motors, which are plugged into their computers, and configure behaviour using intuitive, icon-based software.
See the primary school range pages 18-23.

Robotics
LEGO® MINDSTORMS® Education
From 8 years
Students build robots and use software to plan, test and modify sequences of instructions for a variety of real-life robotic behaviours. They gather and analyse data from sensors using datalogging functionalities such as graph viewer. Robotics is an exciting way to bring science, technology, engineering and mathematics to life in the classroom.
See the primary and secondary school range pages of LEGO® MINDSTORMS® Education brick sets, software and activity packs pages 24-31.
Let’s build a future of inquisitive scientists, innovative designers and creative engineers.

LEGO® Education brick sets, teacher guides and activity packs provide exciting, hands-on projects for children from 5 to 16+ years.

Our solutions are particularly relevant to teaching design technology and engineering, physical science, scientific inquiry and mathematics. For examples of classroom activities visit the LEGO Education global website and search Activities.

It’s all about teaching kids how to solve problems; building something as a solution to a problem or an answer to a question. Teaching problem-solving is so important and LEGO solutions do that really well. There’s lots of easy stuff to start with, building cards and models for inspiration, then as the children gain experience they begin to do really creative things.

Tracy Polte, elementary school teacher, Shady Hill School, MA, USA.

LEGOeducation.com
3+  
9530  
Letters Set  
A versatile set that provides a fun, hands-on way for children to develop basic skills in early literacy, letter and sound recognition, fine motor skills and language skills. Creating special characters, symbols and pictures is easy – just draw on the blank tiles. Also contains 2 white building plates.  
- Letter and sound recognition  
- Upper and lower case letters  
- Word building  

ABC 123  
Key Learning Values:  
- Understanding the relationship between the spoken and written word  
- Developing letter and sound recognition  
- Recognising and naming numbers  
- Learning to count, add and subtract  
- Investigating colours, shapes, patterns and symmetry  

1 ½+  
9805  
Play Wall  
Utilize wall space for playing with letters, numbers or other elements. The practical storage bin beneath the board ensures that “the next piece” is always within reach, and keeps elements off the floor.  

3+  
9531  
Numbers & Mosaics Set  
With loads of number and sign tiles, this big set provides the perfect way for future mathematicians to get a head start on investigating numbers and learning to count, add and subtract. The mosaic tiles also allow children to create countless patterns while learning all about shapes, colours, sequences and symmetry.  
- Exploring relationships with adults and peers  
- Exploring living environments  
- Understanding domestic rules  
- Understanding domestic roles and responsibilities  

Colours of and decorative designs on elements may vary.
Machines & Mechanisms

Learning targets covered:

Science:
- Communicate changes in movements of objects resulting from action
- Observe, predict and record
- Learn about gravity, friction and air resistance
- Measure forces and identify their direction

Technology:
- Recognize characteristics of familiar things
- Find out how mechanisms can be used to move things
- Learn about mechanical and pneumatic control systems

Creative development:
- Explore ideas
- Design and make things for different purposes

Mathematics:
- Learn about shape and space through practical activities
- Problem solving, reasoning
- Fractions, percentages and number operations
Colours of and decorative designs on elements may vary.
The Early Simple Machines Set provides eight mechanical models and eight double-sided, full-colour 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. Combine with the 2009656 activity pack to carry out eight lesson plans, each with 20-minute extension activities, and four problem-solving tasks.

- Exploring basic mechanical principles such as gears, levers, pulleys, wheels and axles
- Investigating force, buoyancy and balance
- Solving problems through design
- Working with others and sharing findings

The activity pack for the 9656 Early Simple Machines Set includes eight 45-minute lessons, each with extension activities of up to 20 minutes, and four additional open-ended problem-solving activities. Illustrations introduce playful problems that the children must solve.

- Exploring basic mechanical principles such as gears, levers, pulleys, wheels and axles
- Investigating force, buoyancy and balance
- Solving problems through design
- Working with others and sharing findings
Upgrade Kit for 9654

Combine your existing 9654 Early Simple Machines II Set with the 9999 Upgrade Kit to create the equivalent set to the new 9656 Early Simple Machines Set. The Upgrade Kit includes all of the new elements from the 9656 set: six LEGO bricks, a plastic punch-out sheet and eight inspiration cards – all delivered in a plastic bag with zipper. The Upgrade Kit enables existing users of the 9654 set to carry out the activities provided in the 2009656 Activity Pack.

Early Structures Set

This set provides building ideas for 12 different structures, such as bridges and towers, as well as inspiration for four additional problem-solving models. Pulley wheels, movable hooks on strings, axles, double-sided activity cards and element overview included.

- Exploring basic structures such as towers, bridges and walls
- Exploring balancing, strength and stability, and moving parts
- Problem solving

Colours of and decorative designs on elements may vary.
8+
9686
Simple & Powered Machines Set

The core brick set in our range of Machines & Mechanisms solutions, this set includes full-colour building instruction booklets for 10 principle models and 18 main models. Combine with curricular-relevant activity packs and add-on sets to carry out a broad range of activities within design technology, science and mathematics.

- Building and exploring real life Machines & Mechanisms
- Investigating powered machines with the motor
- Using plastic sheets for calibration and capturing wind
- Exploring gearing mechanisms with the assorted gear wheels incl. differential
8+ 2009686 Introducing Simple & Powered Machines

With this activity pack students get a fundamental understanding of simple machines, structures and mechanisms. The pack features 37 principle model activities, 14 main activities, including extension activities, and six problem-solving tasks. Flash animations introduce the activities. Teacher’s notes, student worksheets and glossary included.

- Investigating the principles of simple machines, mechanisms and structures
- Experimenting with balanced and unbalanced forces
- Experimenting with friction
- Capturing, storing and transferring wind energy
- Measuring distance, time, speed and weight
- Calibrating scales
- Investigating powered forces and motion, speed and pulling power

10+ 2009687 Advancing with Simple & Powered Machines

This activity pack allows students to get an in-depth understanding of simple machines, mechanisms, structures and mechanical advantage. It includes 38 principle model activities, four main activities, including extension activities, and eight problem-solving activities. Real-life video clips introduce students to the activities. Teacher’s notes, student worksheet and glossary included.

- Investigating the principles of simple machines, mechanisms and structures
- Mechanical advantage
- Balanced and unbalanced forces
- Equilibrium
- Block and tackle
- Effect of force on an object
- Experimenting with friction
- Calculating speed, distance, time and weight
- Identifying dependent and independent variables

Activity Pack
Understanding of Basic Principles

Short video sequences for the students to connect to the task

Building Instructions

Student Worksheets & Teacher’s Notes

Wheel and Axle
- Gear
- Lever
- Inclined Plane
- Pulley
- Screw
- Wedge
- Structures
- Pawl and Ratchet

Colours of and decorative designs on elements may vary.
10+
9641
Pneumatics Add-on Set

The Pneumatics Add-on Set for the 9632/9686 Base Set provides five principle models and four real-life pneumatics models. Includes full-colour building instructions, pumps, tubes, cylinders, valves, air tank and a manometer. Combine with the 2009641 activity pack to carry out 14 principle model activities, four new lesson plans and two problem-solving tasks.

- Building and exploring pneumatics through real-life LEGO models
- Investigating power systems and components
- Pressure measuring in psi and bar
- Exploring kinetic and potential energy

10+
2009641
Activity Pack for 9641

This activity pack provides 14 principle model activities, four 45-minute pneumatics lessons each with extension activities of up to 20 minutes, and two additional problem-solving tasks. Video clips introduce the activities by showing real-life machines, which are similar to the LEGO models used in the lessons.

- Building and exploring pneumatics through real-life LEGO models
- Exploring sequence and control
- Engaging students in engineering and design
- Using measures and data analysis to describe and explain outcomes

Classroom Solutions

9686  2009686  2009687  9641  2009641

Starter Set

2-3 students

9686 Simple & Powered Machines Set

8+

2009686 Introducing Simple & Powered Machines

10+

2009687 Advancing with Simple & Powered Machines

Add-on

1x  1x  1x  1x

9641 Pneumatics Add-on Set

2009641 Activity Pack for 9641

Classroom Set

24 students

9686 Simple & Powered Machines Set

2009686 Introducing Simple & Powered Machines

2009687 Advancing with Simple & Powered Machines

9641 Pneumatics Add-on Set

2009641 Activity Pack for 9641
New Release in 2010

NEW! Renewable Energy Add-on Set from 8+.
Explore the use of energy from your body, the sun, the wind and water to generate power!

The new 9688 Renewable Energy Add-on Set gives your students a unique hands-on experience with the different sources of renewable energy. It features a range of new elements including the LEGO® Energy Meter with integrated energy storage. Contains building instructions for a variety of models such as a solar powered car and a wind turbine. Connects with LEGO MINDSTORMS® Education – see more on page 26.

8+ 9688
Renewable Energy Add-on Set
This add-on set for 9686 allows students to learn all about renewable energy sources. The set provides a range of elements including the unique LEGO Energy Meter, a solar panel, blades, a motor/generator, LED lights and an extension wire. Includes full-colour building instructions for six real-life LEGO models. Combine with the 2009688 activity pack to carry out six lessons and four problem-solving activities. Also works with MINDSTORMS Education, see 9797.

- Building and exploring renewable energy through real-life LEGO models
- Exploring energy supply, transfer, accumulation, conversion and consumption
- Engaging students in engineering and design

10+ 2009688
Activity Pack for Renewable Energy Add-on Set
This activity pack provides six 45-minute lessons and four problem-solving activities that allow students to explore the three major renewable energy sources, solar, wind and water, through real-life LEGO models. Includes a wide range of real-life images, ideal for introducing them to the topic and task at hand. Teacher’s notes, student worksheets and glossary included.

- Exploring renewable energy sources
- Investigating energy supply, transfer, accumulation, conversion and consumption
- Using measurements and data analysis to describe and explain outcomes

LEGOeducation.com
The Solar Panel provides sufficient power to operate the LEGO Energy Meter and motors. It delivers: 5V, 4mA in direct light from a 60W incandescent bulb positioned 25 cm from the solar panel (>2000 lux); and 5V, 20mA in direct light from a 60W incandescent bulb positioned 8 cm from the panel (>10,000 lux).

The E-Motor is a 9V motor with an internal gearbox. Its 9.5:1 gearing ratio provides a maximum torque of 4.5 Ncm and approximately 800 rotations per minute without load. It also functions as a very efficient generator.

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

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.

Add bright LED lights to your models to create glowing eyes, illuminated headlights, and anything else you can imagine and build!

Give even more power and movement to your models with an extra battery box to supply power to your Power Functions motors! Each battery box can power 2 XL-Motors or 4 M-Motors at the same time. Requires 6 AA (1.5V) batteries, not included.

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

Build your Power Functions-equipped models bigger, better and more mechanized and motorized by adding this 20-inch (50 cm) extension wire!

This rechargeable battery box has built-in Lithium polymer batteries for low weight and maximum power. Use the #8887 10VDC LEGO Transformer to charge the battery:
• Motor speed can be controlled via the battery box speed control dial!
• Output voltage is 7.4V!

This standard 10V DC transformer allows you to recharge your 9693 Rechargeable Battery DC or 8878 Power Functions Rechargeable Battery Box.

This element displays input and output in volts, watts, amps, and energy storage level in joules. Combine with 9669 Energy Storage to form the LEGO Energy Meter.
Renewable Energy Set

Embracing a wide range of elements – including a solar panel, a capacitor and two motors – this set helps students investigate the concepts of energy, energy sources, electricity and the environment by building models. Contains building instructions for constructing windmill, water mill or solar-powered Ferris wheel and several supplementary models.

- Building and exploring pneumatics through real-life LEGO models
- Investigating power systems and components
- Pressure measuring in psi and bar
- Exploring kinetic and potential energy

Solar Panel

The LEGO Solar panel provides sufficient power to operate LEGO motors. It delivers: 3V, 200mA in full sunlight outdoors, 3V, 100mA indoors with full sun outdoors, 2.5V, 8mA with light from a 60W incandescent bulb positioned 25 cm from the solar panel (2000 lux), and 2.5V, 40mA with light from a 60W incandescent bulb positioned 8 cm from the panel (10,000 lux).

Capacitor

Using a LEGO solar panel or a LEGO motor as generator, the capacitor can be charged and discharged just like a rechargeable battery. The capacitor can be used for powering a LEGO motor. When the capacitor is fully charged, operating voltage is normally 2.5V. A red diode lights flashes when fully charged. The capacitor is protected against reverse polarity.
Activities with Natural Flow

Activity Packs from LEGO® Education are developed by experienced educators and have a natural flow that engages and motivates students. We call it the 4C approach. It consists of four phases: Connect, Construct, Contemplate, and Continue.

**Connect**

It is important to capture students' interest in order to have a positive and motivating learning environment. LEGO Education activities always begin with an engaging challenge introduced through real-life video clips, photos, stories, animations, etc. which students can relate to and find compelling.

**Construct**

Students work in teams to solve an open-ended building task related to the challenge. They make their own solutions and plan, build and test their models or software programs.

**Contemplate**

In this phase, students think about what they have just constructed and achieved. They discuss the project at hand, reflect on and adapt their ideas, and teachers can encourage this process by asking questions.

**Continue**

Extension ideas are provided that present a new challenge within the same theme. Students are encouraged to change or add features to their models, thereby leading them to a new Connect phase. This allows them to enter a positive learning spiral, in which they take on increasingly difficult challenges.
Hey! Check out our website!

New website coming up
LEGOeducation.com

Free Downloads at LEGOeducation.com
Looking for inspiration or simply more information? Visit our website and experience how LEGO® Education sets are effective tools for covering your curriculum targets. Lots of free downloads available!

Animations
See engaging animations and share them with your students.

Videos
Watch our solutions in use in a classroom setting.
Short video sequences for the students to connect to the task.

Building Instructions
Build even more models.

Programming Examples
New inspiration for programming your robot!

Activity Examples
Download PDF or flash activity examples.

Student Worksheets and Teacher’s Notes

Colours of and decorative designs on elements may vary.

LEGOeducation.com
Examples of learning targets covered using robotics in the classroom:

Information and Communication Technology, ICT:
- Use simulations and explore models
- Use ICT to measure, record, respond to and control events

Science:
- Investigate energy, force and speed
- Determine the speed of a moving object and use the quantitative relationship between speed, distance and time
- Using the scientific inquiry process when gathering and analysing data sets

Technology:
- Develop solutions, selecting, building, testing and evaluating

Mathematics:
- Understand and use fractions, decimals, percentages, ratios and proportions
7+ 9580
LEGO® Education WeDo® Construction Set

The WeDo Construction Set enables students to build and program simple LEGO models that are plugged into a computer. The set contains more than 150 elements, including a motor, motion and tilt sensors, and the LEGO USB Hub. Combine with the 2009580 Activity Pack to carry out 12 theme-based activities. Software is sold separately, see 2000095.

- Designing and making
- Brainstorm to find creative alternative solutions
- Learn to communicate, share ideas and work together

7+ 200094
LEGO® Education WeDo® Site License Agreement

The Site License Agreement allows WeDo Software to be used on any compatible computer at the purchasing institution. The Agreement is necessary when installing the software on more than one computer. Requires pre-purchase of 2000095 WeDo Software.

7+ 200095
LEGO® Education WeDo® Software

Easy-to-use, drag-and-drop software designed to work with the WeDo Construction Set. The software, powered by LabVIEW, is icon-based and provides an intuitive programming environment suitable for children from 7 years and up. The software automatically detects motors and sensors when they are attached to the LEGO USB Hub. Includes digital Getting Started Guide with simple building tips and programming examples.

- Program and create a working model
- Use software media to acquire information
- Use feedback to adjust a programming system output

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A Complete Package

The CD-ROM Activity Pack:
- Cross-curricular activities that meet a broad range of curriculum goals
- Ideal for introducing technology into other areas of the curriculum
- Activities that integrate into the WeDo Software

The Brick Set:
- Ideal for introducing technology into curriculum areas such as science, technology, maths, and language lessons
- Provides a stepping stone for teaching the basics of robotics
- Ideal for cross-curricular and project-based learning

The Software:
- Icon-based, drag-and-drop programming environment
- Getting Started Guide with building and programming examples included
- Automatically detects sensors and motors when attached to the LEGO USB Hub
- Supports programming of the computer keyboard, sound and microphone

Activity Pack for LEGO® Education WeDo® Construction Set

This activity pack includes 12 activities and provides up to 24 hours of instruction and project-based learning. Animations introduce the tasks that students must solve. Activities integrate into the WeDo Software and are divided into 4 themes: Amazing Mechanisms, Wild Animals, Play Soccer and Adventure Stories. Teacher’s notes, glossary and building instructions included.

- Working with simple machines, gears, levers, pulleys, transmission of motion
- Programming, using software media, designing and creating a working model
- Measuring time and distance, adding, subtracting, multiplying, dividing, estimating, randomness, using variables
- Narrative and journalistic writing, storytelling, explaining, interviewing, interpreting

See activity examples at LEGOeducation.com
Inspiration

Give your students even more opportunities to design, build and program exciting models such as a galloping horse or a roaring dragon. Simply purchase the Sceneries Set (9385) or the Community Workers Set (9247) to add that extra something to your existing LEGO® Education WeDo™ sets, and let them unleash their imagination! For more inspiration visit LEGOeducation.com.

Programming Examples

Galloping Horse

Roaring Dragon

4+
9385
Sceneries Set
Includes bricks in all sorts of colours as well as special elements such as spiders, snakes, wands, roast chickens, flowers, treasure chests, and much more!

4+
9247
Community Workers Set
Includes 31 figures, such as police, fire and rescue personnel, along with mechanics and pizza bakers and a variety of bikes, motorcycles, helmets and other accessories.

For more inspiration visit LEGOeducation.com

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7+ 9581 LEGO® USB Hub
The LEGO USB Hub designed for the WeDo Construction Set controls sensors and motors via the WeDo Software when connected to a computer’s powered USB port. This two-port hub transmits power and data to and from the computer, and both ports are able to control motors and sensors. The LEGO USB Hub is automatically detected by the WeDo Software when connected to a computer.

7+ 9583 Motion Sensor
The motion sensor designed for the WeDo Construction Set can detect objects within a range of 15 cm, depending on the design of the object, when attached to the LEGO USB Hub. The motion sensor is automatically detected by the WeDo Software when attached to the LEGO USB Hub.

7+ 9584 Tilt Sensor
The tilt sensor designed for the WeDo Construction Set detects changes within six different positions: Tilt This Way, Tilt That Way, Tilt Up, Tilt Down, No Tilt and Any Tilt. The tilt sensor is automatically detected by the WeDo Software when connected to the LEGO USB Hub.

7+ 8883 Power Functions M-Motor
Build an extra medium-strength, medium-sized M-Motor into your LEGO creations and watch things start moving!

Classroom Solutions

Starter Set

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Classroom Set

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</tbody>
</table>

Colours of and decorative designs on elements may vary.
8+ 9797
LEGO® MINDSTORMS® Education Base Set
This set enables students to build and program real-life robotic solutions. Includes the programmable NXT Brick, providing on-brick programming and data logging, three interactive servo motors, ultrasonic, sound, light and two touch sensors, a rechargeable battery, connecting cables, and full-colour building instructions. Software (2000080) and battery charger (9833/8887) are sold separately.

- Developing solutions, selecting, building, testing and evaluating
- Brainstorm to find creative alternative solutions
- Learn to communicate, share ideas and work together
- Hands-on experience with sensors, motors and intelligent units

8+ 9648
Education Resource Set
A wide variety of additional building elements that help bring life to MINDSTORMS Education robots as well as to the range of LEGO Education Science & Technology sets. Plenty of extra standard elements such as beams, axles and connectors and special elements such as a crane hook and tread wheels. An ideal supplement to 9797 for robotics competitions.

8+ 2000078
NXT Site License Agreement
The site license agreement allows LEGO MINDSTORMS Education NXT software to be used on any compatible computer at the purchasing institution. Is necessary when installing the software on more than one computer. Requires pre-purchase of 2000077/2000080 MINDSTORMS Education NXT Software.
More Great Robots

Let your students take LEGO® MINDSTORMS® Education robots to the next level and add even more fun to learning. Download building instructions and programming examples for nine cool models at LEGOeducation.com.

Grand Four Belt Rover: It detects and climbs obstacles.
Belt-driven Colour Sorter: Get your colours in order.
Robot Arm: Helps you pick things up.
Humanoid: Watch it walk and move like a person.
Scorpion: Watch out for its sting!
Intelligent Car: Steering and differential gives it unique driving capabilities

8+
2000080
LEGO® MINDSTORMS® Education NXT Software v.2.0 (with Data Logging)

This powerful, easy-to-use software for programming and data logging is icon based. It incorporates a Robot Educator step-by-step guide with 46 tutorials, from beginner to advanced levels. Data logging functionalities, including graph viewer, make it easy to collect and analyse data from sensors. The software incorporates a comprehensive digital user manual and is based on LabVIEW.

• Using input and output devices and producing a simple set of sequential instructions linking cause and effect
• Developing and testing a system to monitor and control events
• Using intuitive prediction tools to get first hand experience with making hypothesis
• Using the scientific inquiry process when gathering and analysing data sets
• Integrating Maths and Science using physical constants, units of measurement, coordinate systems, min, max, mean and linear formulas

8+ 9695
LEGO® MINDSTORMS® Education Resource Set

This set features a wide range of elements that allow you to build and program MINDSTORMS robots with even more functions than ever before. Includes plenty of special elements such as belts, unique connectors, a worm gear, structural elements, as well as other LEGO elements like beams, axels and connectors. It is the ideal supplement to your 9797 Base Set for classroom, after school or robotic competition use! Download free building instructions and programming examples for several great robots on LEGOeducation.com.

LEGO MINDSTORMS Education NXT Programming
• Easy-to-use icon based programming
• Intuitive drag and drop programming
• From beginner to advanced level
• Easy communication with and download to NXT brick
• Simple sharing and customization of programs

LEGO MINDSTORMS Education NXT Data Logging
• Teach science using intuitive predict and analyze tools
• Easy-to-use graph based data logging environment
• Use autonomous robots for data logging
• Support for both remote and live data logging
• Log data on up to four sensors at a time

Robot Educator
• Step-by-step guide with 46 simple tutorials
• 39 programming tutorials
• 7 data logging tutorials
• Extensive help files
• Comprehensive digital user guide

Colours of and decorative designs on elements may vary.
Energy

New in 2010 – the Renewable Energy Add-on Set allows your students to explore energy concepts with LEGO® MINDSTORMS® Education. They experiment with using energy from their own bodies and the three main energy sources: solar, wind and water to generate, store and use power.

Wind Robotics Energy Sensor Technology

8+ 9688 Renewable Energy Add-on Set

This new set is designed to be compatible with MINDSTORMS Education. It features a solar panel, blades, a motor/generator, LED lights, an extension wire and the unique LEGO Energy Meter, which works as a sensor when connected to the NXT. The Energy Meter collects the following data: input/output in volts, amps, watt, and energy storage level in joule. These data can be used for programming or viewed in the data logging window. Download free building instructions and programming examples at LEGOeducation.com.

Building instructions included in the Add-on Set can be used as additional inspiration, but are designed for use with the 9686 set on page 10.

8+ 9749 NXT Temperature Sensor

The temperature sensor is a digital sensor powered by the NXT brick. Using the NXT brick and NXT software version 2.0, it can be calibrated to measure both Celsius and Fahrenheit (-20 °C to +120 °C/ -4 °F to +248 °F).

8+ 9694 Color Sensor

Using the NXT brick, the Colour Sensor is able to perform three unique functions. It acts as a Colour Sensor distinguishing between six colours; it works as a Light Sensor detecting light intensities, both reflected light and ambient light; and it works as a Colour Lamp, emitting red, green or blue light. You will need a connector cable, which is included in the 9797 Base Set.

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8+
9798
Rechargeable Battery AC
Lithium battery with AC plug. Designed for use with the 9841 Intelligent NXT Brick as alternative to normal AA batteries. Capacity: 1400 mAh. Estimated recharge time 4-5 hours. Charger available, see 9833.

8+
9833
Transformer AC (9V)
9V transformer for the RCX and the NXT Rechargeable Battery.

8+
9693
Rechargeable Battery DC
Designed for use with the 9841 Intelligent NXT Brick, this Lithium Ion Polymer battery with DC plug gives you an alternative to normal AA batteries. Capacity: 2100 mAh. Estimated recharge time 4-5 hours. Use the 8887 Transformer 10V DC to charge.

8+
8887
Transformer 10V DC
This standard 10V DC transformer allows you to recharge your 9693 Rechargeable Battery DC or 8878 Power Functions Rechargeable Battery Box.

New, eco-friendly package

Classroom Solutions

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<thead>
<tr>
<th>9797</th>
<th>2000080</th>
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Starter Set

2-3 students

1x 9797 LEGO® MINDSTORMS® Education Base Set
1x 2000080 LEGO® MINDSTORMS® Education Software
0x 2000078 NXT Site License Agreement
1x 8887/9833 Transformer
1x 9695/9648 Education Resource Set

Add-on

Classroom Set

24 students

12x 9797 LEGO® MINDSTORMS® Education Base Set
1x 2000080 LEGO® MINDSTORMS® Education Software
1x 2000078 NXT Site License Agreement
12x 8887/9833 Transformer
3x 9695/9648 Education Resource Set

LEGOeducation.com

Colours of and decorative designs on elements may vary.
LEGO® MINDSTORMS® Education is unique because it allows me to teach science and technology in a very rewarding way: If I want children to develop scientific enquiry skills and understand technological concepts, it’s no good me just telling them how it is, or what to do. MINDSTORMS Education allows children to investigate, plan, test and implement their ideas – and in this way they work things out for themselves. This is very rewarding as a teacher. You see them enjoying themselves, getting results that they are happy with and answering problems that you have set them.

Simon Williams, Science and IT teacher, New Lodge School, Dorking, England
11+
2009791
Science and Data Logging Activity Pack

This activity pack gives you four real-life science activities and one research project providing up to 25 hours of instruction. The activities are divided into four themes: Motion, Light and Color, Heat and Sound. The research project centers around data gathering and analysis for sensor-based inspection of aging bridges. Developed by Carnegie Mellon University's Robotics Academy, it includes video clips, worksheets and teacher introduction materials. NXT Temperature Sensor (9749) and NXT Software v.2.0 (2000080) are required.

- Measuring distance, time and speed using linear formulas
- Experimenting with light reflection and absorption
- Investigating properties of sound with focus on amplitude and frequency
- Experimenting with transfer of thermal energy by testing the effect of conduction, convection and radiation

Activity Pack 2009791

See activity examples at LEGOeducation.com

14+
2000081
ROBOTC Software Single License V2.0

ROBOTC is a powerful C-based programming language with a Windows environment for writing and debugging programs, and the only programming language at this level that offers a comprehensive, real-time debugger. It allows students to learn the type of C-based programming used in advanced education and professional applications.

ROBOTC is developed by the Carnegie Mellon Robotics Academy and designed for use with MINDSTORMS NXT and RCX as well as TETRIX.

14+
2000082
ROBOTC Software Classroom License V2.0

ROBOTC is a powerful C-based programming language with a Windows environment for writing and debugging programs, and the only programming language at this level that offers a comprehensive, real-time debugger. It allows students to learn the type of C-based programming used in advanced education and professional applications. ROBOTC is developed by the Carnegie Mellon Robotics Academy and designed for use with MINDSTORMS NXT and RCX as well as TETRIX. Classroom license allows for software installation on 24 computers.

14+
2009781
Teaching ROBOTC for LEGO® MINDSTORMS®

This exciting activity pack includes more than 40 lessons for teaching text-based programming relating to engineering challenges for both the NXT and RCX platforms. Providing video-based instruction, the lessons cover the following topics: Movement, Sensing, Variables, Programming, Systems, and Advanced. Includes a set-up guide with software downloads, step-by-step instructions, and troubleshooting information. Requires use of the ROBOTC Software developed by Carnegie Mellon University.
8+ 9841 Intelligent NXT Brick
Programmable 32-bit brick, including Bluetooth™ wireless communication and USB port. Programmable dot matrix display. 4 input, 3 output ports. 6 wire digital platform. 8KHz loud speaker. It is possible to use a number of simple predefined commands directly on the brick. More advanced programming requires software pack 2000077/2000080. Requires 6 AA batteries or the 9798/9693 Rechargeable Battery.

8+ 9842 Interactive Servo Motor
Servo Motor with in-built rotation sensor that measures speed and distance and reports back to the NXT. This allows for motor control within one degree of accuracy. Several motors can be aligned to drive at the same speed. You will need a connector cable, which is included in the 9797 Base Set.

8+ 9843 Touch Sensor
Using the NXT brick, the touch sensor detects pressure – i.e. when the button is pressed or released. The sensor is also able to count single press and multiple presses. A LEGO cross axle can be attached to the sensor button. You will need a connector cable, which is included in the 9797 Base Set.

8+ 9844 Light Sensor
Using the NXT brick, the light sensor is able to sense light or dark as well as light intensity in a room. It is also able to measure light intensity in colours (grey scale sorting). You will need a connector cable, which is included in the 9797 Base Set.

8+ 9845 Sound Sensor
Using the NXT brick, the sound sensor is able to measure noise levels in DB and DBA. It can also recognize sound patterns and identify tone differences. You will need a connector cable, which is included in the 9797 Base Set.

8+ 9846 Ultrasonic Sensor
Using the NXT brick, the ultrasonic sensor is able to detect an object and measure its proximity in inches and centimeters. You will need a connector cable, which is included in the 9797 Base Set.

8+ 9847 USB Bluetooth™ Dongle
The Abe USB Bluetooth adapter enables wireless communication between your PC or Mac and the NXT device. The Abe USB Bluetooth adapter is supported by Microsoft Windows XP, Vista (32 bit) and MacOS X 10.3.9 or newer, with the latest Service Packs.

8+ 9799 Vernier NXT Sensor Adaptor
The Vernier NXT Sensor Adaptor allows you to integrate Vernier sensors with the Intelligent NXT brick and the NXT Software. This enables you to carry out an even wider variety of science experiments and data collection with your students. Embedded in a LEGO NXT sensor housing, the adaptor is very easy to assemble on NXT models.
A wide range of 3rd party sensors are available. They provide even more opportunities to carry out curriculum-relevant activities, experiments and data collection with LEGO® MINDSTORMS® Education. Visit LEGOeducation.com or contact your local dealer for more information.

HiTechnic

A trusted partner since 2006, HiTechnic manufactures a range of sensors for MINDSTORMS. Currently, seven sensors are available—all in MINDSTORMS sensor housing.

Vernier

The 9799 Vernier NXT Sensor Adaptor allows you to use more than 30 analogue Vernier sensors together with MINDSTORMS.

LogIt from DCP

With NXT LogIt Sensor Adaptor from DCP you can use more than 50 analogue and digital sensors with MINDSTORMS.

More Opportunities with 3rd Party Sensors. Visit LEGOeducation.com!

TETRIX® by PITSCO – Revolutionary Metal Building System for MINDSTORMS® Education

TETRIX®

TETRIX® is a new metal building system designed for use with MINDSTORMS Education in higher education and FIRST Tech Challenge competitions! It includes aluminium elements, metal gears, durable drive motors and servos, adding a new dimension to MINDSTORMS Education robots.

Visit LEGOeducation.com or contact your local dealer for more information.