LEGO EDUCATION:

ELEMENTARY SCHOOLS (Primary Grades)
991482 LEGO Education WeDo Construction Set 12-Pack
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 Software and Activity Pack to carry out 12 theme-based activities.
Key Learning Values:
- Designing and making
- Brainstorm to find creative alternative solutions
- Learn to communicate, share ideas and work together

5003422 LEGO Education WeDo software v1.2 & Activity Pack / Site License
5003399 LEGO Education WeDo software v1.2 & Activity Pack
Easy-to-use software and 12 theme-based activities for the WeDo Construction Set in one package! The drag-and-drop software, powered by LabVIEW, is icon-based and provides an intuitive programming environment. Features the digital Getting Started Guide with building tips and programming examples. Activities are divided into four themes: Amazing Mechanisms, Wild Animals, Play Soccer and Adventure Stories and provide up to 24 hours of instruction and project-based learning. Teacher notes, glossary and building instructions included.
Key Learning Values:
- Programming, using software, designing and creating a working model
- Use software to acquire information
- Use feedback to adjust a programming system output
- Working with simple machines, gears, levers, pulleys, transmission of motion
- Measuring time and distance, adding, subtracting, multiplying, dividing, estimating, randomness, using variables
- Narrative and journalistic writing, storytelling, explaining, interviewing, interpreting

991879 WeDo Resource Kit 12-Pack
Features extra and new elements for building large WeDo models that provide even more learning opportunities. Combine with 9580 WeDo Construction Set to build four new models: Ferris Wheel, Crane, Car or House. Includes new elements such as wheels, rotors and a door.

5003454 LEGO Education WeDo STEM Expansion Activity Pack
The LEGO® Education WeDo STEM Expansion Activity Pack supplements the WeDo sets with more advanced STEM activities. Designed for third grade and up for use with the LEGO Education WeDo Construction Set, WeDo Software, and WeDo Resource Set, this activity pack provides an engaging, open-ended series of elementary STEM activities. The series of six main activities and four problem-solving activities integrates STEM and pre-engineering concepts such as physical science, mathematical thinking, engineering, technology, and applications of science. The activity pack is aligned with Common Core State Standards where applicable and includes teacher notes, lesson-planning guidelines, assessment tools, classroom-management tips, and element surveys to help educators easily integrate lessons into the classroom.

ELEMENTARY (Intermediate Grades) / MIDDLE SCHOOLS + Endeavor & Journeys
992087 EV3 CORE SET W/CHARGER 12-PACK
This core set is optimized for classroom use and contains all you need to teach using LEGO® MINDSTORMS® Education EV3. It enables students to build, program, and test their solutions based on real-life robotics technology. It contains the EV3 Intelligent Brick, a powerful small computer that makes it possible to control motors and collect sensor feedback. It also enables Bluetooth® and Wi-Fi communication as well as provides programming and data logging. Students are encouraged to brainstorm in order to find creative solutions to problems and then develop them through a process of selecting, building, testing, and evaluating. This is also an excellent way of getting students to talk to each other and cooperate as well as
giving them hands-on experience with an array of sensors, motors, and intelligent units. Printed building instructions for the Robot Educator model are included in the set, and instructions for four additional models are included in the software. The set also comes in a sturdy plastic storage bin with a sorting tray for easy classroom use and organization. **Software sold separately.**

The set includes:
- Three interactive servo motors with built-in rotation sensors.
- Color sensor, gyro sensor, ultrasonic sensor, and two touch sensors
- Rechargeable battery and charger
- Ball wheel
- Connecting cables.
- Building instructions.
- LEGO Technic building bricks for creating a vast variety of models

**Key Learning Values:**
- Design and build programmable robots using motors, sensors, gears, wheels and axles, and other technical components
- Understand and interpret two-dimensional drawings to create three-dimensional models
- Build, test, troubleshoot, and revise designs to improve robot performance
- Gain practical, hands-on experience using mathematical concepts such as estimating and measuring distance, time, and speed
- Communicate effectively using scientific and technical language

**2000046 EV3 SOFTWARE & SITE LICENCE**

This powerful, easy-to-learn, easy-to-use software for programming and data logging is based on National Instruments LabVIEW™, the industry-leading graphical system design software used by scientists and engineers worldwide. The **EV3 Software** follows the very latest developments in intuitive software design, is optimized for classroom use, and is very student friendly. Programming with the **EV3 Software** is done by dragging and dropping icons into a line in order to form commands. The language’s graphical interface lets students build simple programs and then easily and intuitively build on their skills until they are developing complex algorithms.

The software’s data-logging feature is a powerful science tool for carrying out experiments. It is easy to collect, view, analyze, and manipulate data from sensors and see the data in interactive graphs. Its unique feature, graph programming, makes experiments come alive as students can set threshold values for sensors, such as making a sound when a certain temperature is detected by the sensor.

The built-in content editor enables teachers to customize the curriculum and create their own lessons. It enables students to capture their work directly inside the content creating their own digital workbook, making classroom management and assessment easier.

The software comes with Robot Educator, the learning tool that summarizes what the LEGO® MINDSTORMS® Education software is about. It includes 48 step-by-step multimedia tutorials designed to help educators and students master basic and advanced programming as well as hardware and data-logging functions.

**992117 EV3 Expansion Set 12/Pack**

This set contains a wide range of elements and is an ideal supplement to the **EV3 Core Set**. It has been designed to enable students to take their experience of robotics to the next level. There are plenty of special elements such as different gears, a large turntable, robot personalization parts, and unique structural elements. These are joined by many extra standard elements such as beams, axles, and connectors. This set helps students build larger and more complex models while at the same time providing extra or replacement elements. The set is optimized for use in the classroom and after-school programs or robotics competitions. It will be delivered in a sturdy and stackable plastic storage bin. Online building instructions for six EV3 models that require the Expansion Set are available in the software.

**5003488 EV3 Space Challenge Set & Activity Pack**

Introduce your students to robotics with a very current and real-world theme – traveling to and living on Mars! Students will work as scientists and engineers as they progress through this set of lessons,
challenges, and projects that fully integrate science, technology, engineering, and math concepts while prompting creative problem solving, communication, and teamwork.

The EV3 Space Challenge Set and Activity Pack is composed of three 2’ x 3’ learning mats, one 4’ x 6’ challenge mat, a large number of LEGO® elements for building the challenge models, and 30+ hours of activities in the following categories:

- Basics of Gears: Students apply physical science and math principles to build effective robots.
- Learning Missions: Students progress through nine distinct missions in which they investigate, observe, calculate, and apply their knowledge to solve specific tasks.
- Challenge Missions: Students apply and creatively adapt programming and problem-solving skills to design and build robots to solve seven very different space challenges.
- Research Projects: Students explore, plan, and develop around three fundamental challenges NASA engineers and scientists are working to solve – how to ensure humans can survive in space, how humans can create energy in space, and how robots can help humans explore space.

This multimedia activity pack installs into the LEGO MINDSTORMS® EV3 Software and is accessible from the lobby for an integrated learning and programming experience. The activity pack is complete with detailed teacher notes that ease implementation by providing explanations, sample programs, ideas for differentiation, and more. The LEGO MINDSTORMS Content Editor features all the tools students need to document and present their findings and results as they progress through the material.

The EV3 Space Challenge Set and Activity Pack are designed for use with the LEGO MINDSTORMS Education EV3 Core Set and EV3 Software.

2005576 EV3 Middle School Science Activity Pack
Developed together with Fraunhofer, a global application-oriented research organization, in close collaboration with science teachers, this activity pack consists of 14 physical science experiments for middle school that utilize the data-logging capabilities of the LEGO® MINDSTORMS® Education EV3 hardware and software, as well as the LEGO Education Renewable Energy Set and the MINDSTORMS Temperature Sensor.

The experiments are centered on renewable energy (energy production and consumption), thermal physics (boiling/melting points and heat transmission), mechanics (forces and motions), and light (light intensity). Each experiment is structured to fit within a 45- to 90-minute science lesson with small, engaging LEGO models that do not require a lot of time for building and programming.

The Middle School Science activity pack is correlated to Next Generation Science Standards and will be available in March 2014.

9749 MINDSTORMS Temperature Sensor
This dual-platform digital temperature sensor can be calibrated to measure both Celsius and Fahrenheit using either the LEGO® MINDSTORMS® Education NXT or LEGO MINDSTORMS Education EV3 platform. The sensor is compatible with the intelligent brick from either platform and requires either the LEGO MINDSTORMS Education NXT software v.2.0 or higher or the MINDSTORMS Education EV3 software v.1.01.

9688 Renewable Energy Add-on Set
The Renewable Energy Add-On Set is designed as an addition to the Simple and Motorized Mechanisms Set, the core set in our Machines & Mechanisms range. When the Renewable Energy Add-On Set is combined with the customized activity pack, students will explore renewable energy sources; investigate energy supply, transfer, accumulation, conversion, and consumption; and use measurements and data analysis to describe and explain outcomes through hands-on activities and exciting, real-life models.

2005544 EV3 Design Engineering Projects Activity Pack
A curriculum package with 30 hours of classroom instruction and open-ended, problem-solving activities that make learning science, technology, engineering, and mathematics through real-life robotics engaging and fun for students.

The curriculum features three main sections with five design projects per section, for a total of 15 projects:
• **Make It Move**: Students are challenged to design, build, and program robots that move using motors with rotation sensors. In five projects, students apply mathematics and science knowledge to create robots that measure distance and speed, move without using wheels, maximize power to move up an incline, and move and turn to create regular polygons. Students will also apply their knowledge of simple and complex machines and use ratios to describe proportional relationships.

• **Make It Smarter**: Students are challenged to add sensors to their robots to control behavior and to measure, graph, and analyze sensor data. In five projects, students develop robots that use sensors that measure ambient and reflected light, distinguish specific colors, measure distance from an object, recognize a touch-sensor state (pressed or not pressed, or pressed and released), and measure angular displacement or rate of change.

• **Make a System**: Students are challenged to design, build, and program robotics systems built from subsystems. In five projects, students develop systems that move a ball, pick and place objects, simulate manufacturing, sort colors, and communicate their location. Students test their system, gather data, and use that evidence to engineer system optimizations and improvements.

The structure of the activities in the Design Engineering Projects curriculum mimics the engineering design process used by scientists and engineers in many industries. Each project starts with a design brief explaining the challenge, uses videos of robots in action to make real-world connections, and culminates in a final project that can be shared and presented. Throughout the process, students gain and use knowledge of science, technology, and mathematics as they engineer a solution. This structure is designed to help students develop the 21st-century, creative-thinking, problem-solving, teamwork, and communication skills required for success in school and beyond.

The curriculum is digitally delivered and installs directly into the LEGO MINDSTORMS® Education programming software lobby. The built-in content editor makes classroom management and assessment easier. With it, teachers can customize the curriculum and create their own lessons and students can capture their work directly inside the content to create their own digital workbooks.

**Key Learning Values:**

- Learn and use engineering design process skills
- Understand and use mathematical skills and 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, and forces and interactions
- Understand cross-cutting concepts, such as systems, patterns, structure and function, and logical thinking
- Understand the core concepts of technology
- Understand the role of troubleshooting, invention and innovation, and experimentation in problem solving
- Plan and manage activities to develop a solution or complete a project
- Demonstrate creative thinking and construct knowledge using technology
- Use digital media and environments to communicate and work collaboratively

**HIGH SCHOOLS**

**VEX ROBOTICS.**

**Teach Robotics in the Classroom or Compete Globally with Classroom & Competition Kits**

VEX Classroom & Competition Kits include everything you need to design, build, power and operate robots. Programming software (sold separately) is required for customization of robot control, autonomous programming, integration of sensors and more.

Use [Autodesk’s VEX Robotics Curriculum](#) to start teaching with VEX Robotics, from the basics of engineering, robotics and design all the way up to a semester-ending classroom competition. If you’re fielding a competitive robotics team outside the classroom, these kits include the most popular items used to design and build VEX competition robots.

• **Clawbot Robot Kit** (4 motors included)
- **VEXnet System Bundle**
- **Additional 2-Wire Motor 393**
- Robot Battery, Joystick Batteries and Chargers
- **Mechatronics Add-On Kit** (1 motor, 2 sensors included)
- **Programming Add-On Kit** (2 motors, 7 sensors included)
- Autodesk Inventor Student Version (5-seat license)

**easyC V4 for Cortex (3-options)**

easyC® robotic programming software sets the standard for ease of use without sacrificing power. easyC features a revolutionary user-friendly drag-and-drop programming interface, an integrated compiler, and free tutorials and sample files.

- Customizable, industry standard, tabbed interface
- Integrated ANSI - C Compiler with loader
- Full C text editor for advanced, customized programming
- Enhanced Online window to manually test motors and sensors
- Wireless download over VEXnet or directly using USB
- New suite of Math Functions
- 14 Tutorials and over 50 sample files included
- Competition Switch Simulator allows user to simulate a VEXnet competition match
- Copy and paste code between functions and projects

More information on easyC V4 for Cortex is available [in this document from intelitek](#).

**Microcontroller Compatibility: Cortex Microcontroller**

**User Level**

- Appropriate for Beginners
- Appropriate for Advanced Users