

Explore real life STEM projects.

9688 Renewable Energy Add-On

Cost: \$220.00 (ex-GST)

This set is added to Powered Mechanisms Set 9686 or LEGO Mindstorms Education EV3 Set 45544 and requires a Power Pack 8881 or rechargeable battery pack 8878. Included is a solar panel, turbine blades, an E motor/generator, led lights and a LEGO energy meter. The freely available curriculum allows students to explore solar, wind and water energy sources through real life LEGO models. The concepts of energy supply, transfer, conversion and consumption are applied to real world scenarios that engages students in engineering and design. Download the **Activity Pack for Renewable Energy and EV3 Science Activities** to enhance the STEM learning for your students.

8881 Power Pack Cost: \$20.00 (ex-GST)
8878 Rechargeable Power Pack Cost: \$100.00 (ex-GST)

KEY LEARNING VALUES

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- %j wkyysl %si %/fi rsl %fyf3
- %j xyl fysl %si %f qfysl % {f mfg x3
- Engage students in% engineering fsi %j xh s% ymtrl m% f qj % ti j q3

WHAT TO BUY

RE6 - Renewable Energy Add On for 6 students
• 3 x 9688

Cost: \$610.00 (ex-GST)
SAVE \$50.00

RE12 - Renewable Energy Add On for 12 students
• 6 x 9688

Cost: \$1220.00 (ex-GST)
SAVE \$100.00

RE24 - Renewable Energy Add On for 24 students
• 12 x 9688

Cost: \$3,060.00 (ex-GST)
SAVE \$250.00

WHAT TO BUY

PA6 - Pneumatics Add On for 6 students
• 3 x 9641

Cost: \$310.00 (ex-GST)
SAVE \$50.00

PA12 - Pneumatics Add On for 12 students
• 6 x 9641

Cost: \$620.00 (ex-GST)
SAVE \$100.00

PA24 - Pneumatics Add On for 24 students
• 12 x 9641

Cost: \$1,190.00 (ex-GST)
SAVE \$250.00

9641 Pneumatics

Cost: \$120.00 (ex-GST)

This set is added to Powered Mechanisms Set 9686. It includes building instructions, pumps, tubes, cylinders, valves, air tank and manometer. The freely available curriculum allows students to investigate power systems, components and pressure measuring in psi and bar while building real life LEGO models such as a scissor lift, a robotic arm and stamping press. Download the **Activity Pack for Pneumatics** to enhance your students STEM learning. www.legoeducation.com.au/downloads

Build Future Engineers.

9686 Powered Mechanism Set and Curriculum

Cost: \$300.00 (ex-GST)

This set builds real life machines incorporating:
• Gears; • Levers; • Pulleys; • Wheels & Axles

10 basic principle models and 18 main models.

Contains 396 elements including motor, power pack, storage box and sorting trays

Activity Pack for Simple & Powered Machines freely downloaded www.legoeducation.com.au/downloads

Covers concepts in forces and motion, energy and structures. Includes lesson plans and student record sheets.

Activity Pack for Advanced Mechanisms freely downloaded

Real life video clips. 20 lessons investigating forces, equilibrium, friction and mechanical advantage. Includes lesson plans and student record sheets.

KEY LEARNING VALUES

- Investigating simple and advanced mechanisms
- Understanding physics and maths concepts
- Engage students in practical, open-ended engineering challenges and problem solving

WHAT TO BUY

PM6 - Powered Mechanisms for 6 students
• 3 x 9686

Cost: \$850.00 (ex-GST)
SAVE \$50.00

PM12 - Powered Mechanisms for 12 students
• 6 x 9686

Cost: \$1600.00 (ex-GST)
SAVE \$200.00

PM24 - Powered Mechanisms for 24 students
• 12 x 9686

Cost: \$3,100.00 (ex-GST)
SAVE \$500.00

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www.mooreed.com.au

ABN 41 889 529 741
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Student Worksheet

Gear Racer

Name(s): _____ Date and Subject: _____

Build the Gear Racer
(Building Instruction 18A and 18B to page 17, step 20)

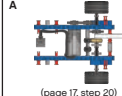
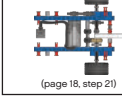
- Keep the power lead clear of all moving parts
- Try the two gear position and make sure the gears mesh

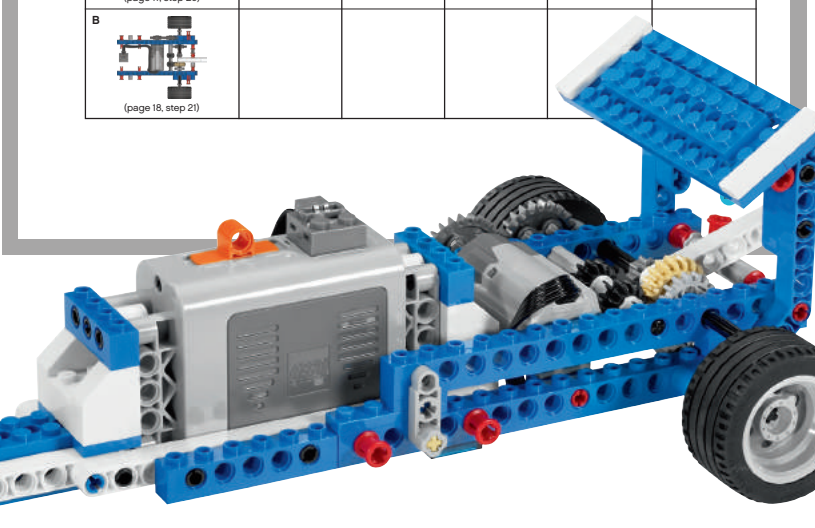
Mark a test track.
• Mark a start line and finish line 2 m (~2 yd) apart

Why does a Gear Racer use a gear box?
Due to the gears in a Gear Racer it can deliver the best in both power and speed transmission. Calculate the average speed of the Gear Racer by using this formula:

$$\text{Average speed} = \frac{\text{Distance}}{\text{Time}}$$

First, calculate the gear ratio of the Gear Racer with the gear set in position A and predict how much time the Gear Racer will need to do the 2 m (~2 yd) stretch.
Then test your prediction and calculate the average speed.
Next, follow the same procedure for the Gear Racer with the gear set in position B.

Gear Racer Gear box setting	Gear ratio	Predicted time	Actual time	Percentage of accuracy	Average speed
A  (page 17, step 20)					
B  (page 18, step 21)					



Engage your students in STEM with inspiring Maker experiences using the Simple Machines or Powered Machines MAKER curriculum freely downloaded. www.legoeducation.com.au/downloads

For a quotation on your specific requirements or to place an order;

Ph:1800 684 068 Fax:03 9338 5599

Email: sales@mooreed.com.au
Online: www.mooreed.com.au

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education

2019

ENHANCING

THE

STEM

LEARNING

EXPERIENCE



About LEGO® Education

LEGO Education provides a continuum of hands-on, learning tools that engage every student's natural curiosity and help them develop the 21st century skills and confidence they'll need in the future.

www.mooreed.com.au

Teacher Professional Learning

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Discover LEGO® MINDSTORMS® Education EV3.

LEGO Mindstorms Education EV3 empowers students to succeed at STEM & coding by combining the creativity of LEGO bricks , powerful software and engaging real world challenges.



45544 LEGO® MINDSTORMS® Education EV3 Core Set, Software and Curriculum
Cost: \$670.00 (ex-GST)
This set contains a full solution that includes the download of the core EV3 software and all teaching curriculum to implement an effective STEM program.

Create engaging curriculum focused learning with EV3.

- EV3 Coding Activities
- EV3 Design Engineering Projects
- EV3 Space Challenge
- EV3 Science Activities

www.legoeducation.com.au/downloads

541 elements are contained in a storage box and trays.
1X Intelligent brick to control motors and collect sensor feedback.
1 x medium, 2 x large servo motors, 1 x colour sensor, 1 x ultra sonic sensor, 1 x gyro sensor, 2 x touch sensors, rechargeable battery and RJ12 connector cables

Build five engaging models:

- Gyroboy
- Robot Arm
- Puppy
- Colour Sorter
- Edubot

Requires:
45517 – Battery Charger
Cost: \$55.00 (ex-GST)

Compatible

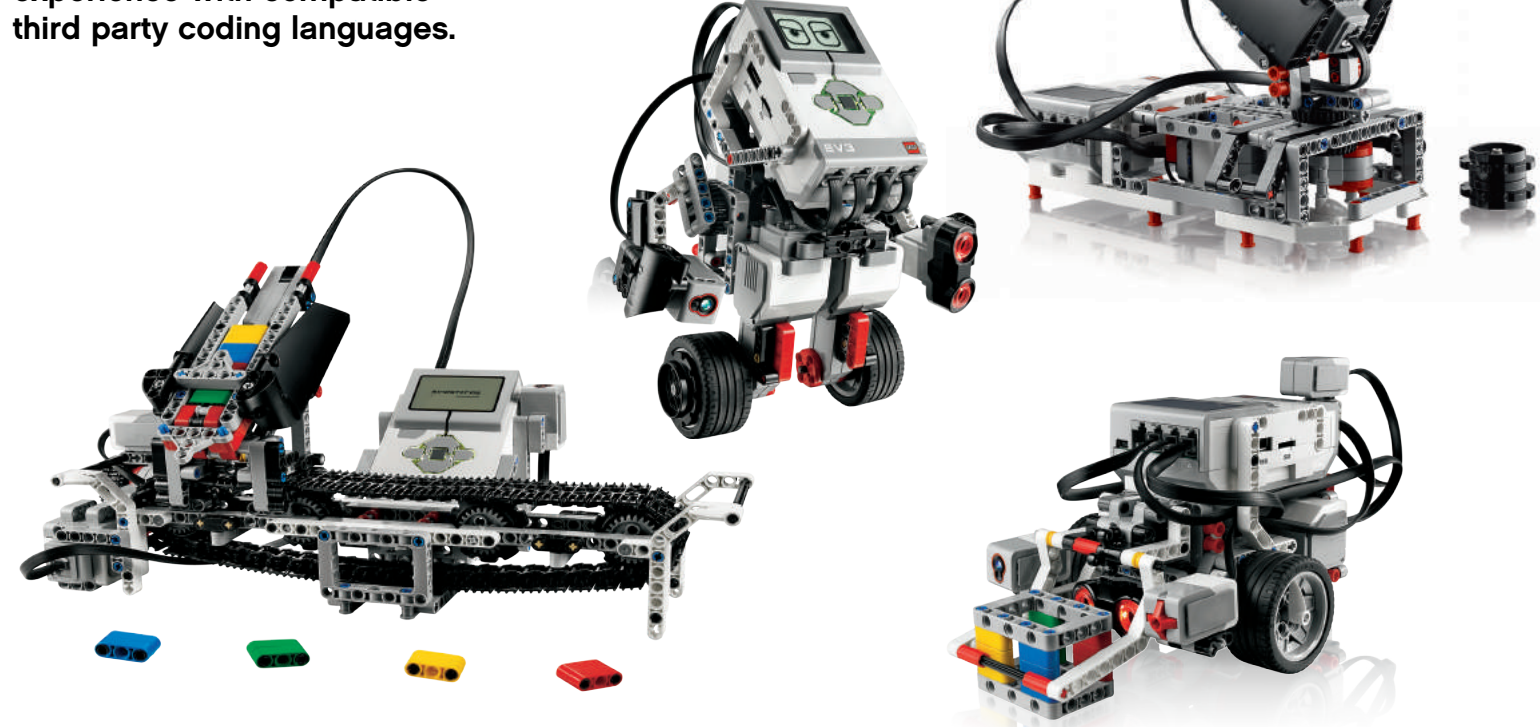
with

Scratch 3.0

Microsoft MakeCode

Enhance the EV3 Learning experience with compatible third party coding languages.

Apple Swift Playgrounds



It's easy to get up and running.

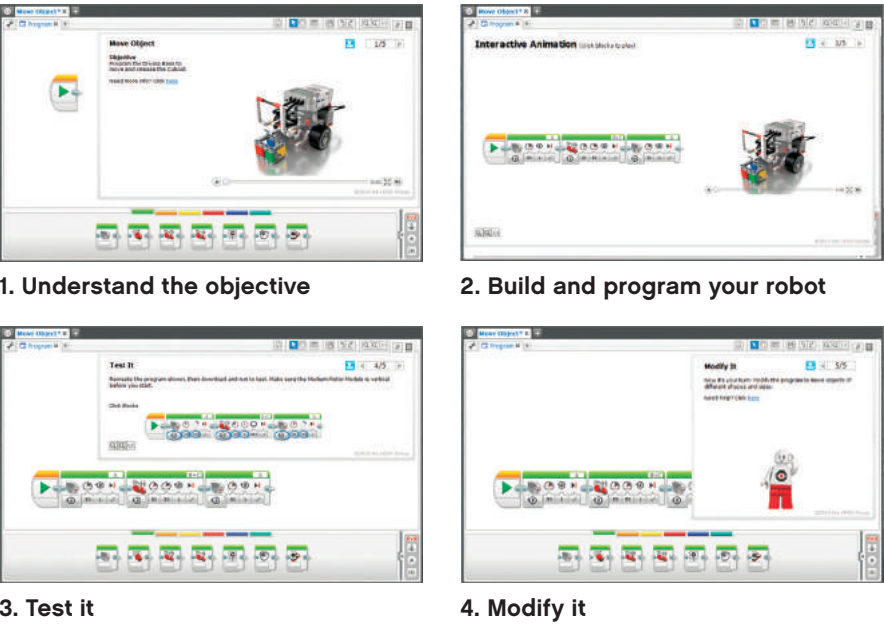


- Easy to use software**
- Optimised for classroom use
 - From simple drag and drop programming to complex algorithms

45 Step-by-Step Tutorials included in core software

- | | | |
|--|--|---|
| ■ Software Introduction <ul style="list-style-type: none">• Basic programming (1 hour)• Data wires• Data logging | ■ Hardware Introduction <ul style="list-style-type: none">• Sound, light display (4 hours)• Motors, sensors• On brick programming | ■ Basics (5 hours) <ul style="list-style-type: none">• Turns, angles• Avoid objects• Follow a line |
| ■ Advanced (12 hours) <ul style="list-style-type: none">• Loop / Switch• Maths / Trigonometry• Variable / Arrays• Logic / Calibration• Sending messages | ■ Graphing (5 hours) <ul style="list-style-type: none">• Data logging• Prediction / Analysis• Data set calculations• Graph programming | ■ Tools (5 hours) <ul style="list-style-type: none">• Sound editor• Image editor• Remote control• My blocks |

Tutorial flow



WHAT TO BUY

- EV32 for 2 students**
- 45544 EV3 Core Set
 - 45517 Charger
- Cost: \$700.00 ex-GST**
SAVE: \$25.00
- EV38 for 8 students**
- 4 x 45544 EV3 Core Sets
 - 2 x 45517 Chargers
 - 1 x Bonus PD Voucher
- Cost: \$2,590.00 ex-GST**
SAVE: \$300.00
- EV310 for 10 students**
- 5 x 45544 EV3 Core Sets
 - 3 x 45517 Chargers
 - 1 x Bonus PD Vouchers
- Cost: \$3,265.00 ex-GST**
SAVE: \$350.00
- EV312 for 12 students**
- 6 x 45544 EV3 Core Sets
 - 3 x 45517 Chargers
 - 2 x Bonus PD Vouchers
- Cost: \$3,825.00 ex-GST**
SAVE: \$560.00
- EV316 for 16 students**
- 8 x 45544 EV3 Core Sets
 - 4 x 45517 Chargers
 - 3 x Bonus PD Vouchers
- Cost: \$5,020.00 ex-GST**
SAVE: \$860.00
- EV320 for 20 students**
- 10 x 45544 EV3 Core Sets
 - 5 x 45517 Chargers
 - 4 x Bonus PD Vouchers
- Cost: \$6,125.00 ex-GST**
SAVE: \$1,200.00

Program with the tablet app
The EV3 Programming app is a simple and effective way of getting started with LEGO MINDSTORMS Education EV3 using the intuitive icon-based programming environment (data logging not available). iPad, Android & Chrome book compatible.



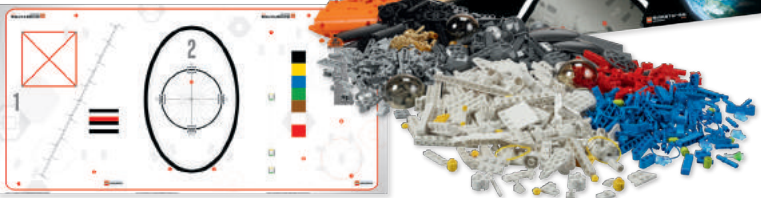
Engage your students in STEM.

45570 LEGO® MINDSTORMS® Education EV3 Space Challenge Set and Curriculum
Cost: \$360.00 (ex-GST)

Teach CODING and STEM concepts around the theme of a mission to Mars using your EV3 robots with this set and curriculum.
Includes 3 x training mats, 1 x space mat, LEGO® Bricks. Requires 45544 sets.

- Space Challenge Curriculum freely downloaded**
- 9 Learning Missions encouraging investigation, observation and calculation.
 - 7 Challenge Missions to design robots to solve real world space challenges.
 - Research Projects to ignite curiosity of space exploration

(Robots not included.)



KEY
LEARNING
VALUES

- Develop Computational Thinking skills through coding and solving real-world problems
- Create algorithms (a series of ordered steps)
- Engage students in practical, open-ended engineering challenges and open-ended problem solving



Add to the EV3 Core Set to build bigger, more complex models.

45560 LEGO® MINDSTORMS® Education EV3 Expansion Set
Cost: \$180.00 (ex-GST)

853 elements to create six more complex robots. Building plans in EV3 core software.

- Elephant
- Stair Climber
- Tankbot
- Remote Control
- Spinning Line
- Znap

