

# LEGO® Education BricQ Motion

ENCOURAGE STUDENTS TO DISCOVER  
PHYSICAL SCIENCE IN ACTION



# Hands-On Learning with LEGO® Education Solutions

## Learning Is "Hands-On" and "Minds-On"<sup>1</sup>

- Increases brain activation related to agency, decision-making, and flow<sup>2</sup>
- Enhances memory encoding and retrieval processes that support learning<sup>3</sup>
- Allows the brain to exercise the networks responsible for executive control skills, such as tuning out distractions, which benefits short-term and lifelong learning<sup>4</sup>

1. Learning through play: a review of the evidence, The LEGO Foundation, Jennifer M. Zosh, Emily J. Hopkins, Hanne Jensen, Claire Liu, Dave Neale, Kathy Hirsh-Pasek, S. Lynne Solis, and David Whitebread, November 2017

2. Kuhn, Brass, & Haggard, 2012

3. Johnson, Singley, Peckham, Johnson, & Bunge, 2014

4. Diamond, 2013



Every hands-on solution incorporates our five characteristics of playful learning: joyful, actively-engaging, socially-interactive, iterative, and meaningful.

# The LEGO® Education Learning Continuum



## EARLY LEARNING

STEAM Park  
Coding Express

...and many more



## PRIMARY

WeDo 2.0  
**BricQ Motion Essential**



## SECONDARY

LEGO® Education SPIKETM Prime  
**BricQ Motion Prime**  
LEGO MINDSTORMS® Education EV3

## PROFESSIONAL DEVELOPMENT

# What *is* LEGO® Education BricQ Motion?



# Delivering Strong Learning Outcomes

**Encourage students to discover physical science in action!**

They will:

- Investigate push and pull forces and use evidence to solve problems
- Apply scientific inquiry skills to show how the forces acting on an object can change its motion
- Practice applying cause and effect & balanced and unbalanced forces to design, develop, and optimize a solution
- Strengthen oral communication skills as they participate in collaborative conversations and present their ideas

## INTRODUCTORY

Offers a simple introduction to the LEGO® Education way of learning

## EASY HANDS-ON

Cool "aha" moments by setting bricks in motion; no technology is required

## PHYSICAL SCIENCE

Standards-aligned physical science curriculum units



# What is LEGO® Education BricQ Motion Essential?

## LEGO® Education BricQ Motion Essential SET

- 523 LEGO bricks (including replacement elements)
- 2 printed building instructions booklets
- Sturdy storage box with color-coded sorting trays

## UNIT PLANS

- *Train to Win* (lower primary)
- *Winning with Science* (upper primary)



## ONLINE SUPPORT

- "Getting Started" material
- Lesson plans
- Assessment tools
- Online self-guided professional development

## ADD-ONS

- Facilitated training & professional development

# What is LEGO® Education BricQ Motion Prime?

## LEGO® Education BricQ Motion Prime SET

- 562 LEGO bricks (including replacement elements)
- 1 printed building instructions booklet
- Sturdy storage box with color-coded sorting trays

## UNIT PLANS

- *Science of Sports* (secondary school)



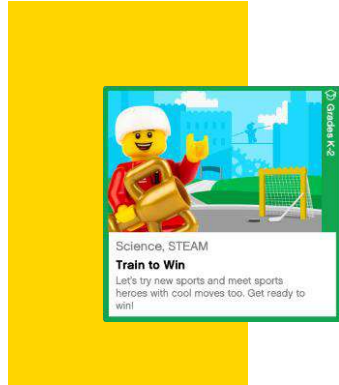
## ONLINE SUPPORT

- "Getting Started" material
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## ADD-ONS

- Facilitated training & professional development

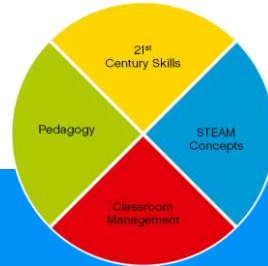
# Solution Components



Curriculum Units



Bricks



Professional Development & Teacher Training





# Curriculum

## UNIT PLANS

EXPLORE THE SCIENCE OF FORCES, MOTION, AND INTERACTIONS WITHIN A PLAYFUL SPORTS CONTEXT WHILE FOSTERING CREATIVITY AND DEVELOPING ENGINEERING AND MATH SKILLS.



Grades K-2


Science, STEAM

**Train to Win**

Let's try new sports and meet sports heroes with cool moves too. Get ready to win!

# Curriculum Unit Overview

## Unit 1 Lower Primary



Grades K-2

Science, STEAM

### Train to Win

Let's try new sports and meet sports heroes with cool moves too. Get ready to win!

## Unit 2 Upper Primary




Grades 3-5

Science, STEAM

### Winning With Science

Try track and field, ride a bobsled down an ice track, score some hoops, and be a race car winner. Be the best that you can be!

## Unit 3 Secondary



Grades 6-8

Science, STEAM

### Science Of Sports

Downhill pro skier, amazing gymnast, free kick marvel, or land speed genius... are you ready to be the next champion?



**7-8 lessons of 45 min. each**  
(two 45-min. open-ended projects)



**30+ min.**  
language arts & math extensions for each lesson

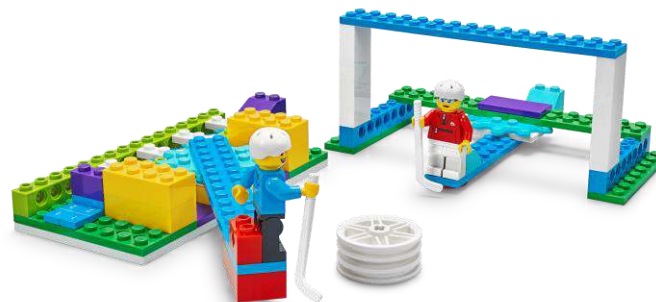


**6-10 hours**  
of educational content

# Train to Win Unit

## LOWER PRIMARY

### Exploring Push and Pull Forces



### LEARNING PROMISE

This unit will give your students an understanding of forces and motion as they plan and conduct investigations about the cause and effect of push and pull forces.

These seven lessons will introduce your students to the process of asking and answering questions, data analysis, and how to present their ideas. They'll work toward determining whether design solutions work as they were intended, to change the speed or direction of an object with a push or a pull.

# Winning with Science Unit

## UPPER PRIMARY

### Observing Patterns of Motion



### LEARNING PROMISE

This unit will develop your students' understanding of forces and motion as they engage in and conduct investigations about the effects of balanced and unbalanced forces. They'll investigate the patterns in an object's motion, developing and sharpening their ability to predict its future motion. Along the way, they'll develop their collaborative conversation skills as they effectively engage in a range of discussions.

# Science of Sports Unit

## SECONDARY

Focus on Exploring Forces and Mass



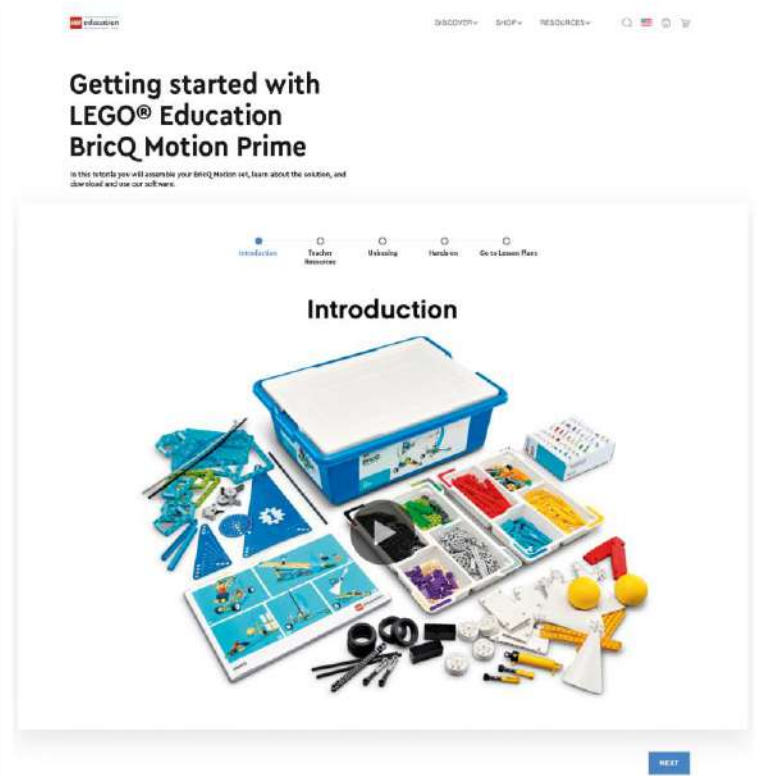
### LEARNING PROMISE

In this unit, your students will apply their scientific inquiry skills as they provide evidence of the change in an object's motion based upon its force and mass.

Your students will practice applying Newton's laws of motion in order to design, develop, and optimize a solution that involves the collision of two objects. They'll strengthen their oral communication skills as they present and analyze solutions in collaborative discussions.

# Easy "Getting Started" Support

LEGOeducation.com/start



A "Getting Started" introduction with a clear and simple flow.

- Introduction
- Teacher Resources
- Unboxing
- Hands-On
- Go to Lesson Plans

# Quick access to teacher support sets you up for success!

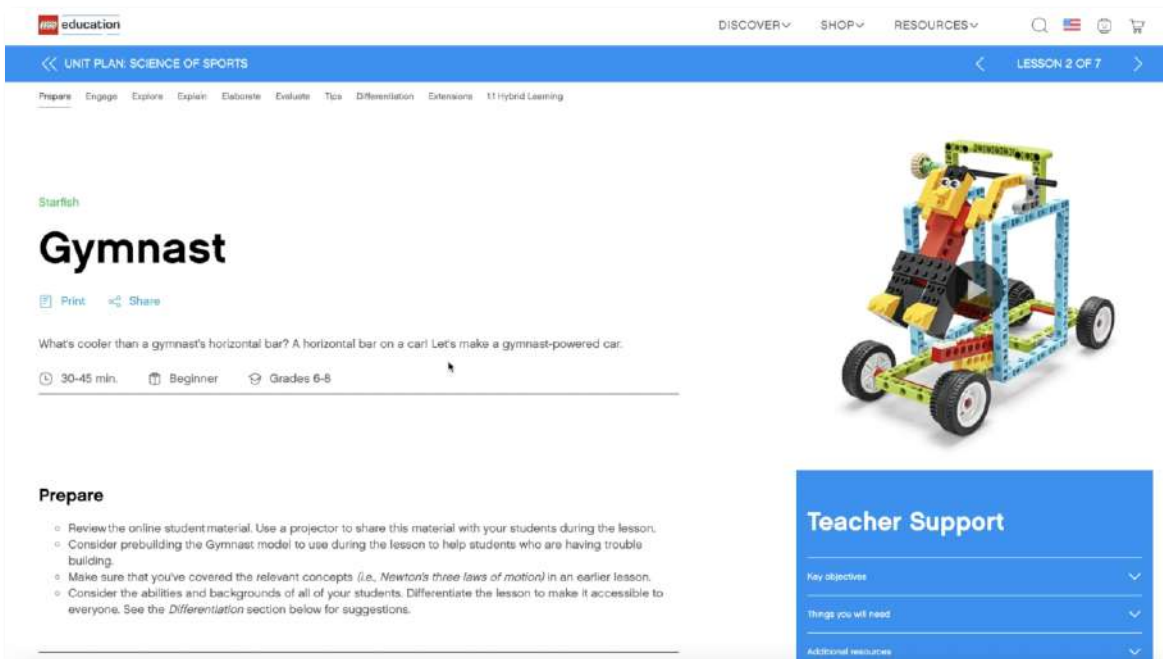
Every curriculum unit includes free content on [LEGOeducation.com/lessons](https://LEGOeducation.com/lessons)

## Lesson Plans

- Teacher guide videos
- Student "engage" videos
- Student worksheets
- Projectable student directions
- Tips to simplify or extend lessons
- Language arts extension
- Math extension

## Additional Resources

- Assessment rubrics
- Hybrid learning resources
- Building instructions



The screenshot displays the LEGO Education website interface. At the top, there are navigation links for 'DISCOVER', 'SHOP', and 'RESOURCES', along with search, language, and user icons. The main content area is titled 'UNIT PLAN: SCIENCE OF SPORTS' and 'LESSON 2 OF 7'. Below this, there are tabs for 'Prepare', 'Engage', 'Explore', 'Explain', 'Elaborate', 'Evaluate', 'Tips', 'Differentiation', 'Extensions', and 'Hybrid Learning'. The lesson title 'Gymnast' is prominently displayed, accompanied by a 'Print' and 'Share' button. A brief description reads: 'What's cooler than a gymnast's horizontal bar? A horizontal bar on a car! Let's make a gymnast-powered car.' Below the description, it indicates a duration of '30-45 min.', a difficulty level of 'Beginner', and 'Grades 6-8'. A 'Prepare' section lists three bullet points: 'Review the online student material. Use a projector to share this material with your students during the lesson.', 'Consider prebuilding the Gymnast model to use during the lesson to help students who are having trouble building.', and 'Make sure that you've covered the relevant concepts (i.e., Newton's three laws of motion) in an earlier lesson.' To the right of the text is a photograph of a completed LEGO model of a gymnast-powered car. At the bottom right, there is a blue sidebar titled 'Teacher Support' with expandable sections for 'Key objectives', 'Things you will need', and 'Additional resources'.

# Bricks

EXPERIENCE PHYSICAL SCIENCE  
IN ACTION THROUGH COOL  
CREATIONS WITH FAMILIAR  
LEGO® BRICKS AND FUNCTIONAL  
ELEMENTS.





# Familiar LEGO® Bricks

including special functional elements

## PRIMARY



- Gears
- Weighted bricks
- Springs
- Visible math
- Sports accessories

## SECONDARY



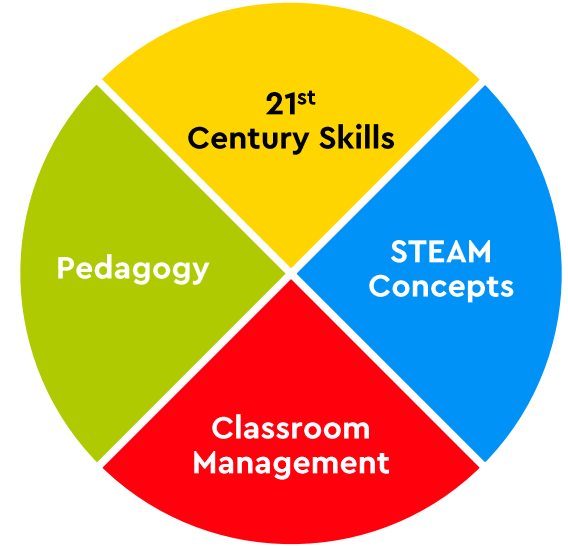
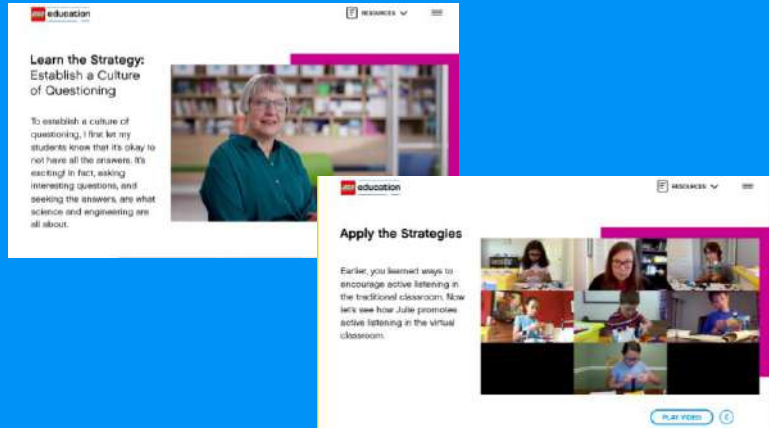
- Technic gears
- Weighted bricks
- Springs
- Pneumatics
- Visible math



# Professional Development

# Professional Development

A personalized program that inspires teachers to learn, practice, and master the competencies necessary to facilitate hands-on, playful STEAM learning.





# Hybrid Learning with LEGO® Education

# With LEGO® Education, playful and engaging STEAM learning can happen anywhere.

- Curriculum activities and student support across multiple learning environments
- Simple and flexible hybrid learning tools to continue strong learning outcomes outside of the classroom

## Guidelines

### LEGO® Education Hygiene Guidelines

We choose high-quality materials for our LEGO® and DUPLO® elements to give children the safest and best learning experience possible. To support teachers in following the latest local guidance on cleaning & disinfecting classrooms and learning materials, we've developed the following guidelines.



Before cleaning your LEGO® elements, ensure that you follow your local education department and/or health agency's guidance.

Be sure to avoid submerging or spraying your electronic/intelligent hardware with any liquid solution. Instead, wipe gently.

## Lessons

The screenshot shows a lesson page for 'Puppet Show' on the LEGO Education website. At the top, it says 'Create a puppet that moves using LEGO® Education SPIKE™ Prime.' Below this are two challenge cards: 'Think Like an Engineer: How will you make it? Will it be an animal or a robot?' and 'Think Like a Scientist: How does it move? How does it work? How would you improve it?'. Underneath, there are three 'Example Ideas' with images: 'String Puppet of a Person', 'Shadow Puppet of a Cat', and 'Food Puppet of a Snake in a Basket'. At the bottom, there are navigation buttons for 'Previous', 'All lessons', and 'My grid content'.

## Professional Development



# Hybrid Learning Packages

- Combine the classroom sets with the Personal Learning Kits to reinforce learning outcomes remotely
- Provide lesson extensions to deepen in-class learning after class
- Additional teaching resources and Student Worksheets linked directly to the classroom lessons to reinforce learning
- Personal Learning Kits designed for individual use
- Classroom sets can be shared by 2 students
- Appropriate packages are available based on usage across classrooms and grades



# Thank you!

