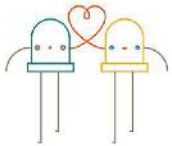
ARDUINO SCIENCE KIT PHYSICS LAB

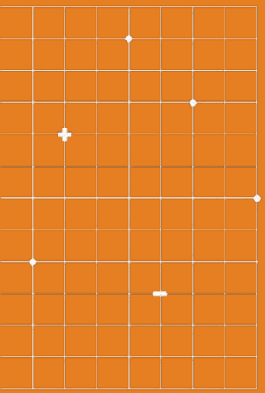
Designed for scientific explorations

28|02|19

THE FIRST ARDUINO KIT FOR MIDDLE SCHOOL

LET YOUR STUDENTS DEVELOP TRANSFERABLE SKILLS, CRITICAL THINKING AND PROBLEM SOLVING THROUGH AN INQUIRY-BASED LEARNING APPROACH





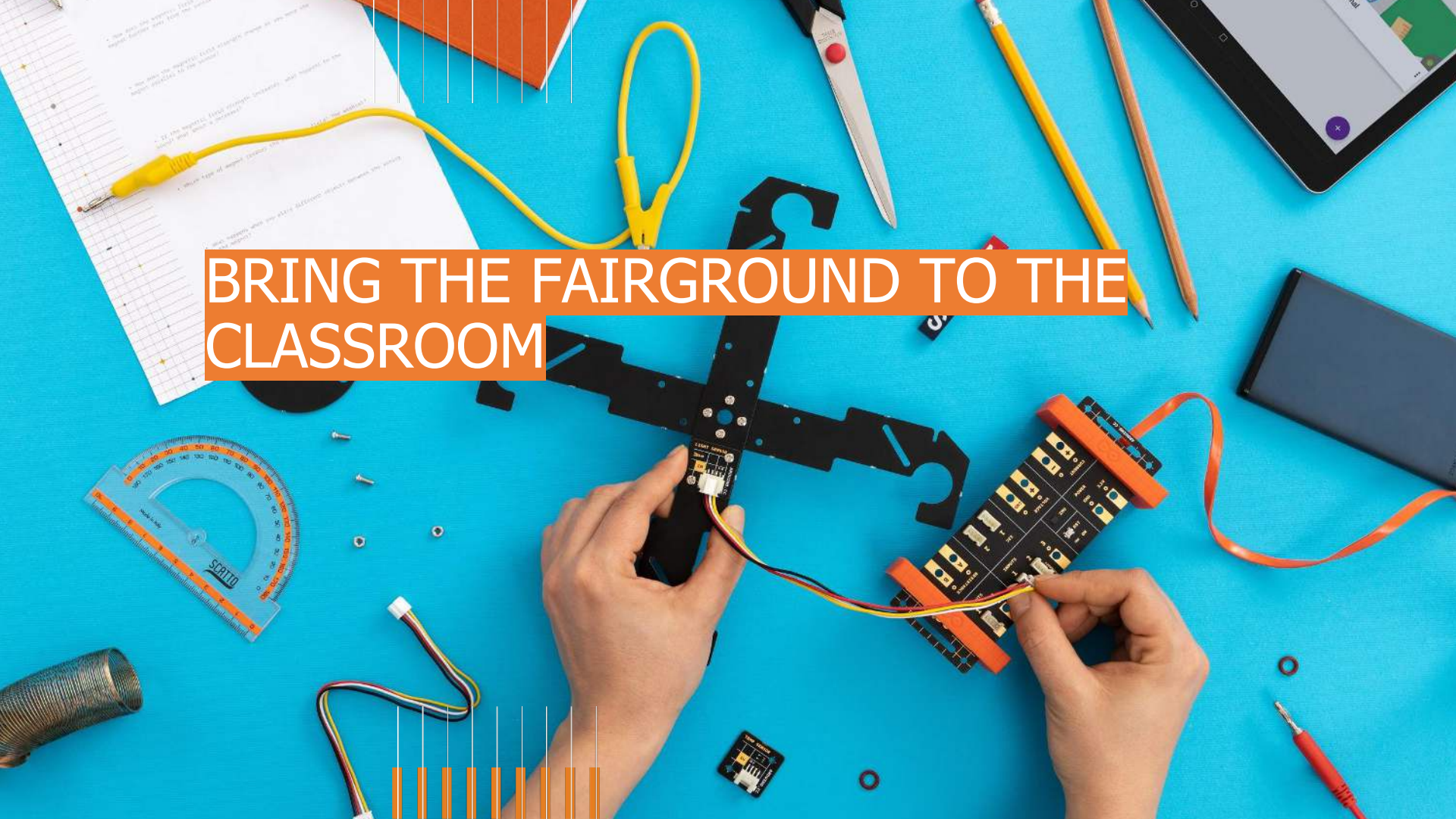
EXPERIMENT FORCES, MOTION, MAGNETISM, AND CONDUCTIVITY WITH YOUR CLASSROOM

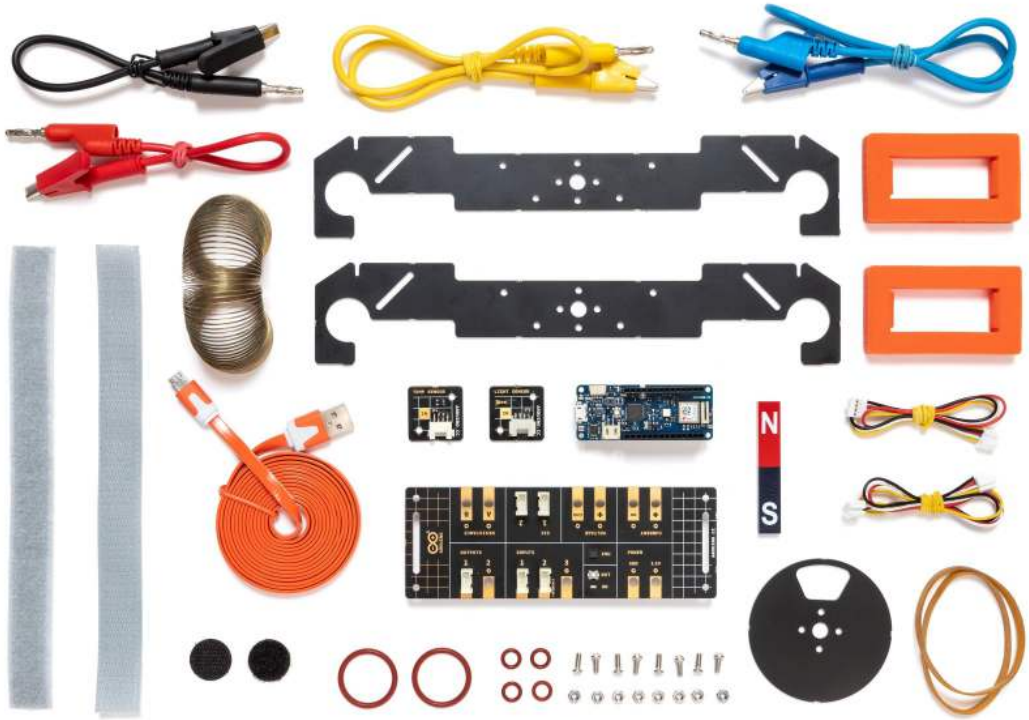
DEVELOPED IN PARTNERSHIP WITH GOOGLE

- Arduino-based physics lab
- No coding experience required
- Aligned with NGSS and National UK Curricula*
- Data collection and analysis through the Google Science Journal App**
- Compatible with Google Classroom

WORKS WITH Science Journal an initiative by Google

* More national curricula alignment underway
**Available on Android Devices only


BRING THE FAIRGROUND TO THE CLASSROOM



Recommended for 2 students and a teacher, it includes materials to run 9 exciting experiments.

BASED ON MKR WIFI 1010

ACTIVITIES CONTENTS

JOIN THE ARDUINO PHYSICS CARNIVAL

ELECTROMAGNETISM & THERMODYNAMICS

ELECTRIC FORTUNE TELLER

Can you guess a shocking fortune? What does your future hold? Let's find out!

BUZZ WIRE MAZE

Steadiest hand wins! Build a conductive 'maze' and then try to avoid the buzzer as you guide the loop around your course!

HAUNTED HOUSE THEREMIN

Did you hear that? Make paranormal sounds with a magnet!

THERMO MAGIC SHOW

It's not magic, it's science! Learn about how different materials conduct or insulate heat.

KINETICS & KINEMATICS

DROP ZONE

Can you slide faster than your friends? Explore gravity and measure the acceleration of your Arduino board.

SPRING RIDER

Make your Arduino board bounce to learn about harmonic motion!

GRAVITRON

Learn about rotations per minute, circular motion, the force required to spin this ride, and the relationship to centrifugal forces.

PIRATE SHIP

What changes the speed and duration of a swing? Captain the ship and test the oscillation of a pendulum.

CENTRIFUGE

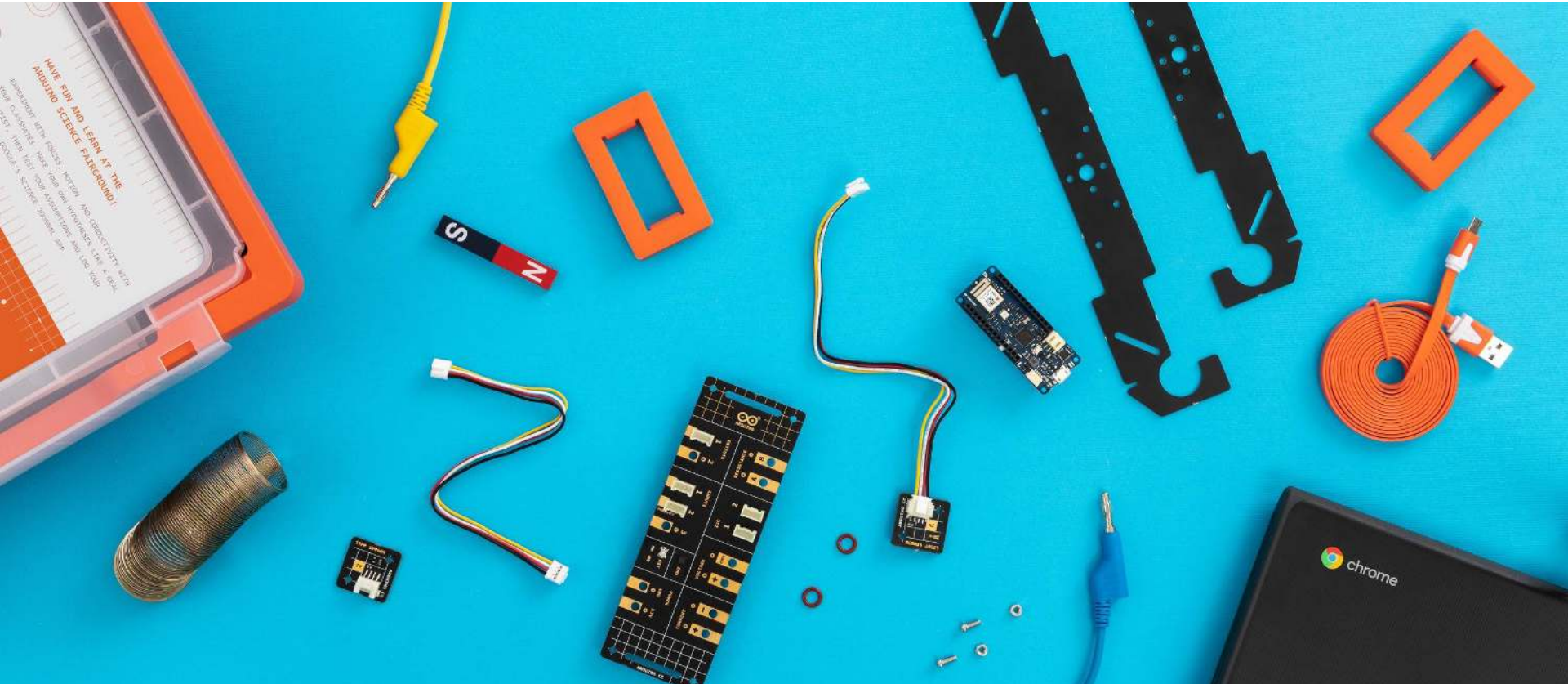
How much energy can you store in a rubber band? Don't get dizzy... Learn about potential energy and motion!

SUBJECT AREA	ACTIVITY NO.	ACTIVITY NAME	DESCRIPTION
Getting Started	1	**GETTING STARTED**	Setup your devices
Electromagnetism and Thermodynamics	2	**ELECTRIC FORTUNE TELLER**	Investigate conductivity of different materials
Electromagnetism and Thermodynamics	3	**BUZZ WIRE MAZE**	Steadiest hand wins! Build a conductive 'maze' and then try to avoid the buzzer as you guide the loop around your course
Electromagnetism and Thermodynamics	4	**HAUNTED HOUSE THEREMIN**	Did you hear that? Make spectacular sounds with a magnet and the magnetometer sensor
Electromagnetism and Thermodynamics	5	**THERMO MAGIC SHOW**	Measure the changes in temperature by comparing what materials are better insulators or conductors of heat
Kinetics and Kinematics	6	**DROP ZONE**	Explore gravity and measure the acceleration of your Arduino board
Kinetics and Kinematics	7	**GRAVITRON**	Learn about rotations per minute, circular motion, the force required to spin this ride, and the relationship to centrifugal forces
Kinetics and Kinematics	8	**PIRATE SHIP**	Captain the ship and test the oscillation of a pendulum
Kinetics and Kinematics	9	**SPRING RIDER**	You will determine the amount of energy stored in the elastic bands by measuring the motion created by the Centrifuge as it runs using Science Journal and accelerometers
Kinetics and Kinematics	10	**CENTRIFUGE**	You will determine the amount of energy stored in the elastic bands by measuring the motion created by the Centrifuge as it runs using Science Journal and accelerometers

EASY TO ASSEMBLE AS 1, 2, 3!

REAL DATA STREAM, IN REAL-TIME

EACH ARDUINO KIT INCLUDES



01	Arduino MKR WiFi 1010	02	Grove Cable 20cm - universal 4-pins connector	02	PCB Sticks	06	Silicone Gaskets
01	Arduino Science Carrier Board	02	Double-ended cable: crocodile clip/banana plug (50 cm)	01	PCB encoder		
02	Silicone Standoffs	02	Double-ended cable crocodile clip/banana plug (20 cm)	01	Mini Slinky Metal Spring		
01	Flat Micro USB Cable	01	Magnet Bar	08	M3 Screws		
01	Light Sensor with Grove Connector	01	Hook-and-loop Velcro™ strap	08	M3 Bolts		
01	Temperature Sensor with Grove Connector	01	Hook-and-loop Velcro™ dot	04	Rubber bands		

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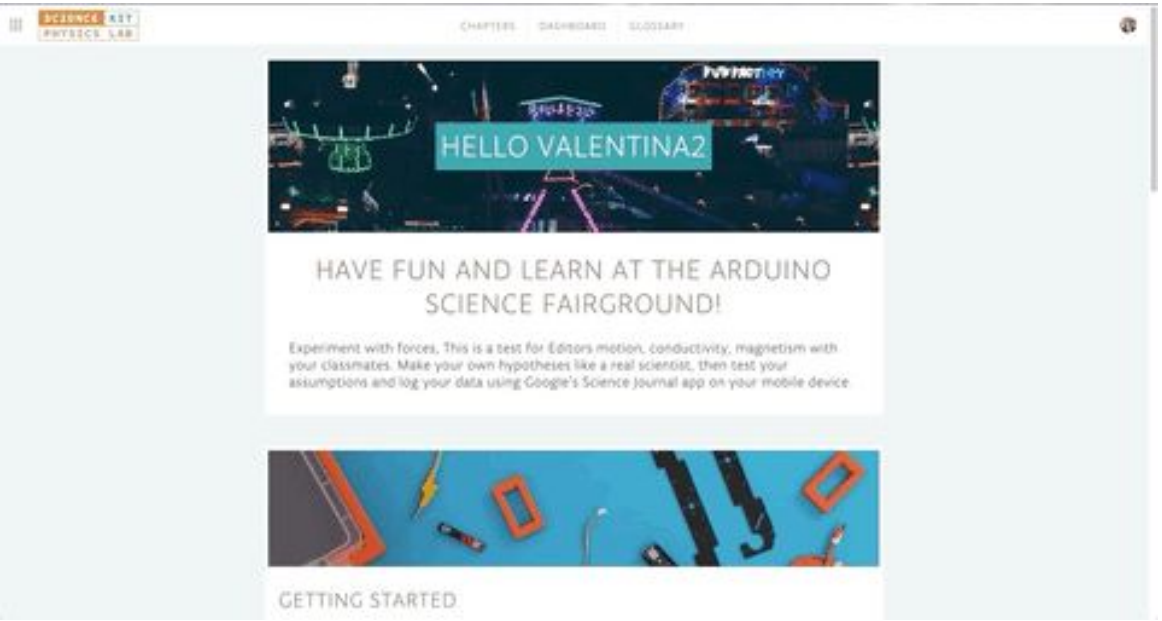

Access code to **exclusive online course content**, **teachers' guidance notes**, and **students worksheets.**

Google’s Science Journal

Now available on Android and Chrome OS Systems supporting Android

Improved BLE connectivity

Integration of new sensors

THANK YOU!

STORE.ARDUINO.CC/PHYSICS-LAB