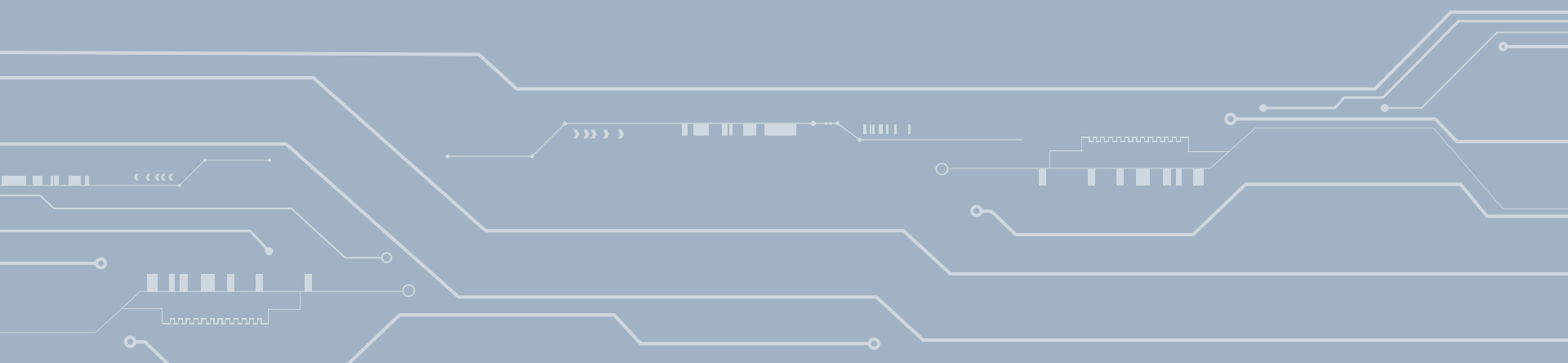


# PASCO

## WIRELESS SENSOR SOLUTIONS



### INNOVATION

Since 1964, PASCO has been designing and manufacturing innovative tools for science teachers that help students make measurements and visualize phenomena.

# PASCO Science Solutions... Since 1964!



“Students need modern tools and technology to succeed in STEM. At PASCO, we have been creating and manufacturing award-winning, hands-on science education tools and datalogging solutions since 1964. With our unique blend of dedication and experience, we think no one combines innovative, easy-to-use products with world-class support like we do.”

Richard Briscoe  
President | CEO  
PASCO Scientific

**PASCO**



# PASCO Science Solutions



## Starter Lab Stations

These lab station kits make it easy to use sensor-based technology in the science classroom. There are lab stations for Biology, Chemistry, Agricultural Science, Physics, Middle School Science, and K-5 Science.



## Sensor Technology

Our innovative sensors, including our award-winning wireless sensors, are low-cost, rugged, and easy to use. PASCO now offers more than 25 wireless sensors.



## Curriculum & STEM Kits

The Essential curriculums are the only curricular solutions that include a Student Textbook, an e-Book, Teacher e-Resources, Lab Manuals, and award-winning equipment kits.



## Storage & Classroom Management

Use these rolling carts and storage trays to decrease your classroom management time and increase teaching and learning time.



## Data Collection + Coding

Intuitive SPARKvue® works on iOS, Android™, and Chrome™, as well as Mac® and Windows® computers. And SPARKvue now has block-based coding by Blockly, for sense and control investigations.



## Professional Development & Technical Support

Our PD is relevant for teachers at all grade levels, is fully customizable, and includes ongoing teacher support. You can also take advantage of a wealth of training videos at [pasco.com](http://pasco.com).



# PASCO's New Starter Lab Stations

These new lab station kits make it easy and affordable to begin using sensor-based technology in the science classroom, because they contain just what you need to start testing and measuring in the lab or field. We have Starter Lab Stations for Biology, Chemistry, Agricultural Science, Physics, Middle School Science, and K-5 Science.

Each Starter Lab Station includes:

- Wireless sensors
- A lab manual that covers 10 core topics
- Gratnells® storage tray

For a deeper dive into each science, try the Extension Lab Stations.

## Physics



### Physics Starter Station | EP-3579

Includes these wireless sensors:

- Motion
- Current
- Voltage
- Force Acceleration

#### Also available:

### Wireless Physics Extension Station | EP-3580

Includes these wireless sensors:

3-Axis Acceleration/Altimeter, 3-Axis Magnetic Field, Rotary Motion, Smart Gate, and Sound.

## Chemistry



### Chemistry Starter Station | EC-6362

Includes the following:

- Pressure
- pH
- Temp
- Molecular Model
- Periodic Trend Cards
- Periodic Table
- Spectrum Cards

#### Also available:

### Chemistry Extension Station | EC-6363

Includes the following:

Wireless Drop Counter, Wireless Colorimeter & Turbidity Sensor, Wireless Conductivity Sensor, Wireless Voltage Sensor, Condenser, and Electrode Support.



## Biology



### **Biology Starter Station** | EB-6334

Includes these wireless sensors:

- Temp Link
- Pressure
- pH
- CO<sup>2</sup>

#### **Also available:**

### **Biology Extension Station** | EB-6335

Includes the following:

Wireless Optical Dissolved Oxygen Sensor, Wireless Colorimeter & Turbidity Sensor, Wireless Conductivity Sensor, and the EcoChamber.

## Ag Science



### **Ag Science Starter Station** | EB-6336

Includes these wireless sensors:

- Temp
- pH
- CO<sup>2</sup>
- Conductivity
- Colorimeter & Turbidity

#### **Also available:**

### **Ag Science Extension Station** | EB-6337

Includes:

EcoZone System, Wireless Weather with GPS Sensor, Weather Vane Accessory, and Wireless Optical Dissolved Oxygen Sensor.

## Middle School



### Middle School Starter Station | PS-3312

Includes these wireless sensors:

- Temp
- pH
- Light
- Motion

#### Also available:

### Middle School Science Extension Station | PS-3313

Includes these wireless sensors:

Weather with GPS, CO<sup>2</sup>, Sound, and Force.

## Elementary School



### Elementary School Science Starter Station | PS-3314

Includes these wireless sensors:

- Temp
- Light
- Motion

#### Also available:

### Elementary School Science Extension Station | PS-3315

Includes these wireless sensors:

Weather with GPS and Sound.

# Curriculum & STEM Kits

PASCO curricular solutions and STEM kits have been developed by our team of educators and scientists to provide teachers and students with modernized and affordable science tools.

## Essential Physics & Essential Chemistry



Here are two complete curriculum solutions. Each program includes a Student Textbook, Student e-Book, Teacher e-Resources, Student Lab Manual, Teacher Lab Manual, and Equipment Kits, all at a very affordable price. Other program features are:

- Innovative and interactive media
- Animation and videos
- Flexible assessment options
- Interactive simulations
- Investigations and design challenges

## Light, Color & Optics Kit

### Sample Labs

- Magnification of Mirrors and Lenses
- Reflection in a Plane Mirror
- Refraction of Light
- Creating Real and Virtual Images with Lenses
- Image Formation for a Convex Lens
- Build a Microscope and Telescope EP-3558



## Smart Cart Demo Kits!

ME-1272 (red cart) or ME-1273 (blue cart)  
Here are two new Smart Cart Kits. Each kit includes:

- One Smart Cart (red *or* blue)
- Smart Fan Accessory
- Two 250-g Cart Masses
- Rod Stand Adapter,
- Ballistic Cart Accessory
- Vector Display
- Storage case
- Demo manual
- Sail

ME-1272 (red cart) | ME-1273 (blue cart)

The kit shown above is the Smart Cart Demo Kit with blue cart (ME-1273). The Smart Cart Demo Kit with red cart (ME-1272) includes the exact same content, but with a red cart instead of a blue cart.

## Essential Physics Modular Circuits Kit

### Sample Labs

- Electricity and Circuits
- Voltage and Batteries
- Design a Lemon Battery
- Resistors and Ohm's Law
- Series and Parallel Resistances
- Electrical Power
- Compound Circuits EM-3536







## Simple Machines Engineering Kit

### Sample Labs

- Static Equilibrium
  - Levers
  - Pulleys
  - Gear Ratios
  - Designing Gear Machines
  - Torque
  - Mechanical Advantage of Gears
- EP-3577



## Building Better Bridges Kit

### Sample Labs

- Measuring Forces
  - Equilibrium of Forces
  - Equilibrium of Rotation
  - Forces in Trusses
  - Forces in Bridges
- ME-3581



## Oscillations, Waves & Sound Kit

### Sample Labs

- Oscillators
  - Resonance
  - Waves
  - Interference
  - Resonance and Sound
  - Design a Musical Instrument
- EP-3578



## Forces & Motion Kit

### Sample Labs

- Graphs of Motion
  - Motion Graphs
  - Acceleration
  - A Model for Accelerated Motion
  - Newton's Second Law
  - Hooke's Law
  - Static and Kinetic Friction
  - Projectile Motion
  - Acceleration on an Inclined Plane
  - Conservation of Momentum
- EP-3576



## SPARKvue Software

Award-winning cross-platform data collection and analysis software



SPARKvue makes data collection and analysis easier than ever before with cross-platform compatibility on Chromebooks™, iOS, Android™, Windows®, and Mac®, or on our standalone datalogger, the SPARK LXi.

Data Collection

**Digs  
Meter  
Graph**

The Same User  
Experience  
Across:

**Computers**  
**Chromebooks™**  
**Tablets**  
**Smartphones**  
**PASCO**  
**Dataloggers**

## SPARKvue with Blockly

SPARKvue makes data collection, analysis, and sharing quick and easy on every platform. Compatible with all of PASCO's wireless and PASPORT sensors, students can quickly set up their lab, or use a built-in Quick Start Lab and begin collecting data immediately. SPARKvue is for all sciences and grade levels. However, if you're an advanced user looking for more capabilities such as video analysis, advanced statistics and calculations, and greater customization of data displays on a PC or Mac®, then investigate PASCO Capstone™ software.

Since SPARKvue was first released, it has been winning awards, and we never stop improving it. With the latest major release of SPARKvue 4, we've continued to add features without adding complexity. A new Welcome Screen makes it easy to get started and discover SPARKvue's capabilities. Whether you want to add data manually, use sensors for real-time or remote logging, or open one of the hundreds of existing labs, this is your starting place.

## Confidently Integrate Computational Thinking into Any Lesson with Blockly

- Color coding blocks give students a visual method for developing strong coding foundations.
- Students can create code that collects sensor measurements, reports data, or controls output devices.
- As they execute their code, students can visualize their data using real-time graphical displays that assist with data visualization.

## Real-World Coding Activities: Computational Thinking Meets Data Literacy

- While developing their code, students can press the Record button at any time to execute it and receive live feedback.
- Students can instantly monitor sensor measurements through live graphs and digits displays that support debugging throughout their code creation process.
- Once students have successfully coded their sensor parameters, they can collect data in real time, store it, and use it to inform future experiments.



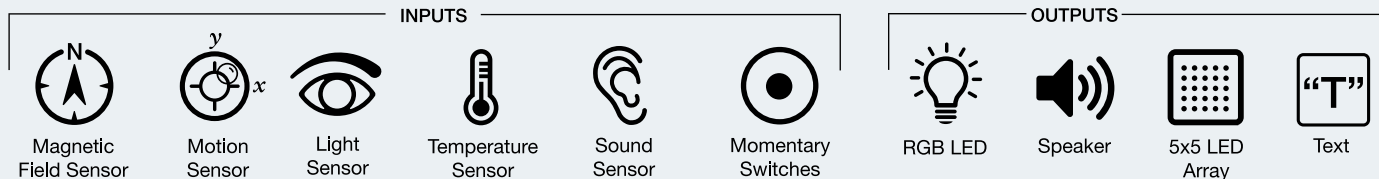
# //code.Node

Learning to code. Coding to learn.



## Bring computational thinking into your STEM classroom.

With the //code.Node and SPARKvue software with Blockly, PASCO brings coding into the science classroom, making it accessible for teachers and students with no programming experience!



## Control output devices on the //code.Node using input device measurements and Blockly code in SPARKvue.

The 5x5 LED Array can be programmed to illuminate each light at various levels of brightness. As students illuminate multiple LEDs, the display can read out letters and numbers, or be animated like a computer screen. In the image above, the array displays its classic smiley.



## Code with Confidence with the //code.Node and Blockly.

PASCO's new //code.Node lets you teach coding and conquer standards, without any programming experience. By integrating Blockly into SPARKvue and Capstone, PASCO has brought the fun of coding activities into our user-friendly software, creating a streamlined solution where students can code, debug, and collect and analyze data, all in one space. Best of all, our support materials include everything you need to incorporate coding into your curriculum.

### Using PASCO's //code.Node:

- Promotes computational thinking in the STEM classroom.
- Brings the excitement of coding to data collection and visualization.
- Helps students develop emotional learning skills.



//code.Node.....PS-3231



### Key Features

- While developing their code, students can press the Record button at any time to execute it and receive live feedback.
- Students can instantly monitor sensor measurements through live graphs and digits displays that support debugging throughout their code creation process.
- Once students have successfully coded their sensor parameters, they can collect data in real time, store it, and use it to inform future experiments.
- Integrates with all PASCO sensors!

### Sample Programming Applications

#### **Measure the Efficiency of Lightbulbs** (entry level)

Students use the //code.Node's temperature sensor to measure the heat radiating from lightbulbs. Then they use their data to determine which lightbulb is the most efficient.

#### **Create an Anti-Scald Device** (intermediate level)

Students are first introduced to a chart that depicts both safe and unsafe bath water temperatures. Then, in a group format, students discuss the lesson's real-world applications.

#### **Create an Anti-Theft Device** (advanced level)

In this activity students with an understanding of programming can express their creativity in this real-world challenge. In this scenario, students are tasked with creating an anti-theft device that deters thieves from getting away with their //code.Node!







AWARD  
WINNING  
EQUIPMENT

PASCO...

MAKING HIGH-QUALITY,

**AFFORDABLE**

SCIENCE SOLUTIONS

# Wireless Sensors



## Wireless Optical Dissolved Oxygen Sensor

Ideal for both classroom and field studies, this sensor logs live DO data on your personal device and includes onboard memory for long-term data collection.

Wireless Optical Dissolved Oxygen Sensor .....PS-3224



## Wireless pH Sensor

A must-have for fast-paced labs, this sensor gives live pH readings, transmits data to your device, and includes onboard storage for datalogging.

Wireless pH Sensor .....PS-3204

Also available in 8-pack.



## Wireless Pressure Sensor

This sensor allows students to easily collect accurate gas pressure data, and it also functions as a potometer for biological investigations.

Wireless Pressure Sensor .....PS-3203

Also available in 8-pack.



## Wireless Conductivity Sensor

Measure the electrical conductivity of aqueous solutions or investigate the total dissolved solids (TDS) of a local water sample with this compact sensor.

Wireless Conductivity Sensor .....PS-3210

Also available in 8-pack.



## Wireless Temperature Link

This small device enables wireless connectivity for any PASCO temperature probe with a 3.5 mm connection.

Wireless Temperature Link .....PS-3222



## Wireless Temperature Sensor

A staple of every science class, this sensor drastically simplifies temperature measurements with its small footprint, long-lasting battery, and live datalogging.

Wireless Temperature Sensor .....PS-3201

Also available in 8-pack.



### Wireless CO<sub>2</sub> Sensor

Use this sensor to explore respiration and photosynthesis, chemical reactions, and so much more with real-time CO<sub>2</sub> data on your device.

Wireless CO<sub>2</sub> Sensor .....PS-3208

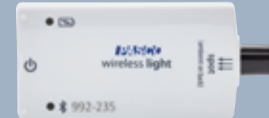
Also available in 8-pack.



### Wireless O<sub>2</sub> Sensor

The Wireless Oxygen Gas Sensor measures O<sub>2</sub> concentration as well as humidity and air temperature for a range of biology, environmental science, and physiology activities.

Wireless O<sub>2</sub> Sensor .....PS-3217



### Wireless Light Sensor

This sensor includes apertures for ambient light and directional light measurements that facilitate the exploration of light levels, color intensity, illuminance, and the UV Index.

Wireless Light Sensor .....PS-3213

Also available in 8-pack.



### Wireless Hand-Grip Heart Rate Sensor

Give students the hands-on experience they need to understand homeostasis and the cardiovascular system with this wireless sensor.

Wireless Hand-Grip Heart Rate Sensor .....PS-3206



### Wireless Blood Pressure Sensor with Standard Cuff

Save time during physiology lessons and discover how easy blood pressure measurements can be with this modernized blood pressure cuff.

Wireless Blood Pressure Sensor with Standard Cuff.....PS-3218



### Wireless Exercise Heart Rate Sensor

This wireless sensor is sure to get the class up and moving. The electrode belt fits around the ribcage, while the sensor wirelessly transmits data up to 10m during activity.

Wireless Exercise Heart Rate Sensor.....PS-3207



# Wireless Sensors



## Wireless Colorimeter and Turbidity Sensor

This dynamic sensor simultaneously measures a sample's absorbance and transmittance at six different wavelengths, and it doubles as a turbidity sensor for water quality investigations.

Wireless Colorimeter & Turbidity Sensor.....PS-3215

Also available in 8-pack.



## Wireless Spectrometer

This compact spectrometer gives every student a chance to get hands-on with spectrometry, and it collects a full spectrum of data in less than a second.

Wireless Spectrometer.....PS-2600



## Wireless Weather Sensor with GPS

Capable of making 19 measurements and logging GPS data, this all-in-one instrument is ideal for investigating complex environmental conditions.

Wireless Weather Sensor with GPS .....PS-3209

Also available in 8-pack.



## Wireless Voltage Sensor

Help students explore the fundamental concepts of electricity, voltage, and basic circuits with this compact sensor.

Wireless Voltage Sensor.....PS-3211

Also available in 8-pack.



## Wireless Current Sensor

This sensor simplifies experiments by providing students with a wireless current source and live data displays on their own devices.

Wireless Current Sensor .....PS-3212

Also available in 8-pack.



## Wireless Drop Counter

Designed for fast-paced high school experimentation, this drop counter takes the guesswork out of titrations and helps students maintain accuracy.

Wireless Drop Counter .....PS-3214



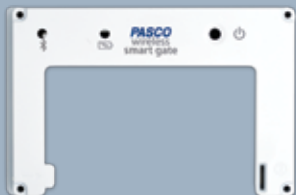


### Wireless Force Acceleration Sensor

Capable of simultaneously measuring force, acceleration, and rotation, this sensor is ideal for studying rotating platforms, moving carts, spring oscillations, collisions, and impulse.

Wireless Force Acceleration Sensor.....PS-3202

Also available in 8-pack.



### Wireless Smart Gate

This gate's design eliminates wires to simplify experimental setups and improve the accuracy of student measurements.

Wireless Smart Gate.....PS-3225



### Wireless Motion Sensor

This sensor measures the position, velocity, and acceleration of objects, and it even includes a 180° rotatable head for creative applications.

Wireless Motion Sensor .....PS-3219

Also available in 8-pack.



### Wireless Rotary Motion Sensor

The sensor measures angle, angular velocity, and angular acceleration, as well as their linear equivalents.

Wireless Rotary Motion Sensor .....PS-3220



### Wireless Smart Cart Patent Number 10,481,173

Upgrade to the revolutionary Wireless Smart Cart and start collecting live data for position, velocity, acceleration, force, and rotation directly on your device.

Smart Cart (Red).....ME-1240

Smart Cart (Blue).....ME-1241



### Wireless 3-Axis Magnetic Field Sensor

Easily investigate static fields from coils and bar magnets, or explore Earth's magnetic field with live data from this versatile sensor.

Wireless 3-Axis Magnetic Field Sensor.....PS-3221

# Wireless Sensors



## Wireless 3-Axis Acceleration/Altimeter Sensor

This sensor can remotely log acceleration in three dimensions as well as altitude, making it the perfect tool for investigating projectiles and freefall.

Wireless 3-Axis Acceleration/Altimeter Sensor .....PS-3223



## Wireless Sound Sensor

Investigate sound level and sound waves with this sensor's live measurements of sound intensity and relative changes in sound pressure level.

Wireless Sound Sensor .....PS-3227

Also available in 8-pack.



## Wireless Load Cell Accelerometer

This sensor wirelessly measures tension and compression forces in PASCO Structures while also collecting acceleration data for all three dimensions and the resultant.

Wireless Load Cell Accelerometer .....PS-3216



Using PASCO's EcoZone System™ and wireless sensors, students are able to model and understand the complex interactions within different ecosystems.



As students work with PASCO's Building Better Bridges Kit, they learn and apply engineering design concepts.

# SPARK LXi

**PASCO'S NEXT GEN SCIENCE DATALOGGER FOR THE LAB AND FIELD**



SPARK LXi Datalogger.....PS-3600A

The SPARK LXi Datalogger is a Bluetooth<sup>®</sup>, handheld datalogger that enables students to connect wired and wireless sensors, collect data, generate graphs, and analyze results. It is durable, splash-proof, and works seamlessly with PASCO sensors. The SPARK LXi can simultaneously accommodate up to five wireless sensors, includes two ports for PASPORT sensors, as well as two ports for the included Fast Response Temperature Probe and Voltage Probe. It can be used with PASCO Wireless sensors, PASPORT sensors and an AirLink, the SPARKlink<sup>®</sup> Air, and the 550 Universal Interface.



# Sensor 8-Packs

These handy sensor packs include eight sensors and one storage tray.

## Wireless Sound Sensor

PS-3342

8-Pack



Investigate sound level and sound waves with this sensor's live measurements of sound intensity and relative changes in sound pressure level.



### Wireless pH Sensor

PS-3331

8-Pack



A must-have for fast-paced labs, this sensor gives live pH readings, transmits data to your device, and includes onboard storage for datalogging.

### Wireless Conductivity Sensor

PS-3332

8-Pack



Measure the electrical conductivity of aqueous solutions or investigate the total dissolved solids (TDS) of a local water sample with this compact sensor.

### Wireless Force Acceleration Sensor

PS-3339

8-Pack



Capable of measuring force, acceleration, and rotation at the same time, this sensor is ideal for studying rotating platforms, moving carts, spring oscillations, collisions, and impulse.

### Wireless Pressure Sensor

PS-3333

8-Pack



This sensor allows students to easily collect accurate gas pressure data, and it also functions as a potometer for biological investigations.

### Wireless Temperature Sensor

PS-3330

8-Pack



A staple of every science class, this sensor drastically simplifies temperature measurements with its small footprint, long-lasting battery, and live datalogging.

### Wireless Motion Sensor

PS-3337

8-Pack



This sensor measures the position, velocity, and acceleration of objects, and it even includes a 180° rotatable head for creative applications.

### Wireless CO<sub>2</sub> Sensor

PS-3341

8-Pack



Use this sensor to explore respiration and photosynthesis, chemical reactions, and so much more with real-time CO<sub>2</sub> data on your device.

### Wireless Colorimeter and Turbidity Sensor

PS-3334

8-Pack



This dynamic sensor simultaneously measures a sample's absorbance and transmittance at six different wavelengths, and it doubles as a turbidity sensor for water quality investigations.

### Wireless Voltage Sensor

PS-3335

8-Pack



Help students explore the fundamental concepts of electricity, voltage, and basic circuits with this compact sensor.

### Wireless Light Sensor

PS-3338

8-Pack



This sensor includes apertures for ambient light and directional light measurements that facilitate the exploration of light levels, color intensity, illuminance, and the UV Index.

### Wireless Weather Sensor with GPS

PS-3340

8-Pack



Capable of making 19 measurements and logging GPS data, this all-in-one instrument is ideal for investigating complex environmental conditions.

### Wireless Current Sensor

PS-3336

8-Pack



This sensor simplifies experiments by providing students with a wireless current source and live data displays on their own devices.



# Storage Solutions

## Gratnells® Rolling Carts

EP-3574 (2-column)

EP-3575 (3-column)

Here is an ideal way to store PASCO sensors and equipment. These movable storage rack carts have been designed for Gratnells trays (sold separately). With this cart system, you can transport materials to and from the classroom. They include large casters with brakes for added stability.

These carts can be used to store the equipment kits from the *Essential Physics* or *Essential Chemistry* curriculum, the storage trays we offer for wireless sensors, or any of the four sizes of empty trays that we offer for whatever you would like to store.



EP-3575

Assembly required.  
Trays not included.

## Gratnells Rolling Carts (2 column)

EP-3574

Stores up to  
8 Gratnells  
F2 trays

**Dimensions:**  
107 cm high,  
70 cm wide,  
43.5 cm deep



## Gratnells Rolling Carts (3 column)

EP-3575

Stores up to  
12 Gratnells  
F2 trays

**Dimensions:**  
107 cm high,  
102 cm wide,  
43.5 cm deep



## Wireless Sensor Storage Trays with Lids

Each storage tray holds up to ten sensors. *Sensors are sold separately.*

Temperature/pH/Conductivity Sensors	PS-3585
Pressure Sensors	PS-3586
Colorimeter & Turbidity Sensors	PS-3587
Voltage & Current Sensors	PS-3588
Motion Sensors	PS-3589
AirLink & Light Sensors	PS-3594
Force Acceleration Sensors	PS-3595
Weather Sensor with GPS	PS-3596
Hand-Grip Heart Rate	PS-3597
CO <sup>2</sup> Sensor	PS-3598



## Gratnells® Storage Trays with Lids

These empty Gratnells storage trays with lids have a length of 427 mm and width of 312 mm. The depth of each follows:

<b>F1:</b> 75 mm	<b>F25:</b> 225 mm
<b>F2:</b> 150 mm	<b>F3:</b> 300 mm



## Gratnells Storage Trays

(F1) Shallow	PS-3326	(F25) Extra Deep	PS-3328
(F2) Deep	PS-3327	(F3) Jumbo	PS-3329

# Charging Solutions



## Smart Cart Charging Garage ME-1243

Charge up to five Smart Carts at once. Provides storage for the carts and accessory bumpers. Includes power adapter.



## Wireless Sensor Charging Station PS-3599

This versatile charging station can be configured to fit any size sensor by adding or removing partitions.

### What's Included

- 1 Wireless Sensor Charging Station (13 cm x 35 cm)
- 1 Power Adapter
- 10 USB Charging Cables
- 9 Removable Partitions

# Professional Development and Technical Support

PASCO's dedicated Teacher and Technical Support Team offers free support to our valued customers. This team helps to resolve equipment or software issues, facilitates product repair or replacement, and assists teachers with experiment setup.



PASCO Professional Development provides teachers with the training, guidance, and innovative solutions they need to lead sensor-based science lessons. Our trainers are curriculum experts who model how to confidently guide students through inquiry-based science lessons.

- Training sessions are relevant for teachers at all grade levels.
- Aligned to STEM-based standards and national and state correlations.
- Fully customizable and tailored to your scope and sequence.
- Includes ongoing teacher support and a free follow-up webinar.



**PASCO's 5-Year Educational Warranty:** To withstand the rigors of student use, PASCO products are made of the highest quality materials. They are designed and manufactured by our team of education researchers and engineers in Roseville, California. And we back our products with a 5-year warranty, so you can be confident when buying PASCO solutions.







WIRELESS  
SENSOR SOLUTIONS

**PASCO**  
Since 1964

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800-772-8700 • +1 916-786-3800  
[pasco.com](http://pasco.com)

