

PASCO[®]

Equip Your Tablet for Science...

with PASCO's Sensor-Based Technology
featuring SPARKvue data collection,
display, and analysis software.



SPARKvue®

Software for interactive visualization and analysis

SPARKvue fully supports the learning process.

SPARKvue software is a science tool and state-of-the-art learning environment all in one. SPARKvue offers a full suite of display options, from graphs and meters to digits and tables. Powerful analysis tools are always available at the touch of a finger...but never in the way.

And SPARKvue creates opportunities for student reflection at every step, with the option to save a journal snapshot of work, including written observations, with just a touch of a finger.

SPARKvue adapts to your technology

Chances are, you have a mix of technologies in your school. But there's no need to worry. It's the same award-winning experience of SPARKvue, whatever your environment!

- ▶ Interactive whiteboards
- ▶ Windows computers
- ▶ Mac computers
- ▶ Netbooks
- ▶ iPad and Android Tablets

One common science learning environment

Connect your tablet to any of over 70 PASPORT sensors.





PASCO's Bluetooth-enabled PASPORT AirLink 2





SPARKvue® HD

Science Application for Tablets

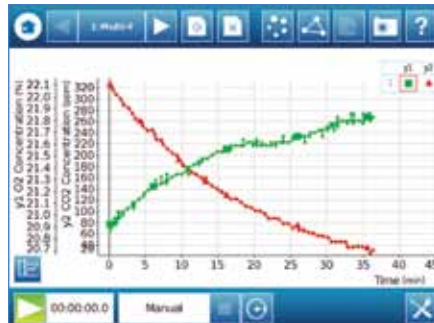
60+ FREE standards-based SPARKlabs® are included with SPARKvue HD. These interactive lab activities include science content, data collection, analysis, and assessment, all on one system...your iPad!

SPARKlabs are educator designed labs that guide students through the process of inquiry and investigation, promoting critical thinking and group discussion. The FREE labs include activities for:

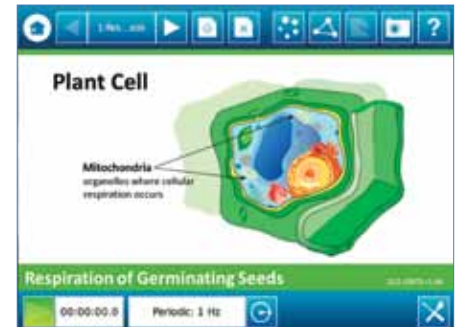
- ▶ Biology
- ▶ Chemistry
- ▶ Earth Science
- ▶ Physics
- ▶ Elementary School
- ▶ Middle School



Easily create bar graphs using sensor data or manually entered data..



Graphs with multiple y-axes allow students to explore higher-level relationships between different measurements.



Integrated SPARKlabs guide students through the learning process.

SPARKvue HD Brings Wireless Sensor-based Data Collection & Analysis to Your Tablet

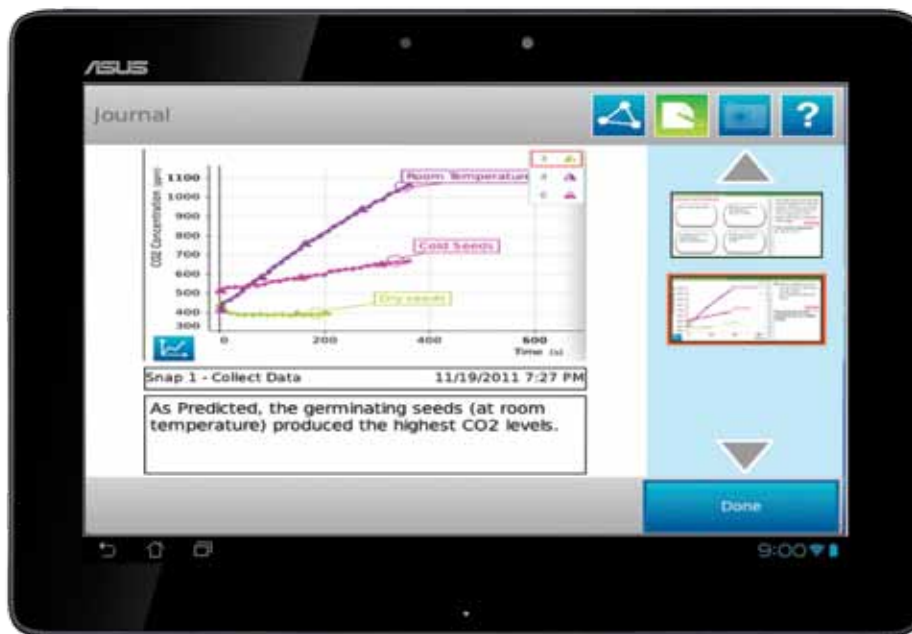
PASCO makes it easy to do inquiry-based science on your tablet. All you do is download SPARKvue HD. Connect your tablet with the Bluetooth-enabled Airlink 2 and SPARKlink Air.

Then plug in your PASPORT sensor. And you're ready to collect and analyze data instantly, right on your tablet!

For all the details, go to pasco.com/tablet

With SPARKvue HD, students can:

- ▶ Make predictions before collecting data.
- ▶ Display test results.
- ▶ Graph data.
- ▶ Analyze data.
- ▶ Compare actual results with predicted results.
- ▶ Save a snapshot of work.
- ▶ Write in the electronic journal.



With SPARKvue HD, teachers can:

- ▶ Give interactive lectures using live data and rich media.
- ▶ Hold collaborative reviews of student results and findings.
- ▶ Assess student learning at any time in the process.
- ▶ Display data your way, from graphs and meters to digits and tables.

How to equip your tablet for science

1 Install SPARKvue HD

SPARKvue® HD

Download SPARKvue HD, connect your iPad or Android tablet with the Bluetooth-enabled SPARKlink Air or Airlink 2, then plug in your PASPORT sensor. Start collecting and analyzing data instantly, right on your tablet!



2 Select an interface for connecting PASCO sensors

SPARKlink® Air

PS-2011

Includes two sensor ports, Built-in Temperature and Voltage Sensors with Probes, USB and Bluetooth wireless connection, and Lithium iron battery for powering sensors.



PASPORT AirLink 2

PS-2010

Single sensor port for wireless connection to your Bluetooth-enabled Tablet with SPARKvue for iOS.



or



SPARKlink® Air Charging Station

PS-2577 \$159

Conveniently store and charge up to 5 SPARKlink Air interfaces with a single power source. SPARKlink Airlinks sold separately.



3 Select the appropriate Sensor Bundle for your science

- Biology** page 6
- Chemistry** page 7
- Earth Science** page 8
- Environmental Science** page 9
- Physics** page 10
- Middle School** page 11

Biology SPARKlabs and Sensor Bundles

fully electronic, inquiry-based lab activities for iPad, Android tablet, or computer

SPARKlabs are educator-designed interactive lab investigations that guide students through the process of inquiry and investigation, promoting critical thinking and group discussion.

Think of a SPARKlab as a modern, highly interactive lab notebook that is fully contained on your iPad, Android tablet, computer, or on the SPARK Science Learning System. Then add "guide on the side" support embedded throughout the investigation process. Add completely seamless data collection and analysis tools. The result is everything you need on one platform to keep students focused on learning.

A central theme of SPARKscience is the integration of the scientific process with the learning process.




Each SPARKlab includes:

- ▶ background science content
- ▶ setup guidance
- ▶ seamless integration with data collection and analysis
- ▶ embedded reflection and assessment prompts
- ▶ student journals

Over 60 labs (including ten for biology) come free with SPARKvue software or on the SPARK Science Learning System. And the SPARKlab library continues to grow, with additional labs available for purchase and download.



The SPARKlab Library Includes 10 FREE Biology SPARKlabs!

 Acid Rain (pH Sensor)	 The Role of Buffers (pH Sensor)	 Respiration of Germinating Seeds (Carbon Dioxide Gas Sensor)	 Osmosis (Barometer/Low Pressure Sensor)
 Membrane Permeability (pH Sensor)	 Enzyme Action (Oxygen Gas Sensor)	 Exploring Microclimates (Fast Response Temperature Probe)	 Transpiration (Barometer/Low Pressure Sensor)
 Organisms & pH (pH Sensor)	 Plant Respiration & Photosynthesis (Carbon Dioxide Gas Sensor)	<i>For a complete list of all SPARKlabs go to pasco.com/sparklabs</i>	

The SPARKlab Sensor Bundle

The sensors you need to perform the 10 FREE Biology SPARKlabs and more.

Biology Starter Sensor Bundle*

PS-2920

1. Carbon Dioxide Gas Sensor PS-21102.
2. Oxygen Gas Sensor PS-2126A
3. Barometer/Low Pressure Sensor PS-2113A
4. pH Sensor PS-2102

**Requires an interface. See page 5 for the complete interface ordering guide.*



1
2
3
4

Chemistry SPARKlabs and Sensor Bundles

fully electronic, inquiry-based lab activities for iPad, Android tablet, or computer

SPARKlabs are educator-designed interactive lab investigations that guide students through the process of inquiry and investigation, promoting critical thinking and group discussion.

Think of a SPARKlab as a modern, highly interactive lab notebook that is fully contained on your iPad, Android tablet, computer, or on the SPARK Science Learning System. Then add "guide on the side" support embedded throughout the investigation process. Add completely seamless data collection and analysis tools. The result is everything you need on one platform to keep students focused on learning.

A central theme of SPARKscience is the integration of the scientific process with the learning process.

Each SPARKlab includes:

- ▶ background science content
- ▶ setup guidance
- ▶ seamless integration with data collection and analysis
- ▶ embedded reflection and assessment prompts
- ▶ student journals

Over 60 labs (including 11 for chemistry) come free with SPARKvue software or on the SPARK Science Learning System. And the SPARKlab library continues to grow, with additional labs available for purchase and download.



The SPARKlab Library Includes 11 FREE Chemistry SPARKlabs!



Absolute Zero
(Gay Lussac's Law)
(Absolute Pressure Sensor & Fast Response Temperature Probe)



Boyle's Law
(Absolute Pressure Sensor)



Evidence of a Chemical Reaction
(Fast Response Temperature Probe)



Percent O₂ in Air
(Absolute Pressure Sensor)



Acid-Base Titration
(pH Sensor & Drop Counter)



Diprotic Titration
(pH Sensor & Drop Counter)



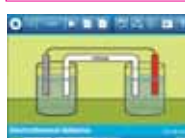
Heats of Reaction & Solution
(Stainless Steel Temperature Probe)



Periodic Trends



Beer's Law
(Colorimeter)



Electrochemical Battery
(Voltage Probe)



Intermolecular Forces
(Stainless Steel Temperature Probe)

For a complete list of all SPARKlabs go to pasco.com/sparklabs

The SPARKlab Sensor Bundle

The sensors you need to perform the 11 FREE Chemistry SPARKlabs and more

Chemistry Starter Sensor Bundle*

PS-2921

1. Chemistry Sensor PS-2170
2. High Accuracy Drop Counter PS-2117
3. Colorimeter PS-2121

*Requires an interface. See page 5 for the complete interface ordering guide.



Earth Science SPARKlabs and Sensor Bundles

fully electronic, inquiry-based lab activities for iPad, Android tablet, or computer

SPARKlabs are educator-designed interactive lab investigations that guide students through the process of inquiry and investigation, promoting critical thinking and group discussion.

Think of a SPARKlab as a modern, highly interactive lab notebook that is fully contained on your iPad, Android tablet, computer, or on the SPARK Science Learning System. Then add "guide on the side" support embedded throughout the investigation process. Add completely seamless data collection and analysis tools. The result is everything you need on one platform to keep students focused on learning.

A central theme of SPARKscience is the integration of the scientific process with the learning process.

Each SPARKlab includes:

- ▶ background science content
- ▶ setup guidance
- ▶ seamless integration with data collection and analysis
- ▶ embedded reflection and assessment prompts
- ▶ student journals

Over 60 labs (including nine for Earth Science) come free with SPARKvue software or on the SPARK Science Learning System. And the SPARKlab library continues to grow, with additional labs available for purchase and download.



The SPARKlab Library Includes these 9 FREE Earth Science SPARKlabs!



Air Pollution and Acid Rain
(pH Sensor)



Monitoring the Quality of Water
(Water Quality Sensor)



Soil Salinity
(Conductivity Sensor)



Hydrogen Bonding of Water
(Stainless Steel Temperature)



Radiation Energy Transfer
(2 Temperature Sensors)



Water Treatment
(Water Quality Sensor)



Insolation and the Seasons
(Fast Response Temperature Probe)



Soil pH
(pH Sensor)



Specific Heat
(2 Stainless Steel Temperature Probes)

For a complete list of all SPARKlabs go to pasco.com/sparklabs

The SPARKlab Sensor Bundle

The sensors you need to perform the 9 FREE Earth Science SPARKlabs and more

Earth Science Starter Sensor Bundle

PS-2922

Water Quality Sensor PS-2169

Measures dissolved oxygen, pH, conductivity and temperature in one convenient package.

**Requires an interface. See page 5 for the complete interface ordering guide.*

Environmental Science SPARKlabs and Sensor Bundles

fully electronic, inquiry-based lab activities for iPad, Android tablet, or computer

SPARKlabs are educator-designed interactive lab investigations that guide students through the process of inquiry and investigation, promoting critical thinking and group discussion.

Think of a SPARKlab as a modern, highly interactive lab notebook that is fully contained on your iPad, Android tablet, computer, or on the SPARK Science Learning System. Then add “guide on the side” support embedded throughout the investigation process. The result is everything you need on one platform to keep students focused on learning.

Each SPARKlab includes background science content, setup guidance, seamless integration with data collection and analysis, embedded reflection and assessment prompts, and student journals.

Over 60 labs come free with SPARKvue software or on the SPARK Science Learning System. And the SPARKlab library continues to grow, with additional labs available for purchase and download.



Horizon Renewable Energy SPARKlab Collection

PASCO has partnered with Horizon Fuel Cell Technologies to offer this collection that includes nine renewable energy SPARKlabs. Help students develop an understanding of renewable energy with the following investigations:

Solar

- ▶ How heat affects energy production from a solar cell
- ▶ How tilt angle of a solar panel affects energy production
- ▶ How shading a solar panel affects energy production

Wind

- ▶ How the pitch of turbine blades affect energy production
- ▶ How the surface area of turbine blades affect energy production
- ▶ Understanding the effect on voltage output using different numbers of blades in a wind turbine

Hydrogen Fuel Cell

- ▶ Compare the voltage output of a fuel cell versus a battery
- ▶ Voltage required for water decomposition

Horizon Renewable Energy SPARKlabs for High School

Teacher License PS-2857

One per teacher (one license for all your classes).

Includes 8 SPARKlab activities to help students develop an understanding of renewable energy.

Electronic Delivery.

Upon purchase, download to your computer.



For a complete list of all SPARKlabs go to pasco.com/sparklabs

Horizon Renewable Energy Kit

SE-7238

Includes wind turbine, 18 long curved blades (3 sets of different curvatures), 3 long flat blades, 3 short flat blades, reversible Fuel Cell module, Gas/Water storage module, small motor with propeller, 1 W Solar Cell, AA battery pack and 2 pairs of banana plug cables.



**Requires an interface. See page 5 for the complete interface ordering guide.*

Physics SPARKlabs and Sensor Bundles

fully electronic, inquiry-based lab activities for iPad, Android tablet, or computer

SPARKlabs are educator-designed interactive lab investigations that guide students through the process of inquiry and investigation, promoting critical thinking and group discussion.

Think of a SPARKlab as a modern, highly interactive lab notebook that is fully contained on your iPad, Android tablet, computer, or on the SPARK Science Learning System. Then add "guide on the side" support embedded throughout the investigation process. Add completely seamless data collection and analysis tools. The result is everything you need on one platform to keep students focused on learning.

A central theme of SPARKscience is the integration of the scientific process with the learning process.

Each SPARKlab includes:

- ▶ background science content
- ▶ setup guidance
- ▶ seamless integration with data collection and analysis
- ▶ embedded reflection and assessment prompts
- ▶ student journals

Over 60 labs (including 10 for physics) come free with SPARKvue software or on the SPARK Science Learning System. And the SPARKlab library continues to grow, with additional labs available for purchase and download.



The SPARKlab Library Includes 10 FREE Physics SPARKlabs!



Acceleration
(Motion Sensor)



Conservation of Energy
(Motion Sensor)



Newton's First Law
(Motion Sensor)



Voltage
(Voltage/Current Sensor)



Archimedes' Principle
(Force Sensor)



Electromagnetic Induction
(Voltage/Current Sensor)



Newton's Second Law
(Force and Motion Sensors)



Are You Speeding?
(Motion Sensor)



Magnetism
(Magnetic Field Sensor)



Ohm's Law
(Voltage/Current Sensor)

For a complete list of all SPARKlabs go to pasco.com/sparklabs

The SPARKlab Sensor Bundle

The sensors you need to perform the 10 FREE Physics SPARKlabs and more.

Physics Starter Sensor Bundle

PS-2923

1. Motion Sensor PS-2103A
2. Voltage/Current Sensor PS-2115
3. Magnetic Field Sensor PS-2112
4. Force Sensor PS-2104

**Requires an interface. See page 5 for the complete interface ordering guide.*



Middle School SPARKlabs and Sensor Bundles

fully electronic, inquiry-based lab activities for iPad, Android tablet, or computer

SPARKlabs are educator-designed interactive lab investigations that guide students through the process of inquiry and investigation, promoting critical thinking and group discussion.

Think of a SPARKlab as a modern, highly interactive lab notebook that is fully contained on your iPad®, Android™ tablet, computer, or on the SPARK Science Learning System. Then add “guide on the side” support embedded throughout the investigation process. Add completely seamless data collection and analysis tools. The result is everything you need on one platform to keep students focused on learning.

A central theme of SPARKscience is the integration of the scientific process with the learning process.

Each SPARKlab includes:

- ▶ background science content
- ▶ setup guidance
- ▶ seamless integration with data collection and analysis
- ▶ embedded reflection and assessment prompts
- ▶ student journals

Over 60 labs (including 12 for Middle School) come free with SPARKvue software or on the SPARK Science Learning System. And the SPARKlab library continues to grow, with additional labs available for purchase and download.



The SPARKlab Library Includes 12 FREE Middle School SPARKlabs!

 Acid Rain and Plant Growth (Chemistry Sensor)	 Exploring Environmental Temperatures (Chemistry Sensor)	 Recovery Heart Rate (Hand-Grip Heart Rate Sensor)	 Varying Lights (Chemistry Sensor)
 Are You Speeding? (Motion Sensor)	 Mapping the Ocean Floor (Motion Sensor)	 Soil Characteristics (Chemistry Sensor)	 Varying Reaction Rates (Chemistry Sensor)
 Bright Lights (Light Level Lux Sensor)	 Operation Deep Freeze (Chemistry Sensor)	 Thermoregulation of the Body (Chemistry Sensor)	 Why We Brush Our Teeth (Chemistry Sensor)

For a complete list of all SPARKlabs go to pasco.com/sparklabs

The Middle School Science Starter Sensor Bundle

The sensors you need to perform the 12 FREE Middle School SPARKlabs and more

Middle School Science Starter Sensor Bundle

PS-2924C

1. Motion Sensor PS-2103A
2. Light Level Lux Sensor PS-2177
3. Chemistry Sensor PS-2170
4. Hand-Grip Heart Rate Sensor PS-2186

**Requires an interface. See page 5 for the complete interface ordering guide.*





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Get SPARKvue® HD for Your Tablet!

*The ONE solution you need to engage students
in scientific and engineering practices*

Go to pasco.com/tablet
Or call us at +1 916-786-3800
We'd love to talk with you!



Follow us on Facebook,
Twitter, and YouTube!

**World Class Support and
Professional Development**
Committed to Your Success

We want to provide you with all the
support, guidance, and training you need.
Just let us know how we can help.

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