

PocketLab Sensor Tech: Engage Students With Data

Shayna Pond, Teresa Randall
Published by *K20 Center*

This work is licensed under a Creative Commons CC BY-SA 4.0 License

Essential Question(s)

How can teachers get students excited, engaged, and comfortable interacting with data in an authentic way?

Summary

Data, data everywhere! But how can teachers get students excited, engaged, and comfortable interacting with it? Students have fun collecting data on all sorts of things in the classroom but struggle with what to do with the data once they are done. Come experience cutting-edge, user-friendly sensor technology that fits easily in pockets. PocketLab sensors can monitor and measure over 20 types of data IN REAL TIME to give students immediate feedback. Opportunities for collecting and analyzing data abound in classrooms. Using this authentic technology, inspire students to be curious and adventurous with data.

Learning Goals

- View classroom examples of PocketLab sensors in use.
- Experience "hands on" time with three different PocketLab sensors.

Attachments

- Magnetic Meme Posters—PocketLab Sensor Tech Engage Students With Data.pdf
- Note Catcher—PocketLab Sensor Tech Engage Students With Data.docx
- Note Catcher—PocketLab Sensor Tech Engage Students With Data.pdf
- Presentation Slides—PocketLab Sensor Tech Engage Students With Data.pptx
- Task Card—PocketLab Sensor Tech Engage Students With Data.docx
- Task Card—PocketLab Sensor Tech Engage Students With Data.pdf

Materials

- Presentation Slides
- Magnetic Meme Posters
- Task Cards (one set per station)
- Note Catcher (one per person)
- PocketLab Voyager Sensor
- PocketLab Weather Sensor
- PocketLab Air Sensor
- 3 devices compatible with the PocketLab App (e.g. iPhone, iPad, Chromebook or other type of tablet/laptop)

10 minutes

Engage

Facilitator Note

Prior to the session, set up three tables, each with one of the three types of sensors and a device (tablet, laptop, phone) with the PocketLab app downloaded or browser version open on each device (https://app.thepocketlab.com/home).

Print out and post the four magnetic meme posters on the four walls or in the four corners of the room.

Use lesson slides to guide the presentation. In order to get participants thinking and talking about their prior experiences with data in the classroom, display **slide 3** with the Essential Question, *How can teachers get students excited, engaged, and comfortable interacting with data in an authentic way?*

Introduce the Learning Objectives for this activity on **slide 4**. Then move to **slide 5** for the first activity.

Direct participants to notice the four meme posters displayed on each wall of the room. Then ask them to think for a moment about how they feel when using data in the classroom with their students. Have participants then move to the poster that most accurately represents that feeling.

Provide some time for each group to discuss why they chose that poster.

After discussion, move to **slide 6.** Ask participants to think one more time about using data in their classroom. This time they should consider how the students feel when they are using data. Then they can move to the sign that illustrates their students' feelings.

Provide more time for each group to discuss the poster of choice, this time focusing on how the students feel using data.

30 minutes

Explore

Move to **slide 7**. Pass out a **Note Catcher** to each person. Divide participants into three groups. Place a **Task Card** at each station and assign each group to begin at one of the three sensor stations.

1. Voyager
2. Air
3. Weather

Each station is equipped with a sensor and a device running the PocketLab application. Every station also has a Task Card with instructions to connect the sensor to the PocketLabs application and to gather and view different types of data associated with that particular sensor.

Each group should work through the Task Card at their station until it is time to rotate to the next station. Provide time for all three groups to visit all three sensor stations.

As they rotate, individuals can use the Note Catcher to take down any helpful or pertinent information about each sensor for personal use in their classroom.

10 minutes

Explain

Go through **slides 8-11** as a whole group. Review some of the key benefits and highlights this technology provides from **slide 8.** Then as you go through the bullet points for each sensor type (**slides 8-11)**, engage participants to share the experiences they had while exploring the sensors in their stations.

5 minutes

Extend

Bring up **slide 12** and share two resources for using PocketLabs in the classroom. The QR codes on the slide are also on each participant's Note Catcher. Direct links can be found in the slide notes and in the tech note below.

Tech Note

Resources to explore:

Elementary Lesson: https://docs.google.com/presentation/d/1e8reJuDDTqUdWbmzHOSbyzhRiZiCFfRb/edit?usp=sharing&ouid=102766245578584010233&rtpof=true&sd=true

Lesson Library: https://www.thepocketlab.com/lesson-library

Provide time for participants to explore the library of resources. Ask participants to consider, *How would this look in your classroom? Using what you've learned today about PocketLab sensors, what are some ways you can incorporate them in your content area?*

Be prepared to share.

Evaluate

Go to **slide 13**. Provide instructions for Six-Word Memoirs. Have participants prepare a short summary of no more than six words about how they can get students excited about using data with pocket lab sensors. End with **slide 14.**

Research Rationale

Planning, carrying out investigations, and analyzing and interpreting data are performance expectations of the OASS Science and Engineering Practice Standards. It is not enough for students to read about science; they must do science. Students must engage in planning and carrying out investigations, making observations, asking questions, analyzing data, constructing explanations, engaging in argument from evidence, and obtaining, evaluating, and communicating information to gain the science knowledge and skills to be college, career, and citizen ready upon graduation from high school (OAS, 2020). Students are able to make meaning from data when they work with clear and relevant visualizations or representations of data (Hunter-Thompson, 2020).

Resources

- Hunter-Thompson, Kristin. (Feb 2020). Data Literacy 101: Wha can we actually claim for our data? NSTA Science Scope. V 43, No. 6. https://www.nsta.org/science-scope/science-scope-february-2020/data-literacy-101
- K20 Center. (n.d.). Six-word memoirs. Strategies. https://learn.k20center.ou.edu/strategy/75
- Oklahoma Academic Standards for Science. (February 2020).
- Pitts, L. and S. McCarthy. (2021 Nov 19). NSTA Using nature as inspiration to design martian landers. Powerpoint. https://docs.google.com/presentation/d/1e8reJuDDTqUdWbmzHOSbyzhRiZiCFfRb/edit#slide=id.p18
- PocketLab. (n.d.). PocketLab Lesson Library. Retrieved January 3, 2020, from https://www.thepocketlab.com/lesson-library
- PocketLab. (n.d.). PocketLab Notebook. Retrieved February 23, 2020, from https://app.thepocketlab.com/home
- PocketLab. (n.d.). PocketLab Voyager. Retrieved February 23, 2020, from https://www.thepocketlab.com/store/pocketlab-voyager
- PocketLab. (n.d.). PocketLab Weather. Retrieved February 23, 2020, from https://www.thepocketlab.com/store/pocketlab-weather
- PocketLab. (n.d.). PocketLab Air. Retrieved February 23, 2020, from https://www.thepocketlab.com/store/pocketlab-air