



Supporting Science Teachers in Reaching Every Student, Every Week

By *Annie Galvin Teich*

Executive Summary

Penda Learning is a digital curriculum tool that has been embraced by administrators, teachers, and students across the board — especially now as more learning moves online.

Administrators choose Penda because it supports grade 3-10 science teachers with tools to differentiate instruction and improve learning outcomes. Teachers choose Penda because it makes it easy to support every student in their classrooms, including students with disabilities. And students love Penda because of its unique gaming platform that turns lessons into lively activities akin to their favorite video games.

Penda Learning has proven that it is as functional as it is fun, two features that are more valuable than ever as the need for remote learning solutions grows. Penda engages students in learning from home, and it provides teachers with reliable data they can use to continue providing high-quality, personalized instruction and progress monitoring that prepares students for annual high-stakes exams even when they're not learning in person.

Penda Learning is designed as a vendor-managed solution rather than a teacher-managed solution. Not only is Penda aligned to Next Generation Science Standards (NGSS), Florida NGSSS, and Texas TEKS, but its content is also aligned to a district's scope and sequence. This means that students participate in independent science practice that reinforces and mirrors what is being taught in class each week. Student assignments are made automatically to save teachers' time.

As students complete assignments, teachers are emailed weekly with student results from the previous week. This puts formative assessment data into teachers' hands to inform instruction without them having to run reports or wait for weeks for the results of other assessments. The weekly reports for teachers, coaches, and administrators monitor and show student growth by activity and by standard. Administrator reports roll up class results for a wider view of student growth and provide confidence that the district is supporting teachers as they differentiate instruction for better learning outcomes.

Keep reading for more information about the Penda Learning science platform and how it can support teaching and learning — both online and in-person.



What is Penda Learning?

Penda Learning is the leading provider of highly engaging online science content for grades 3-10 built on a gaming platform that allows students to access content anywhere there's an Internet connection. The unique gaming platform ensures that students practice even outside the classroom, and it supports core instruction by aligning activities to the district's curriculum scope and sequence, mirroring what is being taught in the classroom each week. Teachers receive an automatic weekly report that shows progress of content mastery by student and by standard from the previous week.

Specifically, Penda provides:

- Gamified independent science practice online for grades 3-10
- Supported data-driven instruction
- Auto-assigned lessons to minimize teacher workload
- Lessons custom aligned to a district's curriculum scope and sequence
- Weekly mastery reports by email

Why Do Educators Prefer Penda Over Other Digital Curriculum Options?

Penda Learning supports student learning and achievement in a number of ways:

- Features engaging, gamified content and activities that reinforce core science curriculum
- Encourages independent learning practice
- Aligns to the district's scope and sequence
- Supplies continuous progress monitoring
- Helps teachers effectively differentiate science instruction
- Makes assignments to students automatically
- Provides comprehensive data to teachers conveniently via email

Plus, it works! Efficacy research shows that schools and districts using Penda are able to achieve measurable gains with only 30 minutes of usage per week. This results in students' increased time on task to master key standards, strands, and concepts, and also helps develop independent learners.

How Does Penda Support Districts?

Penda Learning is a digital curriculum tool that helps teachers integrate technology into their teaching and learning. Because it is available 24/7, Penda extends learning outside the school and encourages exploration beyond completion of assignments.

Significant student gains can be made with just 30 minutes of usage per week. Students develop independent learning skills as they engage with Penda's content and gaming features. Penda is built upon brain-based research that suggests a strong connection between students' emotions and their learning. Penda's gaming platform ensures authentic student engagement, and research shows that authentic engagement is the key for students to remember content, to become self-motivated, and to develop independent learning skills.

Several districts across the country have experienced significant growth in student achievement with the use of Penda. Administrators love Penda because it not only engages students and supports teachers, but also because it provides continuous progress monitoring with actionable data that drives instruction and increases academic achievement.

How Does Penda Support Instructional Coaches?

Penda Learning data is invaluable for teacher/coach data sessions as well as principal/coach data sessions. Penda Learning reports show mastery of what's taught every week so educators do NOT have to wait weeks for benchmark data.

Coaches can view Class Mastery Reports that show each student's mastery of every standard taught. Coach-Teacher Conferences are then an opportunity for coaches to mentor teachers in using Penda Learning reports to make data-driven decisions rather than being a discussion about additional things teachers need to do simply to get the formative data in the first place.

Penda Learning also supports the role of instructional coaches in data analysis. Continuous progress monitoring reports show each class' mastery of every standard taught. This gives the mathematics coach visibility across the faculty to identify classes that may need additional support or specific standards that students may be struggling with. All without adding to teachers' workloads.

Penda meets with every school's leadership team to collaborate and create the school's yearly Professional Learning Partnership Plan (PLPP). The leadership team and Penda work together to analyze the school's data and create targeted goals that measure success when utilizing Penda Learning. Quarterly reviews ensure that the PLPP is guiding the school toward the attainment of the targeted goals.

How Does Penda Support Teachers?

Educators and parents want improved learning outcomes, but not all districts provide teachers with the tools and supports they need to improve academic achievement. Although most teachers care deeply about helping their students, they often need help in differentiating instruction. Penda specifically addresses the needs of teachers who have a strong passion for reaching students but lack digital tools and support to help them achieve their goals and objectives.

Penda Learning helps teachers make informed, data-driven decisions on a weekly basis for their students without having to do “one more thing” or wait for benchmark assessments to find out if students are on pace and making progress. When teachers receive formative data every week, they are better able to differentiate instruction and make data-driven decisions before students fall too far behind. This is the place where many teachers need additional support to become more effective in administering their weekly instruction.

Penda Learning supports teachers as they identify any issues from the same week that content was being taught so students are not continually falling behind. This allows for a less formal student intervention. Teachers can assign additional work via Penda to students needing additional support in a particular concept.

All teachers benefit from tools and support to monitor student achievement and differentiate instruction. Without this support, teachers can feel overworked and overwhelmed because they are being asked to adopt practices without the tools and support they need to be successful. Penda Learning helps districts support teachers as they learn how to effectively differentiate instruction.

Penda is designed to make teachers’ jobs easier while making instruction more effective. A number of features within Penda lighten teacher workloads:

- Aligns to the district’s curriculum scope and sequence so that Penda activities reflect what is being taught in the classroom every week
- Creates weekly assignments and automatically sends them out to the students on the teacher’s behalf. These assignments are generally 30 minutes in length.
- Sends emails to teachers each week to remind them that student work has been assigned for the following week
- Sends emails to teachers every Monday along with Class Mastery Reports for the student work completed the previous week
- Sends emails to teachers every Monday along with a Late Report for student work completed the previous week relating to assignments from two weeks prior
- Sends emails to coaches and administrators along with a Grade Mastery Report every month so they can identify areas where additional support is needed
- Showcases teachers’ efforts to use Penda with their students in comparison to their colleagues via the Teacher Leader Board. This competition drives student engagement and provides a vehicle with which to share best practices around integrating educational technology into the classroom.
- Includes Learning Tool Interoperability (LTI) 1.3 Advantage support which enables seamless integration between Penda Learning and a district’s Learning Management System (LMS). Teachers can assign Penda activities in the LMS and students can access them directly within the LMS platform rather than having to exit and login to Penda. As students complete assignments, their Penda scores are automatically added to the LMS gradebook. This integration reduces teachers’ workloads and helps students stay focused on learning.

How Does Penda Support Students?

Independent research has shown that when students invest 30 minutes per week in Penda, they make substantial gains in science achievement.

Penda's content supports the gifted and talented, traditional students, and the students who have yet to find academic success and are labeled as underachievers. However, Penda's "niche" is those students who fall into the bottom quartile and typically do not make adequate yearly progress. These are the students that statistically make even larger gains on formative and summative assessments after using Penda:

- Students who have previously lacked academic success (labeled as underachievers/bottom quartile students)
- Students who have economic challenges (labeled as economically disadvantaged students)

Penda includes a number of supports to ensure that content is accessible to all students. Scaffolding the concepts helps students with learning challenges and language barriers find academic success. By placing small chunks of content on the screen, these students can improve their learning outcomes. Brain research indicates that this yields a rush of the chemical Dopamine, which is a neurotransmitter needed to activate long-term memory, engage students further, and motivate students to continue when cognitive complexity increases.

Penda also includes an integration with Immersive Reader, a Microsoft Learning Tool, that makes all of Penda's science activities accessible to learners of all abilities. In addition to providing translation of more than 60 languages, Immersive Reader enables text to be read out loud, breaks it into syllables, and increases spacing between lines and letters. It also offers text decoding solutions and other supports for students with word-reading difficulties such as dyslexia.

Penda Learning supports differentiated, small-group instruction as well. For those students needing additional support in a particular concept, teachers can assign additional activities in the program. Data- and student-driven, there are a variety of assessment options that assist with program placement, ongoing formative assessment, and diagnostic assessment. Weekly reports detail student progress.

Is Penda Standards-Aligned?

Penda Learning is aligned to Next Generation Science Standards (NGSS), Florida NGSSS, and Texas TEKS. Weekly Penda activities mirror the same content that has been taught in the classroom that week so it reinforces the curriculum. Teachers simply open a Monday morning email that contains a report showing the level of content mastery for every student.

Why Does Penda Learning Work?

Penda is built upon brain-researched concepts of neurobiology. Brain research and the physiology of learning have demonstrated that there is a strong connection between students' emotions and their learning. The research demonstrates that engagement is the key to students remembering content, becoming self-motivated, staying on track, and finding educational success.

The program also uses the principle of choice to facilitate student engagement. Neurobiology indicates that when students have choices, they are more likely to competently complete a task and remember the content. Studies have found connections between learning and emotions, memory, and real-life experiences.

Here are some ways that Penda Learning supports these connections:

- Students go beyond authentic engagement and enter a state of “flow,” which allows them to concentrate for longer periods of time.
- Engagement activates both the auditory and visual areas of the brain that help create meaning and anchor learning through contextual experiences.
- Avatars and competition engage students at the emotional level. Students choose friends from their school/grade to make up their Penda Learning world. As they complete activities, they race around the Penda world visiting different countries and receiving trophies and medals.
- Personalized student pages are highly interactive and visually stimulating. They capture students' interest and engage their competitive nature. Students use avatars to engage each other on Penda's gaming platform.

Can You Explain More About the Penda Pedagogy?

The pedagogy for Penda Learning is based on the latest brain research and learning strategies in regard to content delivery, questioning types, interaction types, and gaming. Brain research reveals that learning is enhanced by complex and meaningful challenges.

Penda Learning utilizes Webb's Depth of Knowledge Levels 3 and 4, stretching the learner's skill set. The rigorous activities literally carve out neuron pathways in the student's brain, allowing them to store and retrieve the information later. When students engage in additional independent practice on the gaming platform, teachers receive targeted, weekly data to make data-driven decisions.

With Penda, students have the opportunity to practice content recently taught, to continue to practice concepts not yet mastered, and revisit concepts not seen for several months. This allows the student to have a cyclical experience with the content and thus become more proficient.

How Does Penda Scaffold Concepts and Content?

Penda Learning uses Piaget’s scaffolding of concepts. The first couple of screens dip below the concept wanting to be practiced so that students can have that “AHA!” moment of remembering some information about the concept. This allows them to access that prior knowledge and find success right up front. Students find this motivating enough to complete the activity.

The scaffolding of content and the varying levels of cognitive complexity provide each learner the opportunity to master the prerequisite skills needed to be successful on targeted learning outcomes. Scaffolding also allows students to progress at their own pace. Activities are not timed and can be repeated as often as a student or instructor feels is necessary. Because students have access to the content at all times and they want to earn “points” and compete with their friends, they feel empowered to take control of their learning. Penda has made it easy for students to see which activities are mastered with a green, yellow, and red progress reporting system.

Motivated students who have mastered concepts can choose to work ahead, while those who are struggling with a particular concept can repeat the activity or choose lower-level activities on that same concept without the fear of embarrassment.

How Does Penda Support Onboarding and Ongoing Professional Learning?

Penda makes onboarding for teachers and students easy with ClassLink, Clever, OAuth, and OneRoster integrations for the secure and reliable transfer of student information between a district’s Student Information System (SIS) and the Penda platform.

The Penda Learning team includes full-time Implementation Specialists as well as former educators and administrators with many years of experience in public education to provide virtual or on-site school and district professional development. The implementation trainings begin with regional events followed by one day of on-site or remote professional development for each school in the district.

The next step is to collect the district’s science curriculum maps for grades 3-10 and upload them into the Penda Learning system. Weekly assignments are then generated according to the individual district’s scope and sequence. Also, schools receive ongoing support through additional onsite visits, webinars, phone calls, and email.



How Does Reporting Work Within Penda?

Each user in Penda Learning has a unique account. The system provides Monthly Reports by email to administrators and grade-level chairs. Penda Learning sends Weekly Reports by email to teachers. Teachers and administrators who want to take it a step further can log in to access real-time data if they wish.

Types of Reports	Who Receives the Reports
Weekly Class Mastery Report	Teachers
Weekly Assignment Reports	Teachers
Monthly Grade-Level Mastery Reports	Coaches, Grade-Level Chairs, and Administrators
Monthly Administrative Reports	Coaches, Grade-Level Chairs, and Administrators
Monthly District Reports	Coaches, Grade-Level Chairs, and Administrators

The following screen shot is a sample Class Mastery Report that demonstrates student mastery of each activity they have completed. An activity mastered at or above 80% is highlighted in green, an activity partially mastered (60% - 80%) is identified in yellow, and one not mastered (less than 60%) is red.

Sample Class Mastery Report

Class Mastery Report		Key				
Grade 5 Science		 G	Mastered (≥ 80%)			
K Kelso - Science - Per 1		 Y	Partially mastered (≥ 60%)			
Date created: Dec. 9, 2013		 R	Not mastered (< 60%)			
Academic Year: 2013 - 2014		 -	Some activities not attempted			
Date From: Aug. 1, 2013		Note: "Incomplete" means not all the activities associated with that standard have been completed.				
Date To: Dec. 9, 2013						
Grade 5 Science	S.1.A	S.1.B	S.2.A	S.2.B	S.2.C	S.2.D
	Score	Score	Score	Score	Score	Score
K Kelso - Science - Per 1	 76%	 82%	 86%	 79%	 85%	 93%
Macey Barfield	 65%	 91%	 97%	 96%	 100%	 95%
Kenzie Blaine	 98%	 98%	 98%	 96%	 100%	 100%
Emily Burns	 95%	 90%	 100%	 88%	 100%	 100%
Grace Collins	 89%	 89%	 89%	 62%	 100%	 90%
Steffany Dixon	 80%	 80%	 80%	 80%	 80%	 86%
Ailsa Fields	 90%	 75%	 84%	 79%	 86%	 86%
Victoria Gregory	 85%	 95%	 98%	 71%	 90%	 76%
Sydney Humphrey	 90%	 95%	 100%	 71%	 95%	 76%
Tori Jackson	 80%	 86%	 87%	 74%	 96%	 90%
Savannah Kertton	 100%	 96%	 93%	 73%	 95%	 100%
Carlos Lopez	 80%	 96%	 98%	 96%	 95%	 95%
Michael Marello	 80%	 100%	 92%	 96%	 90%	 95%
Andrew Miller	 100%	 94%	 100%	 87%	 90%	 100%
Tyias Nolan	 45%	 91%	 92%	 83%	 95%	 90%
Daniel O'Conner	 80%	 98%	 98%	 91%	 95%	 90%
Paul Phillips	 85%	 90%	 100%	 85%	 100%	 90%
Brandon Ruston	 80%	 85%	 94%	 81%	 90%	 100%
Jonathan Smith	 100%	 90%	 89%	 81%	 100%	 100%
Zachary Wallace	 85%	 80%	 89%	 83%	 67%	 95%
Brian Waucer	 85%	 100%	 100%	 91%	 100%	 90%
Bailey Zollweg	 85%	 80%	 96%	 100%	 99%	 95%

The Class Mastery Report shown above is emailed to educators every week to assist in the tracking of every student's usage and mastery of content.

Grade-Level Mastery Report

Grade Level Mastery Report		Key				
Jones Elementary School		G	Y	R	-	NA
Date created: October 22, 2013		Mastered (≥ 80%)				
Academic Year: 2013 - 2014		Partially mastered (≥ 60%)				
Range: Aug. 1, 2013 to Oct. 22, 2013		Not mastered (< 60%)				
		Some activities not attempted				
		Not Attempted				
Grade 5 Science	SC.5.NS.1.1	SC.5.NS.2.1	SC.5.NS.2.2	SC.5.P.3.1	SC.5.P.3.3	
	Score	Score	Score	Score	Score	Score
Grade Summary	-Y 71%	-Y 73%	-R 82%	-R 92%	G 93%	
K Kelso - Science - Per 1	-Y 65%	-G 85%	G 83%	G 85%	G 88%	
K Kelso - Science - Per 2	-G 85%	-G 85%	Y 75%	-G 94%	G 88%	
K Kelso - Science - Per 3	-G 95%	-G 90%	G 100%	-G 96%	G 100%	
K Kelso - Science - Per 4	-Y 75%	-Y 65%	G 88%	-G 90%	G 88%	
K Kelso - Science - Per 5	-G 80%	-Y 65%	G 88%	-G 94%	G 88%	
L Peacock - Science - Per 1	-G 90%	-	G 92%	-G 97%	G 94%	
L Peacock - Science - Per 2	-G 85%	-G 95%	G 83%	-G 90%	G 88%	
L Peacock - Science - Per 3	-G 90%	-	G 83%	-G 91%	G 100%	
L Peacock - Science - Per 5	-G 80%	-G 80%	G 88%	-G 85%	G 88%	
L Peacock - Science - Per 6	-G 100%	-G 90%	G 100%	-G 100%	G 100%	
S Post - Science - Per 1	-G 80%	-G 85%	G 88%	-G 96%	G 100%	
S Post - Science - Per 3	-G 80%	-G 90%	Y 71%	-G 85%	G 88%	
S Post - Science - Per 4	-G 100%	-G 80%	G 92%	-G 100%	G 100%	
S Post - Science - Per 5	-R 45%	-G 100%	-	-G 90%	G 88%	
S Post - Science - Per 6	-G 80%	-G 80%	G 100%	-G 91%	G 100%	

Administrator Report

Administrator Report - Dec 1, 2013		PENZA A Learning 2020 company		
Jones Elementary School				
Jones CISD, Texas				
2013-14 Academic Year to Date				
Science Teachers				
Last Name	First Name	Task Hours Last Month	Task Hours Year to Date	Set Tasks
Amerson	Haley	500	631	22
Atkins	Nasaysi	7	7	13
Darby	Kelly	710	920	21
Dean	Kristi	331	443	10
Slack	Cathy	102	182	0
Lucillo	Marna	419	509	5
McDowell	Helen	534	534	15
Post	Steve	498	602	5
Russo	Suzanne	573	573	4
Schultz	Kim	471	581	18
St. Clair	Scott	345	468	8
Walls	Eileen	427	589	7
Weissman	Lynnea	523	766	11

Detailed mastery and usage reports by grade and school are auto-generated and emailed to school and district administrators on a monthly basis.

How Does Penda Learning Support District Technology Plans and Remote Learning?

Most districts require that digital products are compatible with their district technology plans. As a digital program, Penda Learning facilitates the development of students' technology skills in the following ways:

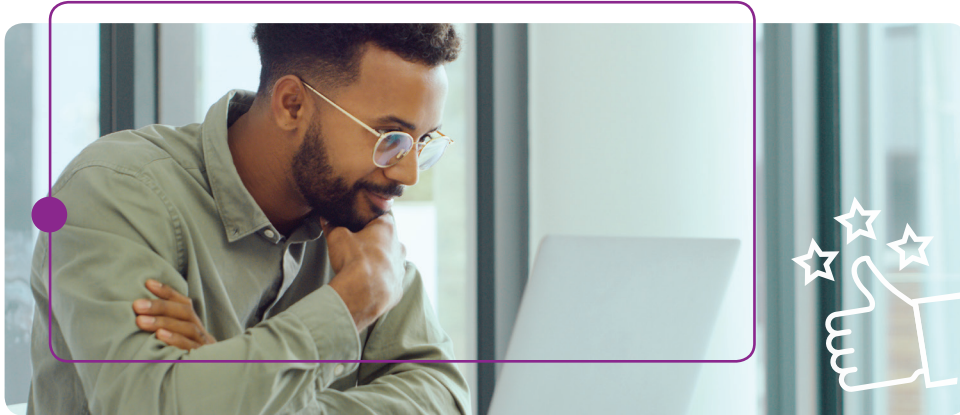
- Penda is a technology-based curriculum tool that enhances the integration of technology into teaching and learning.
- Penda helps personalize learning for students as they do explorations on their own after completing their weekly assignments.
- Penda is available 24/7 via the web and extends learning outside of school hours and can be used on multiple devices.
- Penda is a digital tool that supports teachers, coaches, administrators, and students.
- Penda provides embedded formative assessments.
- Penda enhances access to student data.
- Penda can be used by students at home and promotes parent awareness of what students are learning.
- Penda enables technology leadership by helping teachers integrate technology into their curriculum with a fully supported digital program that does not require the teacher to do any additional work.
- Penda supports technology that enhances instruction through mentorship of teachers by coaches in using student data to drive instruction
- Penda allows students to take performance-based assessments in a digital format that prepares them for online high-stakes tests.

Does Penda Produce Results?

Penda Learning has well-documented efficacy. Independent research has shown that when students invest 30 minutes per week in Penda, they make substantial gains in science achievement.

In 2009, Dr. Margaret Jorgensen studied the ability for Penda Learning to provide a safety net for struggling high school students by getting them on track to pass their high school exit exams, to catch up to their current grade level, or to prepare for assessments. The ability to provide personal, student-driven instruction was found to be a critical factor in why students were successful with Penda Learning.

Furthermore, school-based research has shown that students participating in Response to Intervention (RtI) make at least one year's growth using Penda Learning.



Conclusion

Most teachers simply do not have the time to teach their students individually, especially now as they take on the added challenge of teaching remotely to students dispersed across the community and connected via computers.

Penda Learning makes it possible.

The platform automatically aligns program content to a district's scope and sequence and makes assignments on the teacher's behalf. Then Penda automatically emails teachers and administrators student performance data once a week to determine if students are keeping up with core instructional concepts or if they are struggling. These emails provide the necessary data for teachers to drive instruction and to ensure that their students are not falling behind.

Plus, students love independent practice on Penda's science gaming platform, often engaging with it outside of typical school hours and beyond the required amount of weekly practice for improving learning outcomes. With only 30 minutes of usage per week, students can make significant gains in science, especially those who previously lacked academic success — perhaps labeled as underachievers or bottom quartile students — and those who are considered economically challenged.

The importance of the brain-based research underpinning Penda Learning is that students learn better when they are engaged. And Penda is highly engaging for students. It has many game-based elements that are fun and effective in teaching students science content aligned to state standards both inside and outside of the classroom.

About Annie Galvin Teich

Annie Galvin Teich has worked for more than 25 years in K-12 publishing with broad experience in audience development, sales, direct marketing, and customer communications. She now works with education companies to develop content marketing strategies and shareable content such as case studies, whitepapers, newsletters, eBooks, webinar articles, social media, and webinars.



About Penda Learning

Penda Learning is a leading provider of highly engaging science lessons and activities for grades 3-10. Designed using proven education pedagogies, the online game-based system motivates students to play and learn, building their science knowledge and skills while having fun. Penda activities are aligned to state and national standards as well as districts' unique scope and sequence and are auto assigned to students based on their mastery, simplifying lesson planning and RTI/MTSS for teachers. Automated, in-depth reporting supports informed decision making about instruction, intervention, and professional development. With Penda, students can't wait to learn science; teachers have comprehensive support for effective instruction; and administrators can see the results in improved student achievement.

For more information, email info@pendalearning.com or call 888-919-0404.