RFI Submission

Presented to

Request for Information: EDD393080

WVDE Enhanced Data Entry Solution

Presented to:

State of West Virginia
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Presented by:

engrade

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05/30/13 01:36:24 PM
West Virginia Purchasing Division

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CERTIFICATION AND SIGNATURE PAGE

By signing below, I certify that I have reviewed this Solicitation in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this bid or proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

ENGRADE INC.

(Company)

(Authorized Signature)

ZACHARY POSNER

(Representative Name, Title)

310 - 574-2393 323 - 617 - 5104

(Phone Number) (Fax Number)

5/30/2013

(Date)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: EDD393080

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

[X]	Addendum No. 1	[ ]	Addendum No. 6
[ ]	Addendum No. 2	[ ]	Addendum No. 7
[ ]	Addendum No. 3	[ ]	Addendum No. 8
[ ]	Addendum No. 4	[ ]	Addendum No. 9
[ ]	Addendum No. 5	[ ]	Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Engrade Inc.
Company

Authorized Signature

5/30/2013
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

Section I: Introduction letter / History of Engrade & WV

May 30, 2013

Ms. Connie Oswald
State of West Virginia
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Dear Ms. Oswald,

Engrade would like to thank West Virginia Department of Education for the opportunity to respond to e WVDE Enhanced Data Entry Solution RFI, dated May 15, 2013. Engrade is committed to maximizing the benefits of a unified system bringing people, tools curriculum and data together so that insights are automatic and results are second nature.

At Engrade, we are unifying education, which means that we are bringing together all of the people, tools, curriculum and data on one easy to use platform. When we refer to a platform we are uniquely architected to pull data from anywhere and push data to anywhere while building a complete profile of a student and their educational career. We provide stakeholders with a solution that can be accessed anywhere, from any device with an Internet connection – computer, tablet, or mobile device.

Engrade's Software-as-a-Service (SaaS) solution supports millions of users with billions of data points and has maintained a perfect security record since our inception in 2003. Engrade has been serving stakeholders in state of West Virginia since 2005 when it was adopted by teachers who were on a quest for a robust and usable data tool to help them manage their classrooms. Engrade has since grown and continues to execute on our vision for a comprehensive data platform that meets the present and future needs of teachers, students, parents and schools, county and state administrators.

We presently have a strong customer base that is growing quickly in the State of West Virginia. For the upcoming school year, Engrade has received commitments to use its platform from Counties representing approximately 40% of the student population. Presently we are in discussions for 2014 implementations for new counties, which combined with existing counties, would represent 75% of the students in WV. Engrade has seen over 2,559,176 visits to Engrade during the 12 – 13 school year to date.

We have a two-way automated integration with WVEIS, which we have been told is the most comprehensive WVEIS integration to date. We have successfully partnered with the top Assessment and Content Providers (at the direct request by counties in the state of West Virginia) including:

- McGraw Hill CTB: Acuity, WESTEST and Everyday Math.
- Renaissance Learning, Compass Learning, WG DIBELS, Pearson, Scholastic, and others.
- Our list keeps growing meeting the needs of data and content unification for schools across the country which, once integrated we can easily turn on for WV.

We are excited to respond to this RFI because we have a shared vision of how stakeholders should be empowered to interact with data. We are truly a proven best-of-breed solution for West Virginia. Most important to WVDE, we have a deep understanding of the needs and wants of West Virginia educators because we are there working everyday with schools and counties across the state. We have brought

more feature requests to West Virginia than any other state because we are true partners and West Virginia's feedback is insightful and progressive.

We envision an exciting and dynamic collaboration, one that truly makes a difference and is fundamentally self-validating. Together, Engrade's enterprise platform becomes West Virginia's springboard to realizing an extraordinary vision to be emulated across the country.

Please accept this letter as our Notice of Interest.

Sincerely,

Zach Posner, *CEO*

Section II: RFI / Project Introduction

Introduction

Our mission is to make data actionable for all stakeholders in each student's educational success. We accomplish this mission through intuitive and consistent intuitive user interface design and a back-end optimized for scalable integration with partner systems. Our solution is accessible via web, mobile, and tablet devices.

The Engrade Platform currently serves as the nerve center of data, content and tools uniting, reporting and delivering on standards based instruction. We already integrate with a variety of systems including assessment providers, student information systems, content providers and professional development providers, making Engrade a "one stop shop" for educators, parents, and students. Most importantly, we already integrate with WVEIS and a significant number of third-party vendors that are being used by West Virginia Counties.

Engrade's technology automatically surfaces connections between assessment item-level analysis and professional development videos, between early warnings and proven actions, between Standards-aligned assessment data and instructional recommendations (we have alignments with West Virginia Next Gen, CSO's and Common Core). Educators, students and parents post and download regularly functioning as one universal instructional ecosystem. Engrade's Reporting and Dashboards, Item Bank, Advanced Search, Curriculum and Lesson Planning makes developing and finding all kinds of educational artifacts across all vendors easy to find, plan and use.

Engrade serves over 500,000 teachers, hundreds of schools and counties, with a total of more than 5 million total registered educator, parent, and student users. We serve large and small school agencies alike, including thousands of teachers in New York City Public Schools, Houston ISD, Los Angeles Unified School District, and District of Columbia Public Schools who use our Classroom Management System to communicate with students and parents, automate tedious grading and administrative tasks, become digital authors of instructional supplements and assessments, and manage student data to draw automated insights.

Of particular importance to West Virginia Department of Education is our "integration-friendly" architecture, enabling tools and data from multiple external sources to merge together seamlessly. We do this with a wide variety of single sign-on technologies, bi-directional API integrations to connect tools teachers use most and systems engineering to unify data. We have some unique experiences in the complex process of two-way integrations from custom SIS systems integrations as well as third-party vendor integrations. Engrade's technical team has a strong data and analytics background along with a proven track record of success in systems integration. We build and implement scalable enterprise solutions and integrate data from disparate, sometimes arcane, systems.

Engrade is committed to improving student learning through the effective and timely use of data. The Engrade platform creates a complete and persistent student record, including all assignments, grades, summative, interim and formative assessments as well as demographic data and makes dashboard data

available to all stakeholders. Engrade is steadfast in our commitment to maximizing the benefits of a unified system bringing people, tools and data together so powerfully that insights are automatic and results are second nature.

More importantly, it is our mission to really empower educators. So we want to keep the learning landscape open and competitive. We do not build to one specification and ask all to conform; we engineer turn-key solutions to ingest the widest array of data to truly deliver on best-of-breed tools and technologies from many systems from many vendors.

Section III: WVDE Consideration Executive Summary

1. Provide a data entry platform online and mobile ready

Engrade's core competency is 3rd party integrations. Engrade is already integrated with WVEIS and a majority of West Virginia's online content and assessment providers.

Engrade's platform allows administrators, teachers, students, and parents to enter data via any web accessible device, including computer, tablet, or mobile. Engrade is optimized for use on iOS devices including iPhones and iPads as well as Android devices.

Engrade integrates all data from all systems into one location. Data includes performance data, demographic data, engagement data and more. Engrade also integrates all online content and tools. Online content in Engrade include Acuity, Renaissance Learning, Scientific Learning to name a few of about 50 partners and counting, most of which have come directly at the request of West Virginia Counties. Administrators, Teachers, Students and Parents log onto Engrade from any web-enabled device and have access to all data and all online tools. On Engrade, all stakeholders are empowered to do more because Engrade makes data actionable and tools accessible. The Engrade web client is elegant, has a consistent user experience to optimize discoverability, streamlined data entry, unified data presentation, and ease of use for each class of user.

In the 2012-2013 school year, West Virginia counties on the Engrade platform have entered in more than:

- 918,295 assignments (over 100,000 of which have been aligned to WV State Standards)
- 14,589,726 individual scores
- 14,708,277 attendance marks
- 274,787 messages

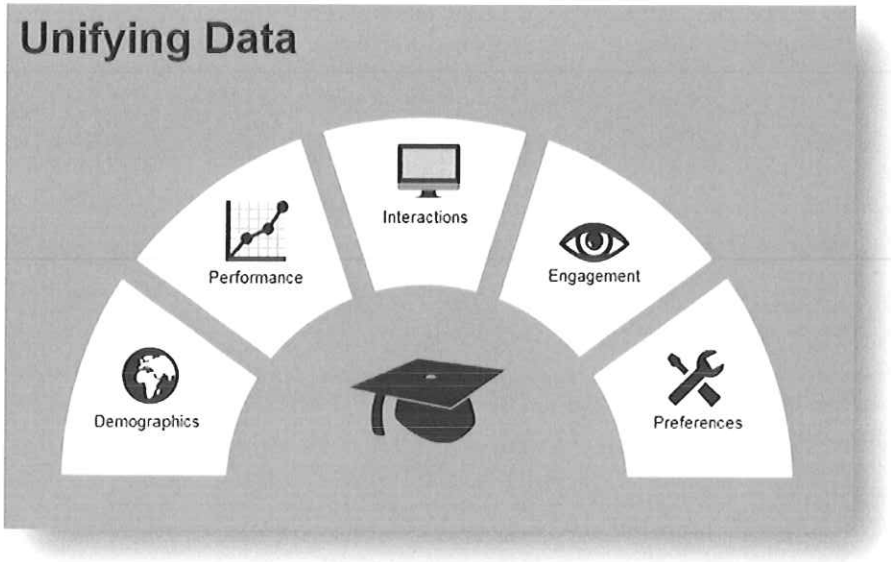
Some of the data entry types accepted on Engrade are:

- Gradebook Assignments
- Assessment Scores including Item-Level scores
- Quiz Scores
- Standards Scores
- Attendance
- Custom Behavior Marks
- Contact Information
- Demographic Information
- Comments
- Messages

This school year, Engrade imported more than 7,000,000 scores for West Virginia students from assessments such as CTB Acuity and WESTEST. Additionally, Engrade has provided convenient access through single-sign-on to Scientific Learning and Renaissance Learning products.

We believe that this improved data accessibility and aggregation will improve data analysis and have a measurable impact on student outcomes.

2. Support, pull, and transform data from/across multiple sources to be presented in a unified interface



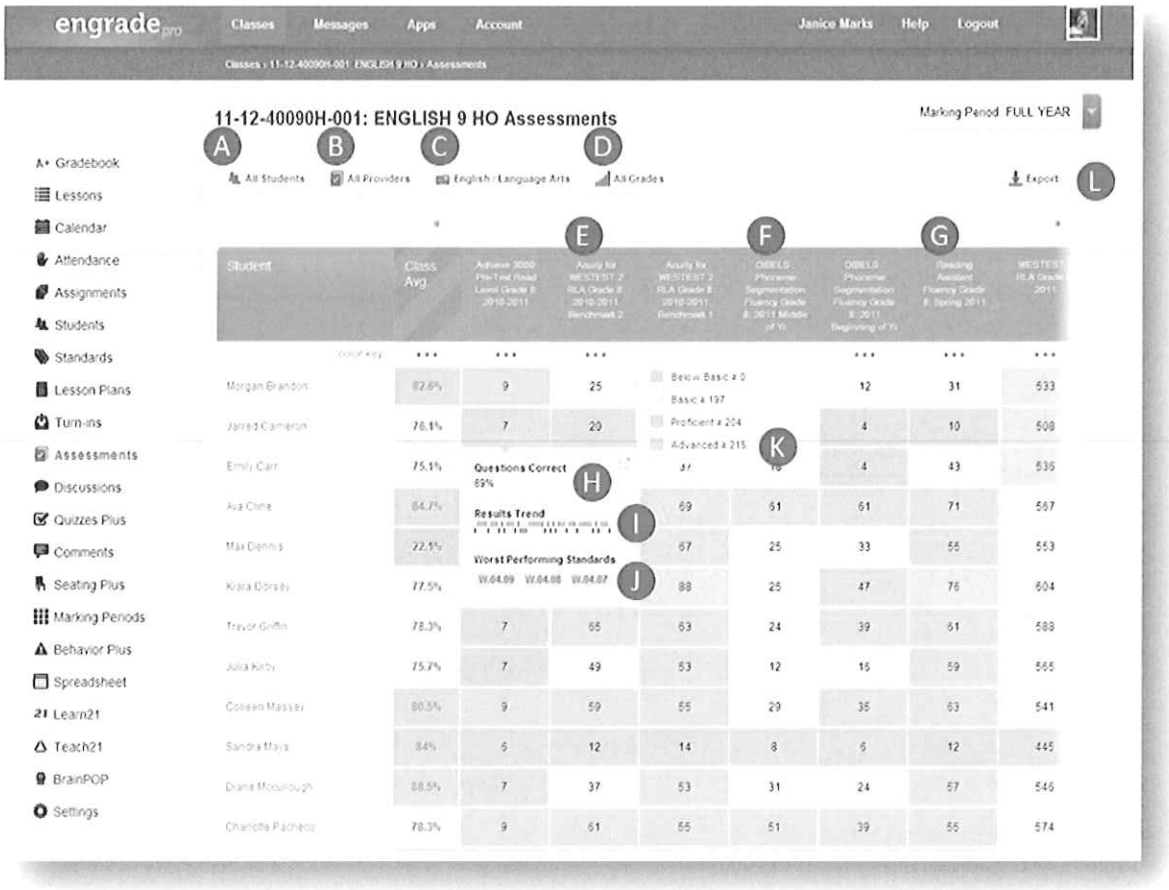
Engrade pulls data in from virtually all sources. The data is presented powerfully on unified interfaces. Assessment data is centralized. Mastery data is centralized. Stakeholders go to one place for data, Engrade. They do not have to jump between systems, manage passwords or create their own spreadsheets. The platform's backend and architecture pull and transform data across vendors as the foundation for the personalization of strategies, tools, and support for students and educators.

In West Virginia, Engrade already integrates WVEIS data, with classroom data, with McGraw-Hill/CTB Acuity data, with Pearson data, with Scholastic data and on and on. More importantly, Engrade transforms this data into one unified view. Below Basic proficiency is red across Pearson, Scholastic and WESTEST data even though Pearson is a percentile, scholastic is a Lexile and WESTEST is a scaled score.

For Acuity for WESTEST, Engrade displays benchmark results alongside formative classroom data maintaining:

- Color Coded Performance Tiers
- Item Analysis / Answers Reported
- Standards Analysis

Based on the kind of data imported in the system we give users the ability to customize data sets across parameters from all assessments. For example having imported WESTEST Reading and Scholastic Reading Inventory (SRI) and Renaissance Learning, a teacher, for her class, or an administrator, across all classes, can get a data set of students who are in Grade 4, with a WESTEST Scale Score of 431 and an SRI Lexile range between 300L-400L with an ATOL aligned to CCR of 5.2. The world of data is limitless.



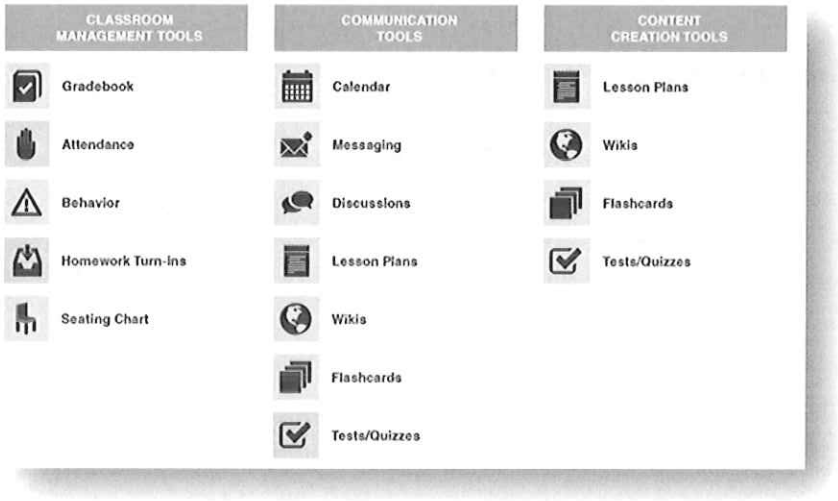
Unified Assessment Data from Engrade's Online Assessment Delivery System or Third Party Assessment Providers

A. Filter All Students, Groups or Individual
B. Filter Assessment Provider (WESTEST, Acuity, DIBELS, Class Tests, and External Providers)
C. Filter Subjects (ELA, Math, Science)
D. Filter Grades
E. WESTEST Data proprietary to CTB yet Engrade was still able to import and process with a CTB Assessment Map
F. DIBELS Data comes from Wireless Generation on an automatic schedule to Engrade's server
G. Reading Assistant is ingested through an API call
H. Shows percent questions correct
I. Shows all the items in the test. Green is correct, red is incorrect
J. Shows the worst performing standards on Acuity Benchmark
K. Shows the performance brackets. All cell colors are normalized on a Below Basic, Proficient and Advanced scale.
L. Export data to Excel

3. Have a platform that can integrate existing and new tools (e.g., attendance, grades, messaging, user-level customized reports, assessment results, etc.)

Engrade knows that to be the best, it has to integrate with the best and it does. Engrade integrates with new tools and data daily to ensure the widest breadth of curriculum and data access.

Engrade also builds powerful tools that work. They are always accessible. They are always easy to use. But most importantly Engrade's designers and engineers skillfully harness the power of technology and then systematically and meticulously fine-tune the user experience for each tool so optimally that users can't help but to produce astonishing results in seconds. This is Engrade's number one design principle and raison d'etre.



Engrade's Native Toolset

- Acuity
- Compass Learning Odyssey
- Renaissance Learning
  - Accelerated Reader
  - STAR Reading
  - STAR Math
- Scientific Learning Fast Forward
- Pearson Successnet
- Achieve 3000
- Discover Education
- Edvation
- Google Apps
- Learn21
- Lexia
- Raz-Kids
- SAS
- Khan Academy
- Learn Zillion

Engrade's Third Party Tools

4. Can integrate with existing single-sign-on structures

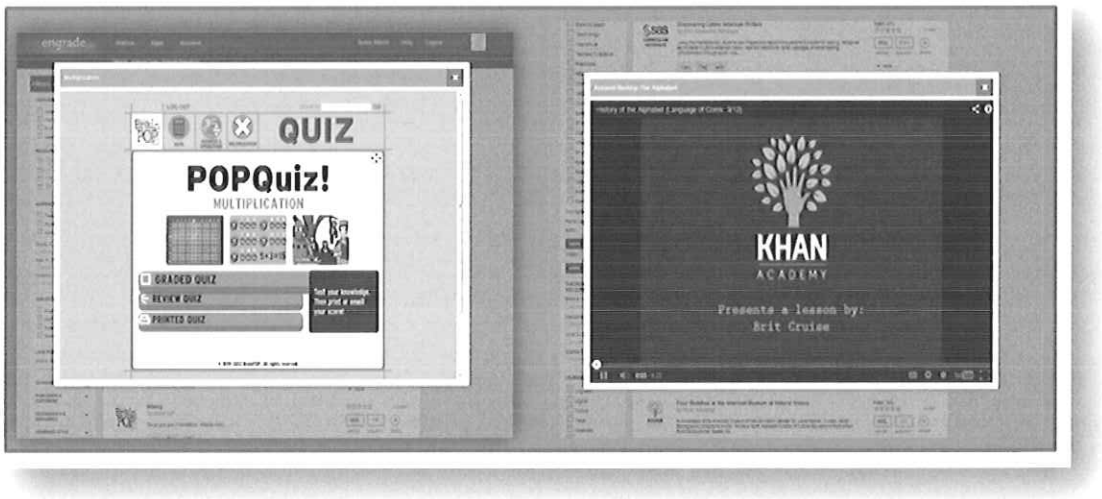
A teacher logs into Engrade, clicks on her lesson planner and views today's Scientific Learning's Fast Forward Lesson. She does not have to remember her Fast Forward password nor does she have to enter it in. Engrade has it covered. When she searches for more content to support the day's lesson she searches across 50 publishers. She could use Google, but her Engrade Repository is curated for exactly this moment and hence far more relevant. Within her list of search results she can directly view content from the top 5 providers without entering 5 different passwords. Likewise students can view all of today's content with only their Engrade password.

This is the power of Single Sign-On.

And, Engrade supports the widest array of SSO technologies integrating with virtually all single sign-on technologies and protocols including: SAML, LTI, LDAP, OpenID, OAuth, and more. We also integrate with state and county services such as Active Directory and Oracle Internet Directory. By integrating with the customer's directory services and Student Information System (SIS) Engrade is able to provide a centralized identity service for all third party vendors.

Since Engrade is already integrated with WVEIS, Engrade can roster all third party vendors. All vendors can be centrally managed from Engrade. All account provisioning, rostering and transferring can be handled in Engrade. WVEIS' exposure to external applications is minimized. WVDE keeps more of its valuable IT resources. Load diminishes. Onboarding is streamlined.

Interested counties will simply "turn on" 3rd party integrations without the duplication of effort across each county or school contract. This will also afford each county's participation the buying power of the entire state of West Virginia.



Single Sign-On: Students watch lesson, complete quiz

and third party auto-populates the grade book, assessments and reports

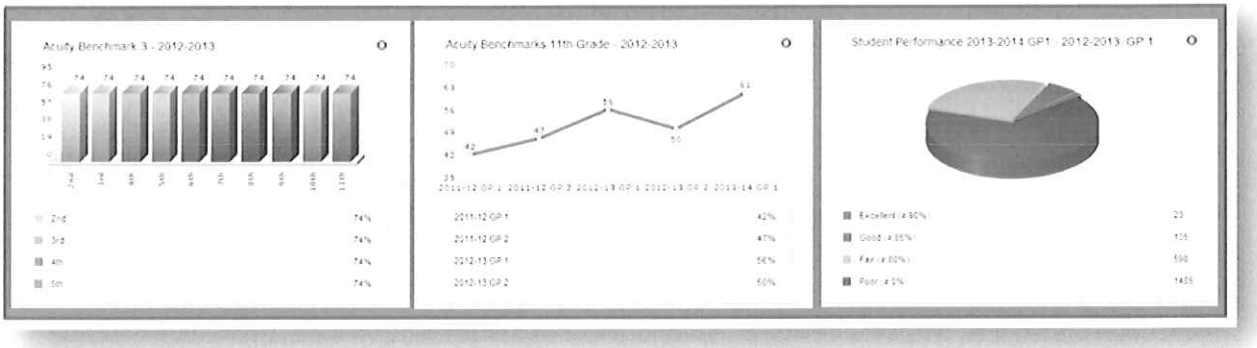
Single Sign-On with Achieve3000

5. Have interfaces/dashboards that are intuitive, well designed, easy to use across multiple role based access levels

Engrade's dashboards are beautiful. They are intuitive and well designed. They show just the right amount of information to be useful and actionable. And they are componentized to allow stakeholders to see only what they want to see, where they want to see it. More importantly, all graphs drill down to their relevant data sources for deeper analysis.

Dashboards are available to each role including district / school administrators, counselors, teachers, students, and parents. At the district, school, and class level, performance, attendance, and other data

can be disaggregated and compared by school, class, subject, grade-level, and demographics such as gender or ethnicity.



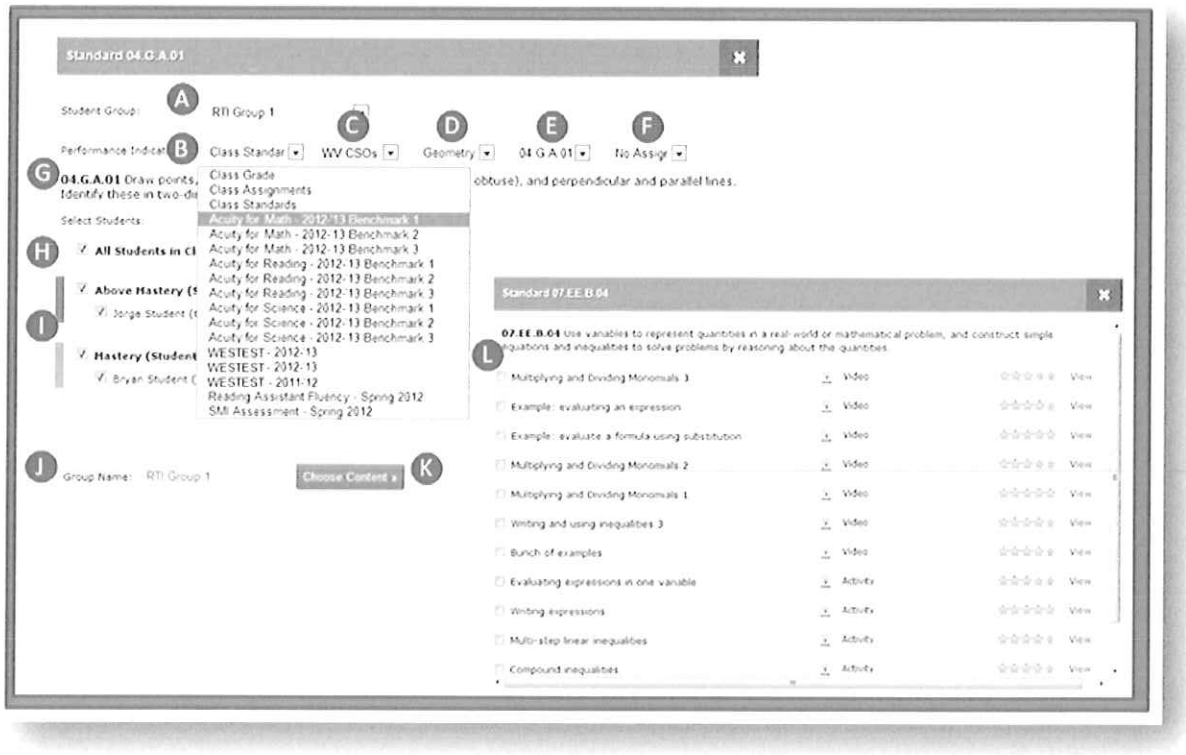
Acuity Benchmark Graph Drills Down to Acuity Data and Student Performance Data Drills down to Assignments

6. Allow for customized reports that provide instructional recommendations (e.g. strategies, tools, resources, or supports) based on data-driven and standards-based results.

Grouping and personalization in education is the fruit of good data - mastery is simply the next step.

Because Engrade hosts data from multiple sources, such as assessments, attendance data, biographical, demographical data and grades, all on one portal, grouping for action and following up for accountability is what makes Engrade so powerful.

Engrade's grouping tool allows educators to effectively use data-driven targeted instruction to intervene and enrich sub-groups via personalized delivery of content and follow-up.



Instructional Recommendations for Standard 04.G.A.01

A. User can select a group or individual students. Once the group is selected the students in H and I are filtered out.
B. User selects whether to pull recommendations from Class Grade, Class Assignments, Class Standards or any Third Party Assessment or Mastery Data
C. The performance indicators will automatically adjust its sub-filters depending on what was previously selected. In this case, because the user selected Acuity for Math Benchmark 1 the following sub-filter offers WV CSOs because the content in the benchmark are tagged with these standards.
D. The sub-filter offered after the WV CSO selection are all the clusters
E. Since Geometry was selected, the next sub-filter will show all objectives descended from Geometry.
F. User can further filter on whether content related to this standard has ever been assigned
G. The standard selected is presented for user's convenience
H. All students in the group can be selected
I. Or, the students can be selected on mastery of the given standard
J. If a subset is generated or the user simply wants to track the group as a separate group, the user can give the selected group a new name.
K. User, clicks on choose content to get recommendations
L. The recommendations appear. These recommendations can be lesson plans, flashcards, third party content such as videos

7. Have the capability of creating student profiles that provide information about students' full educational careers.

Engrade has the capability to display a student's longitudinal data record that we believe is the most extensive history ever maintained. Some samples of the types of data in Engrade include:

- Summative assessment results
- Grades from classes
- Attendance
- Logins to Engrade's system
- Actual homework assignments that were turned in
- All assignments ever completed

Engrade is P-20 ready with the ability to track the entire educational career integrating early learning through higher education data and opportunities in one learner profile that all stakeholders, including parents and students, can view from one easy to use online and mobile ready platform.

More than data, the entire portfolio of a student's online work is stored in Engrade's digital locker. She can view her work in 5th grade when she's in 7th. This reflective practice enables the student to assess her experience, learn from mistakes, repeat successes and plan for the future.

8. Can be seamlessly integrated with existing data sets/systems

An administrator logs in and views his dashboard. He reviews benchmark data from Acuity, standards performance across all third party vendors, growth data from summative assessments and parent activity on Engrade. That is quite a commanding view on the state of operations in a school district.

This is the power of data integration at work on the Engrade platform.

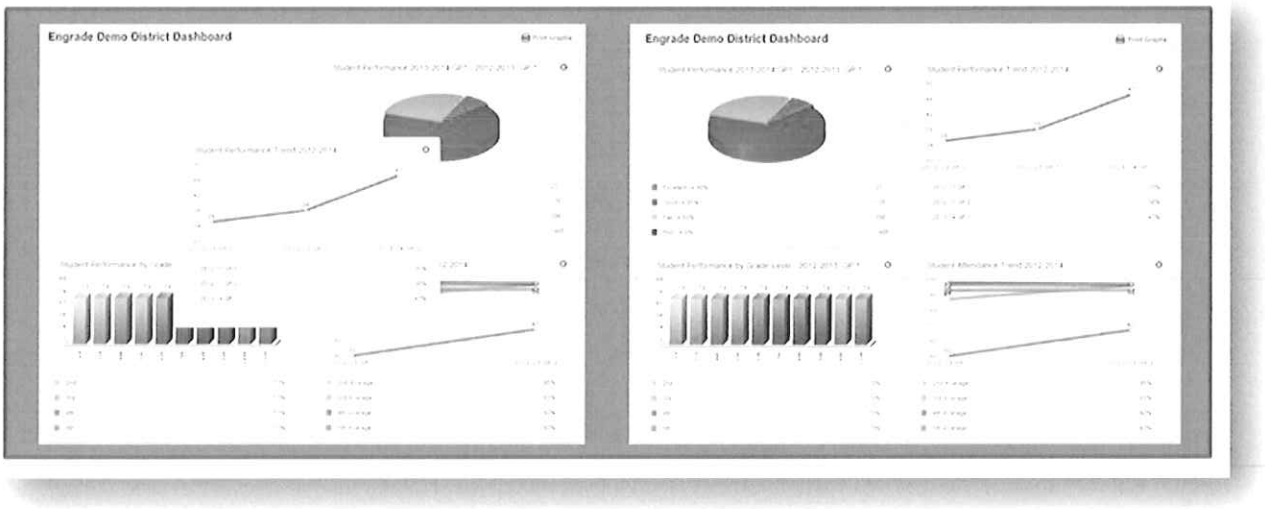
Engrade integrates with virtually all data sets and systems including SQL, Oracle, DB2, Access, Excel, MySQL, Sybase, Informix, Teradata, Neoview, Flat files, CSVs, etc. Engrade provides connectivity to virtually all types of data sources and types, operating systems and hardware environments using both native access and open standards.

9. Provide custom and on-the-fly reporting capabilities and analytics

Engrade adapts to the way you work. Engrade enables custom and on-the-fly reporting capabilities. Users can select which graphs they want to see and where they want to see them. They can even create their own graphs with their own titles and attributes. All reports are filterable by all available filters including Groups, Subject, Provider, User, Time and more. In addition to many printable and web based reports, Engrade allows administrators and teachers to export all data via CSV / Excel or our API.

Create On-the-Fly Dashboards

A. Enter your own personal title
B. Select a time range or select Over All Time
C. Select Category of Graph
D. Optionally select Group By Gender, Ethnicity or Grade Level
E. Select Starting Period
F. Select Ending Period
G. Select Schools
H. Select Gender
I. Select Ethnicity
J. Select Subject



Drag-and-Drop To Customize Dashboard View

10. Comply with industry standards for data exchange

Engrade is committed to staying current and using proven industry standards for data exchange. In fact, we own the only viable open source School Interoperability Framework (SIF) agent thanks to one of our formidable and talented engineers who dedicated a better portion of a decade to develop. In addition to a SIF agent, Engrade's offering includes a bundled SIF Zone Integration Server to complete our commitment to standardized models of education data. With a flip of switch, Engrade can provide vertical interoperability between state or county SIF data stores and Engrade's.

Engrade supports exchanging data through various data interchange standards:

- Ed-Fi: Ed-Fi is an XML-based data specification combined with a free tool suite developed by the Michael & Susan Dell Foundation to improve student achievement in the K-12 education sector.
- SIF: School Interoperability Framework, developed by The SIF Association, is an industry initiative to enable interoperability and data sharing between software applications in the pK-12 instructional and administrative environment.
- CEDS: Common Education Data Standards
- **QTI:** Question and Test Interoperability specification defines a standard format for assessment content and results allowing assessment materials authored and delivered on multiple systems interchangeably.
- **LTI:** Learning Tools Interoperability enables applications to connect via SSO with data pass backs.

11. Support standards structured query language (SQL)

Engrade absolutely supports SQL. Engrade's data is contained in MySQL with the InnoDB database engine which has all of the critical features WVDE expects in a relational database management system (RDBMS). Additionally Engrade's SOA offers a complete API that exposes all data and functionality available on the Engrade Platform. Engrade's integration team will develop any desired integrations with the WVDE data warehouse factoring in master data management concerns such as authoritative data sources and data transfer periodicities including batch or event driven integrations.

12. Provide adequate data privacy and security

We take data privacy and security very seriously. There is not a stone unturned in our infrastructure. We audit and reinforce regularly to ensure the utmost of compliance. Our systems are highly engineered, challenged and validated on a regular basis. The success of our product depends on it.

Privacy

Engrade dedicates full-time resources on data collection and reporting specifications and standards. We support standards that make data interchange easy and efficient and we are devoted to protecting Personally Identifying Information (PII). All of our employees and subcontractor's agreements affirm that PII is not intentionally or unintentionally used or disclosed in a manner that would violate the Family Educational Rights and Privacy Act (FERPA) or any other federal or state regulation governing confidentiality and privacy of students. Engrade trains on procedures to prevent improper use and disclosure of PII and to limit incidental use and disclosure of PII that is, or will be, contained in a student's record.

Security

- 256-bit HTTPS/SSL key encryption: All data exchange is performed over encrypted channels, either SSL or SSH both inside and outside of Engrade's data centers.
- Our componentized technologies are implemented as services through which encapsulated data is exchanged over hardened interfaces, ensuring secure connections to functionality.
- Interfaces are isolated ensuring little to no impact to other components of the overall system.
- Only allow confirmed connected users (e.g. student-teacher and teacher-school)
- User passwords are encrypted in database as a non-reversible, salted hash
- Each student is assigned an Access Code with a 13-bit security hash
- Password cracking countermeasures
- Session Security
- Secure Messaging
- Engrade employs a configurable role-based security model where roles are granted privileges via Access Control Lists (ACL).
    - Roles with Read permissions may only view data; they may not create, modify or delete it.
    - Roles with Write permissions may create modify or delete data.
    - Execute permissions apply to modules and services that result in the execution of programming logic.

- Consistent with the principle of least privilege, roles may not access any modules or services until such grants are affirmatively made.
- Engrade will only permit writes to non-authoritative data (data owned by other systems) by system or administrative accounts that satisfy the appropriate checks.

13. Are supported with training and end-user support

Training

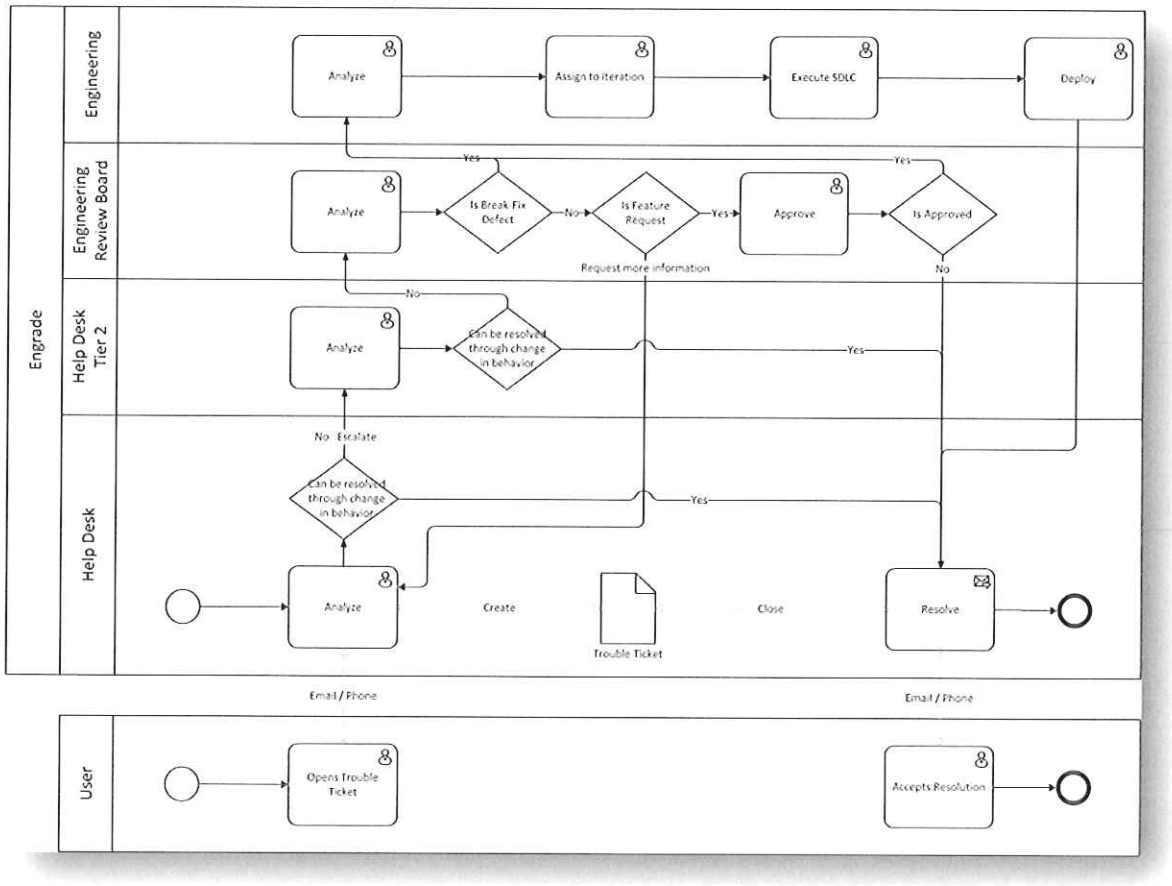
Engrade's training program has proven itself across the US including West Virginia. Developed and executed by seasoned teachers and professionals, Engrade's training program is modularized so that the focus is on only one skill at a Time. Following a blended-learning model, we deliver training in a variety of media, including face-to-face training, short video presentations and webinars. Also found on our Help Menu are a detailed online Help narrative, Quick Start Guides used in our training sessions and parent support documents.

Support

Through the life of the contract, Engrade offers end user telephone support through a toll free phone line available Monday – Friday from 8:00 AM to 8:00 PM Eastern Time.

Engrade additionally has email support through a contact form inside the application. Email contacts are processed through a ticketing system, Zendesk.

Our Customer Service Agents have strong backgrounds in technology and the majority are former classroom teachers. Should an end-user issue require escalation, the ticket is moved to Level 2 Support immediately. Level 2 Support is available during regular support hours, as well as extended hours off-site for emergency support, as needed.

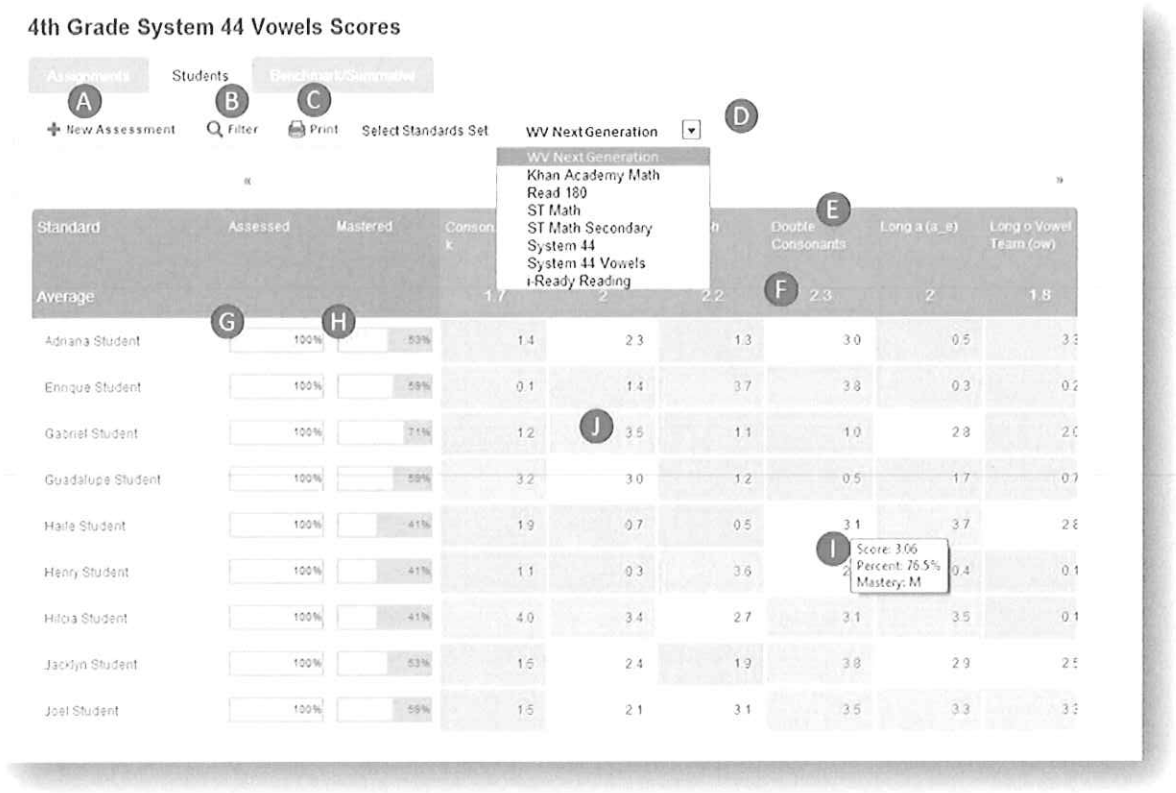


Engrade's Support System

14. Align and report on all content including integrated third party content as a cross-sectional analysis of daily instruction and student performance by standard

Standards-based instruction and analysis in Engrade is easy and powerful. Engrade aligns and reports on all content including integrated 3rd party content as a cross-sectional analysis of daily instruction and student performance by standard.

Engrade allows third-party content to be normalized against its own objectives or standards and even cross-walked to state standards. Scores are normalized on a configurable scale so that vendors can inform the same unit, objective or standard. And, publishers can be weighted for a given standard. For example, for standard 123 Sally has a 3. 50% of this 3 is from assignments, 10% is from Khan Academy, 10% from Scholastic Read 180 and 30% is from Engrade formative assessments. Standard 3 is a West Virginia CSO which maps to Khan Academy's unit, Cause and Effect and Scholastic's Read 180 objective Drawing Conclusions.



Unified Mastery Data: Combines standards based data from Engrade and Third Party Content Providers

A. Create an assignment
B. Filter by Standard, Publisher, Student Groups, Grade Level, Subject, Category
C. Print Report Options (Students on Top, Standards on Top, Individual Student Reports)
D. Select standards set or third-party content provider
E. Click for full definition of standard, unit or objective
F. Average class score for standard, unit or objective
G. Percent of curriculum covered
H. Percent of curriculum mastered
I. The score is a composite score across Engrade grade book assignments and imported third-party data. This score is 10% System 44, 20% DIBELS and 60% Grade book

15. Have the ability to support batch and event-based data integrations

Engrade has the ability to support batch and event-based data integrations. Batch based integrations may be performed at various periodicities depending on the source and target systems and data involved; periodicities ranging from monthly, nightly to near-real-time are possible. Engrade can integrate with virtually all data sources and has the resources and power to consume data in real-time.

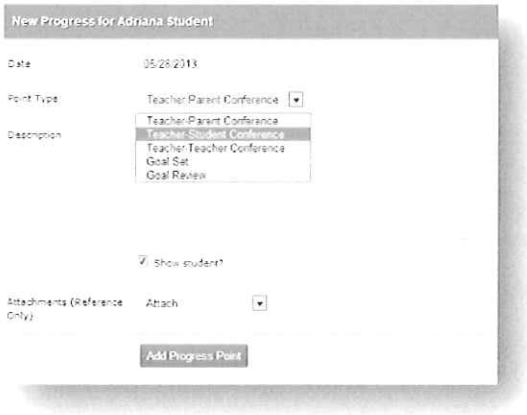
16. Integrate existing Early Warning System or provide a student-focused early warning system and corresponding reporting

Engrade's Early Warning System can be configured to flag data thresholds for assessments, grade averages, missing assignments, absences and more. Once the configurations are set, early warnings surface on dashboards, reporting interfaces and alerts.

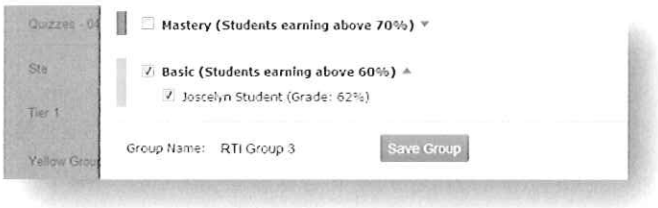
Stakeholders can also create ad hoc warning configuration reports.

In both scenarios, users are empowered to act on data. This is the power of Engrade. In a matter of seconds the administrator sends an email or a text message with an attachment if desired and truly makes a difference.

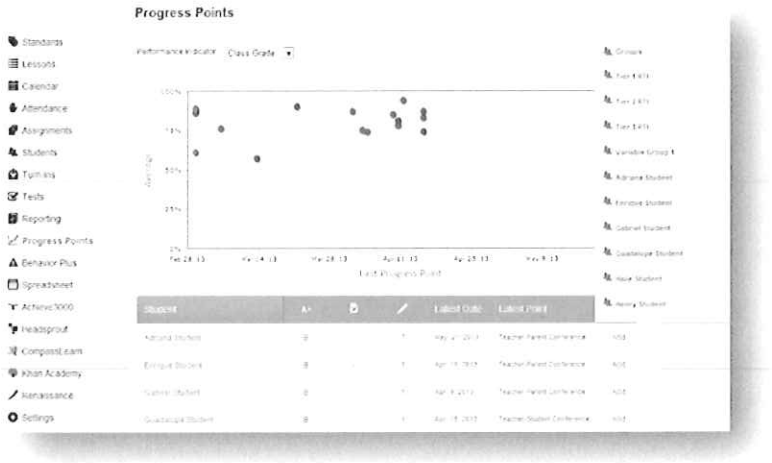
Even more powerful, Teachers may also utilize Engrade's Progress Points application to track actions and notes for each student at the time of the Early Warning Alert. This helps ensure that real action occurs, whether online or offline. In the example below, teachers choose from a list of actions such as holding a Teacher-Parent Conference or setting a goal with the student. These interactions can be plotted against the student's grade in the class or attendance record to provide a quick view of any associated improvement.



Administrators and teachers may also add at-risk students to custom groups for additional monitoring or intervention.



All reports can be filtered by student group. For example, below a teacher may view all notes for all students or sort by specific intervention or alert groups.



Progress Points

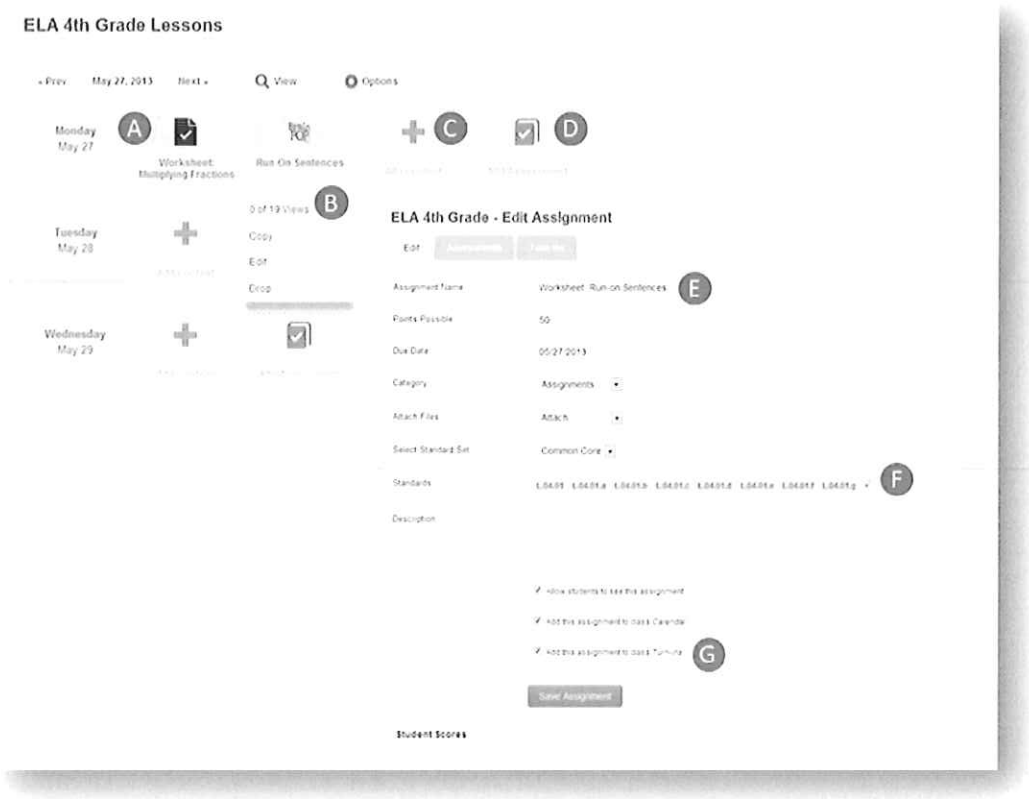
Engrade allows administrators and teachers to easily identify students who meet research-based *Early Warning Indicators*, take and record action immediately, and track changes in performance, attendance, or other data through intuitive trend line graphs and reports.

17. Provide lesson planning capabilities for teachers that could include third-party content

Engrade's lesson planner it is truly unbeatable in the market. It is the only solution that meets the challenges of planning and executing in a blended learning environment and is designed for the future. Among the many use cases, teachers can plan worksheets and Khan Academy videos side-by-side in a day view and the students can download the worksheet, complete it and turn it in and then finish with the Khan Academy video. Teachers can even track how many students have completed their assignments from one view.

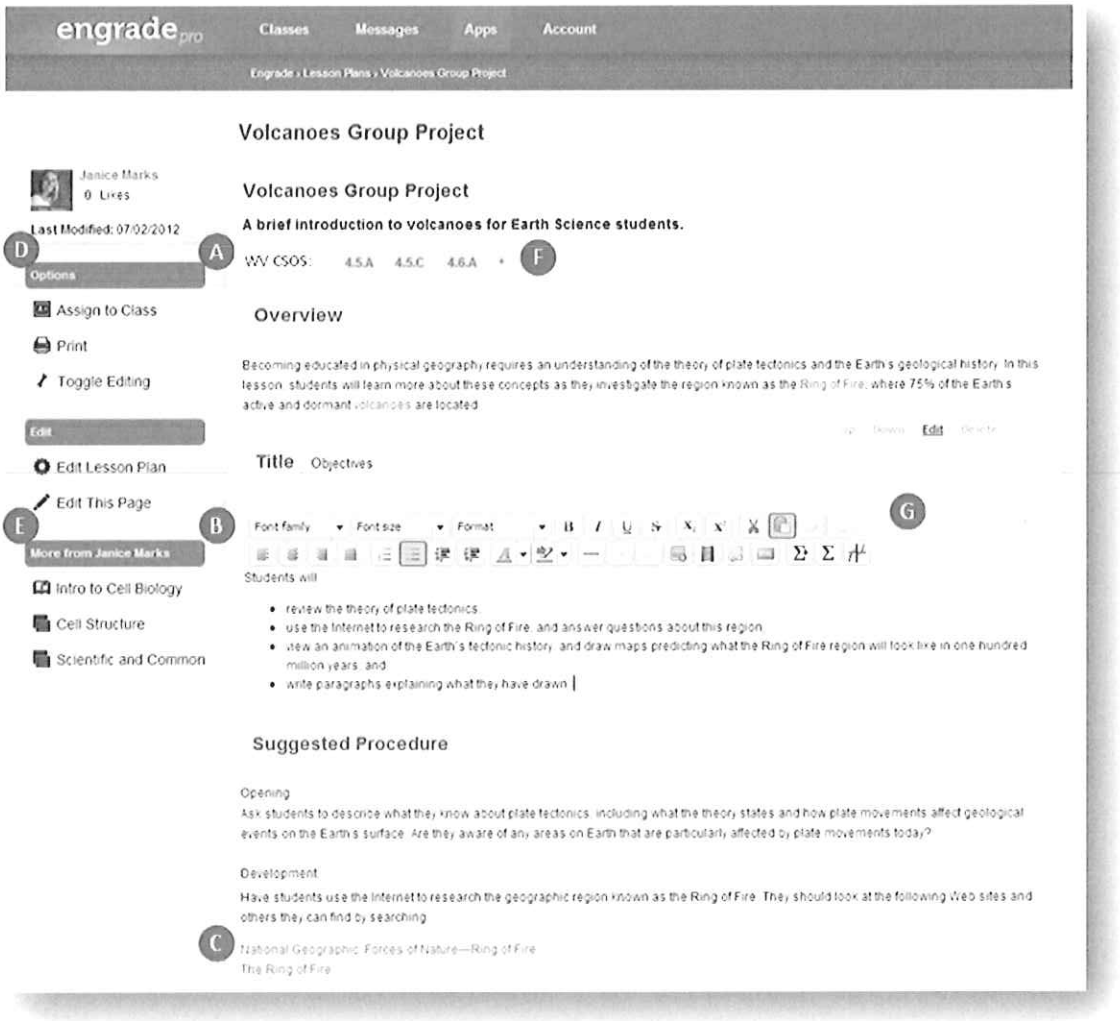
Engrade uniquely simplifies lesson plan and resource sharing between colleagues by integrating

- Teacher-Generated Lesson Plans and Resources,
- Administrator-Generated Lesson Plans and Resources,
- Open Educational Resources, and
- 3rd Party Learning Materials into one searchable lesson plan / resource repository. Currently, more than 10,000 items are available and more resources are frequently added. This Lesson Plan repository is closed to the county or state and can be curated by curriculum administrators.



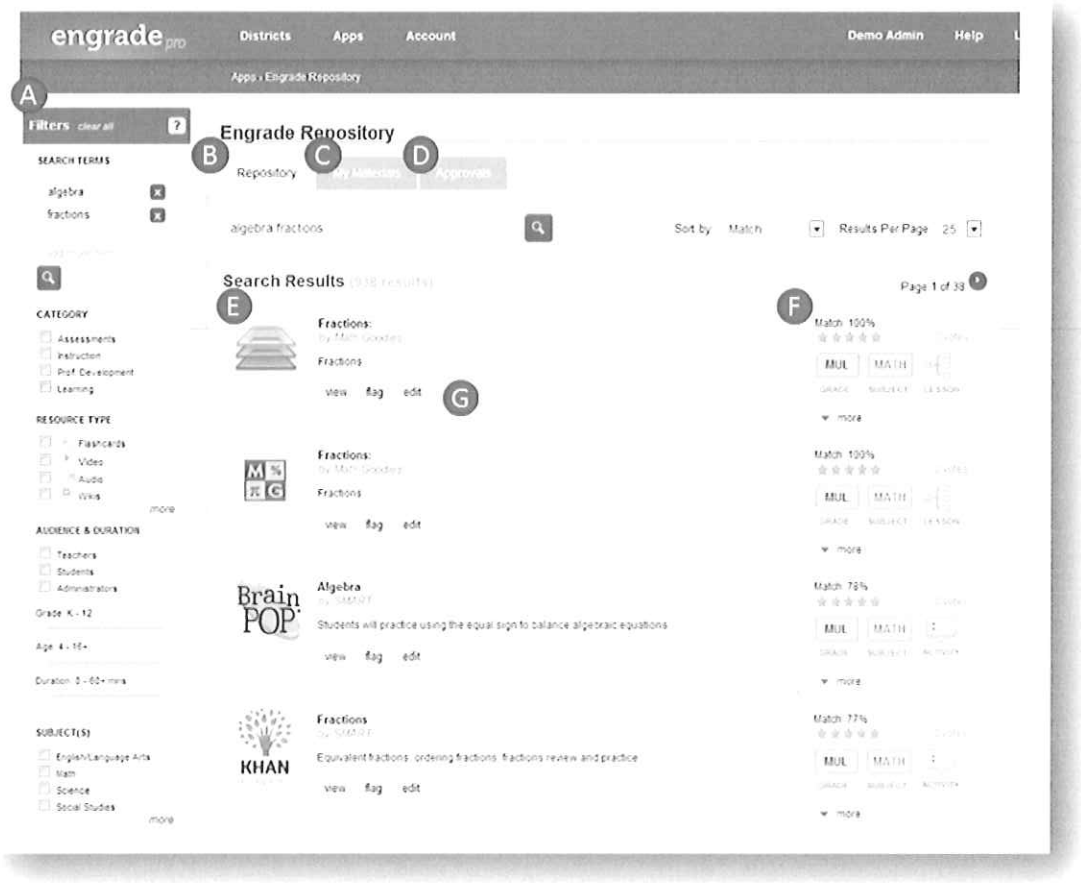
Lesson Planning: Week View

A. Assign Worksheet for Multiplying fractions on Edit Assignment popup
B. Assign Brain Pop video. Watch views in real-time
C. Add more content for the day
D. Add an assessment for the day
E. Title your worksheet
F. Tag your assignment with standards
G. Allow turn-ins.



Engrade's Lesson Plans

A. Lesson plans can be aligned to standards in a few clicks.
B. Each section of the lesson plan has a full WYSIWYG (What You See Is What You Get) editor that allows teachers or administrators to use font formatting, embed images, embed math symbols or graphs, and perform other functions similar to those in Microsoft Word.
C. Links to websites or integrated learning content can be embedded into any plan.
D. Teachers can assign personal lesson plans, those created by administrators, or those created by other teachers.
E. Teachers can see other lesson plans that have been shared by other teachers and approved by administrators.
F. Lesson plans can be aligned to standards in a few clicks.
G. Each section of the lesson plan has a full WYSIWYG (What You See Is What You Get) editor that allows teachers or administrators to use font formatting, embed images, embed math symbols or graphs, and perform other functions similar to those in Microsoft Word.

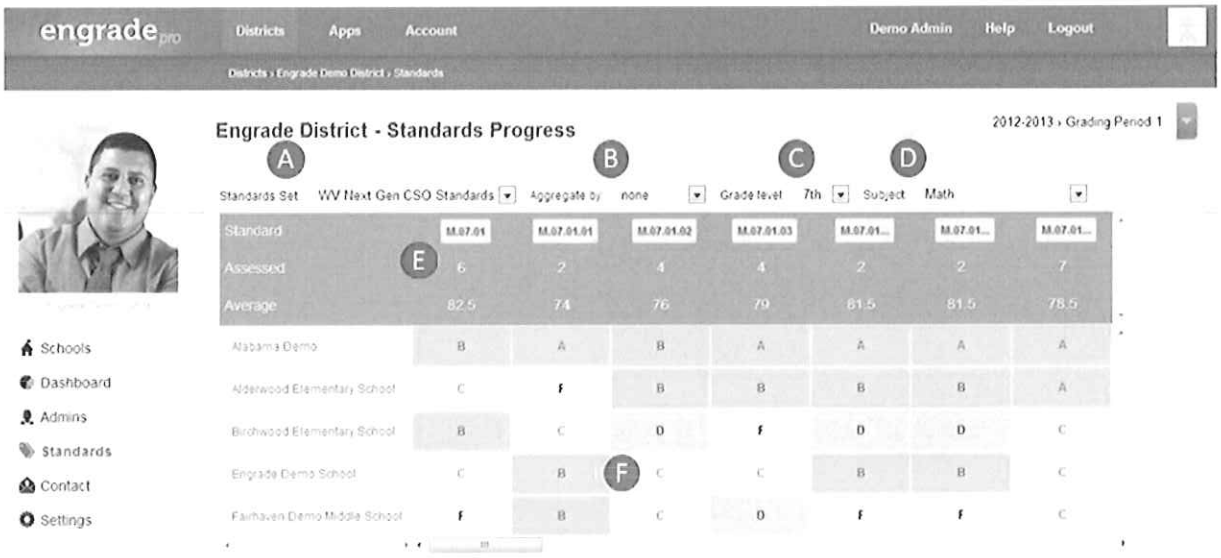


Engrade's Education Repository of Third Party Content

A. Engrade's Repository features an extensive list of item-level filters / details that can be configured for the county depending on needs.
B. Search full repository including third-party content
C. Search personal repository
D. Search district and school approved content
E. All resources in the repository can be rated by teachers on a 1-5 scale.
F. Lesson Plans can be surfaced by highest rating, most recent, or recommended, based on upcoming units / standards in a specific course.
G. 3rd Party Resources can be viewed or assigned to a class with one-click. All resources in the repository can be viewed, assigned, bookmarked, or flagged if necessary by teachers or administrators.

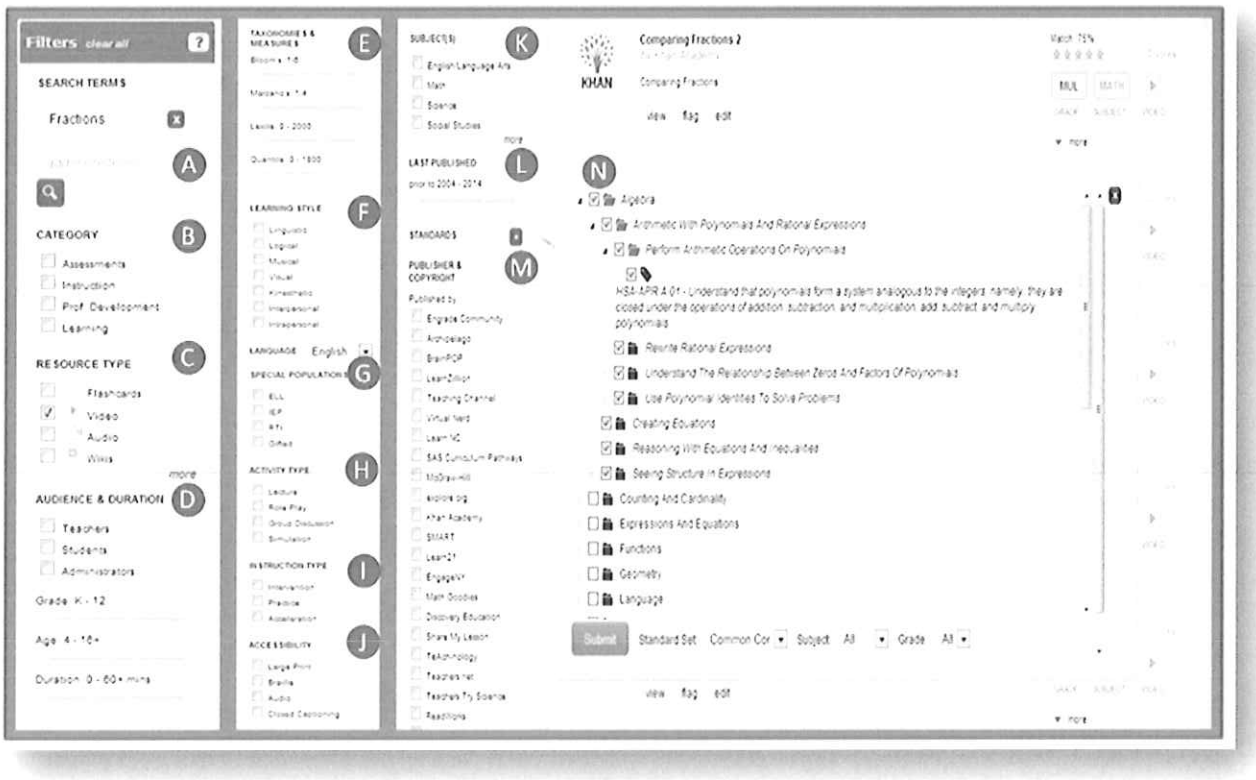
18. Allow for system components to be tagged with flags/identifiers that are state-defined (e.g., Common Core State Standards, WV State Standards, etc.)

Engrade's tagging and alignment system is extraordinary. Any number of standards can be uploaded and managed. They are assigned and editable. Assignments are easily tagged with Common Core standards, WV State Standards (Next Gen & CSO's), or standards created by a district or school. Assignments can even be tagged by Khan Academy units of study or Scholastic's objectives. Any meta information on data from Counties, Schools, Engrade or Third-Parties can be applied to most educational artifacts in Engrade. A very good example of the extent to which tagging can be taken in Engrade is the Content Filtering Tool. See below.



Review Standards Progress across Schools

A. Select Standard
B. Group by Grade-Level or Subject
C. Select Grade
D. Select Subject
E. Data is organized by school for each standard. Administrator can see how many times a standard has been assessed and its working average.
F. Standard performance is configurable to any scale. In this report the administrator is viewing mastery by letter grades. Engrade Demo School reports a C for standard M.07.01.02



Filtering Content By Numerous Tags

A. Search by any keyword
B. Filter content category(s): assessments, instruction, prof. development, learning
C. Filter resource types such as flashcards, video, audio, wikis and more
D. Filter content to PD or Instructional, or by Grade Range, Age Range or Duration
E. Filter by Blooms Taxonomy, Lexile or Quantile
F. Filter by learning style such as linguistic, logical, musical, and more
G. Filter by language or special populations such as ELL or IEP
H. Filter by activity type such as role play, lecture and more
I. Filter by instruction type such as intervention, practice or acceleration
J. Filter by accessibility options such as braille audio and closed captioning
K. Filter by subjects such as ELA and math
L. Filter by last published
M. Filter by standards and actually drill down
N. Filter by Company or Publisher

Section IV: WVDE Consideration Detailed Responses

WVDE Consideration Detailed Responses

1. **Provide a data entry platform online and mobile ready**

Engrade's core competency is 3rd party integrations and Engrade is already integrated with WVEIS and a majority of West Virginia's online content and assessment providers.

Engrade's platform allows administrators, teachers, students, and parents to enter data via any web accessible device, including computer, tablet, or mobile. Engrade supports various types of data entry including performance data, demographic data, and engagement data.

Engrade integrates all data from all systems into one location. Data includes performance data, demographic data, engagement data and more. Engrade also integrates all online content and tools. Online content in Engrade include Acuity, Renaissance Learning, Scientific Learning to name a few of about 50 partners and counting, most of which have come directly at the request of West Virginia Counties. Administrators, Teachers, Students and Parents log onto Engrade from any web-enabled device and have access to all data and all online tools. On Engrade, all stakeholders are empowered to do more because Engrade makes data actionable and tools accessible. The Engrade web client is elegant, has a consistent user experience to optimize discoverability, streamlined data entry, unified data presentation, and ease of use for each class of user.

For example, in the 2012-2013 school year, West Virginia counties on the Engrade platform generated more than:

- 918,295 assignments (over 100,000 of which have been aligned to WV State Standards)
- 14,589,726 individual scores
- 14,708,277 attendance marks
- 274,787 messages

Some of the data entry types accepted on Engrade are as follows:

- Grade book Assignments
- Assessment Scores including Item-Level scores
- Quiz Scores
- Standards Scores
- Attendance
- Custom Behavior Marks
- Contact Information
- Demographic Information
- Comments
- Messages

Administrators, teachers, and students engage with many other systems or offline activities outside of Engrade generating additional data. Engrade understands that disparate data reduces frequency and

efficiency of usage by teachers and administrators. As a result, Engrade has built a robust platform to import data from virtually all 3rd party online curriculum and assessment partners, including those requested by West Virginia counties in the 2012-2013 school year.

For example, this school year, Engrade imported more than 7,000,000 scores for West Virginia students from assessments such as CTB Acuity and WESTEST. Additionally, Engrade has provided convenient access through single-sign-on to Scientific Learning, Renaissance Learning, Edvation and many more.

We believe that this improved data accessibility and aggregation will improve data analysis and have a measurable impact on student outcomes.

Fully Hosted

Our platform requires only a modern web browser with no plugin dependencies for deployment. We are a hosted solution, commonly referred to as Software as a Service (SaaS) which means there are no servers and networking infrastructure to buy and no extensive training for maintenance and upkeep. Third party integrations are not only feasible but streamlined. Configuration and customizations are centralized enabling more efficient deployments and accelerated feature delivery. Finally, connecting state, county and school resources becomes easier when all that is required is a computer and access to the internet.

Fully Redundant

Our platform has no single point of failure. And, since data and code are replicated to disaster recovery site(s) in real-time, we can validate geo-failover at any time. Engineered as a horizontally scalable and high-availability solution, our platform features extensive fault tolerance and resilience at every layer.

Our geographical, physical and logical redundancy includes:

- Dark fiber between geo-diverse and redundant data centers
- Multiple diverse Tier-1 internet connections to the public internet. Incoming service is routed underground to a dedicated on-site transformer. This system routes to an automatic transfer switch which monitors power quality, and automatically transfers to emergency generators in the event they are needed.
- One or more uninterruptible power supplies (UPS), featuring redundant battery cabinets, and full maintenance bypass cabinets allowing for service and upgrades without interruption of power
- Redundant managed firewalls each containing its own OS and operating independently of our servers to keep a dedicated and constant scan on our server's activity designed to adapt to new threats via signature based intrusion prevention.
- Fully redundant DNS using 2 different providers.
- Round robin DNS (Bind 7 RRDNS) for load distribution, load balancing and fault-tolerance
- Co-master/Co-slave database shards for data redundancy, load balancing and high availability
- DRDB block replicated servers
- Redundant RAID configurations (1, 10, 6, 50, etc.) for real-time mirrored redundant hard drives
- Daily backups of all data to separate onsite and offsite servers.
- Offsite real-time replicas of all data so that in the event of a disaster we can failover to a geographically diverse, redundant data center.
- Twice daily file-system snapshots and thirty (30) days of binary logs enabling point in time recovery within the log retention period.

- Code and assets are regularly replicated between primary and disaster recovery sites.

99.9% Uptime

Our platform meets or exceeds an up time of 99.9% excluding approved maintenance windows and maintenance windows are always performed when system usage is at a minimum. Our datacenters are SSAE-16 (formerly SAS70) certified and all servers are monitored by Technicians 24-hours a day.

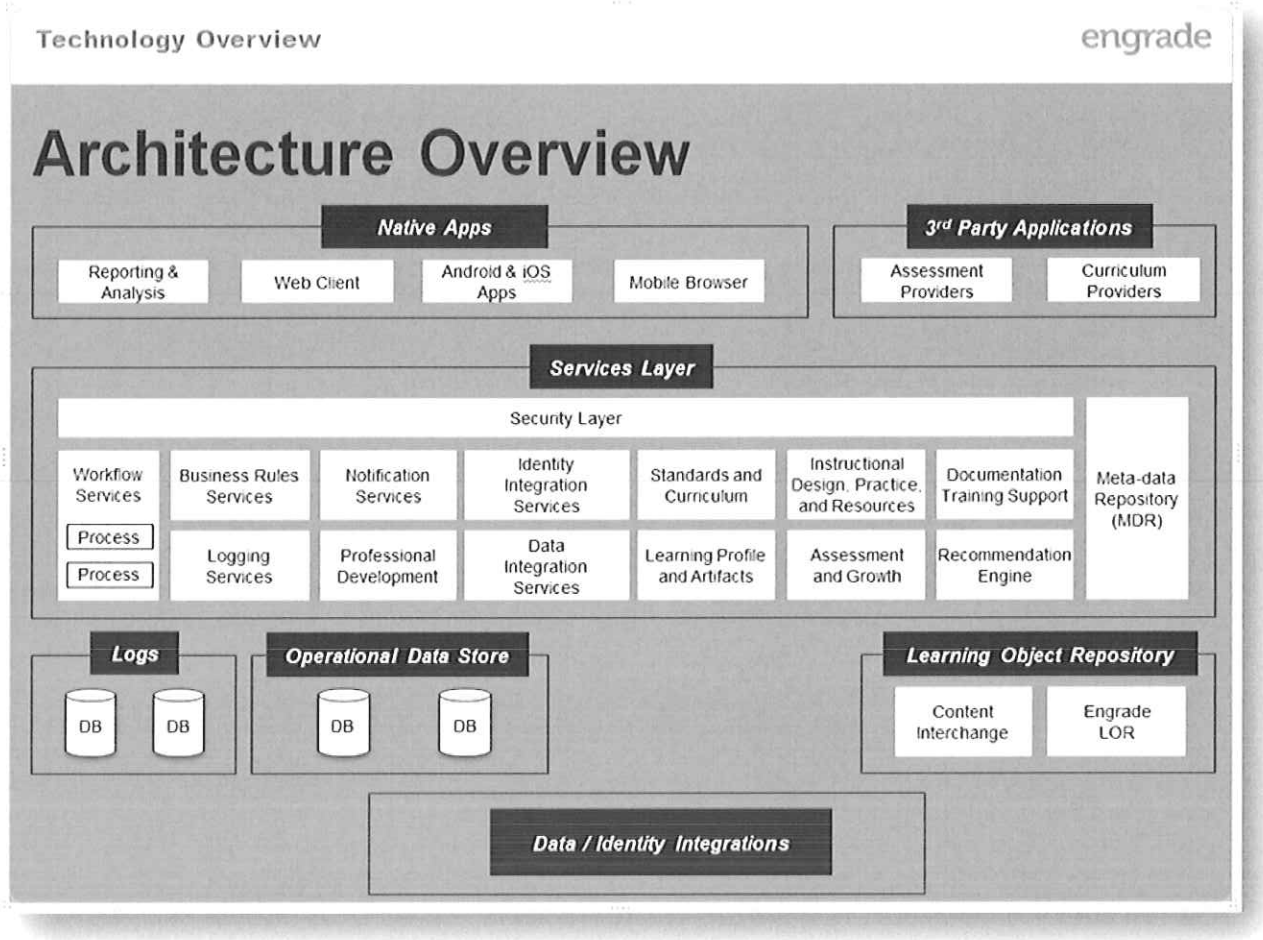
Easy to use

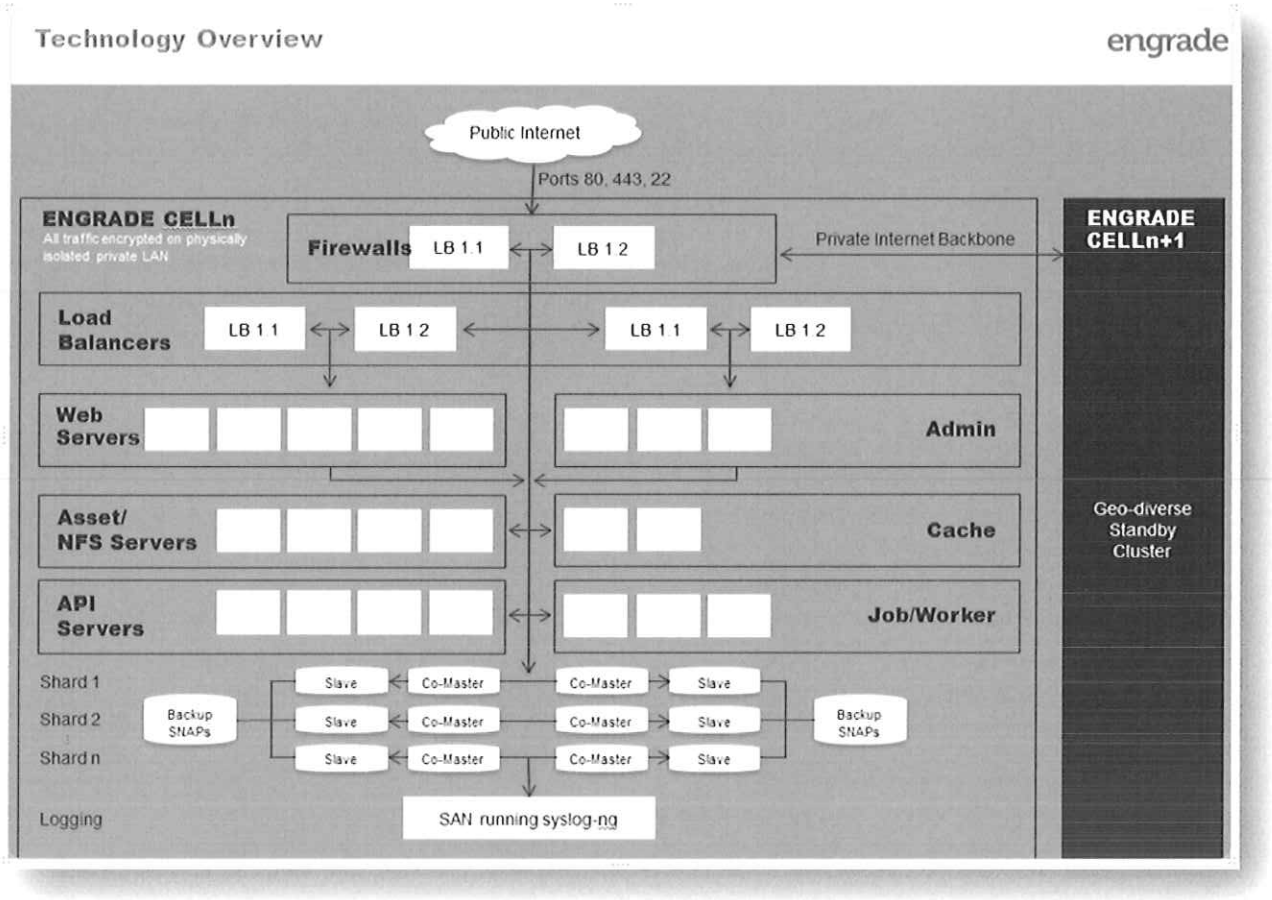
Engrade's designers and engineers skillfully harness the power of technology and then systematically and meticulously fine-tune the user experience for each tool so optimally that users can't help but to produce astonishing results in seconds. This is Engrade's number one design principle and raison d'etre.

As a result, the Engrade web client provides an elegant, consistent user experience across all functional areas with focus on discoverability, streamlined data entry, unified data presentation, and ease of use for each class of user.

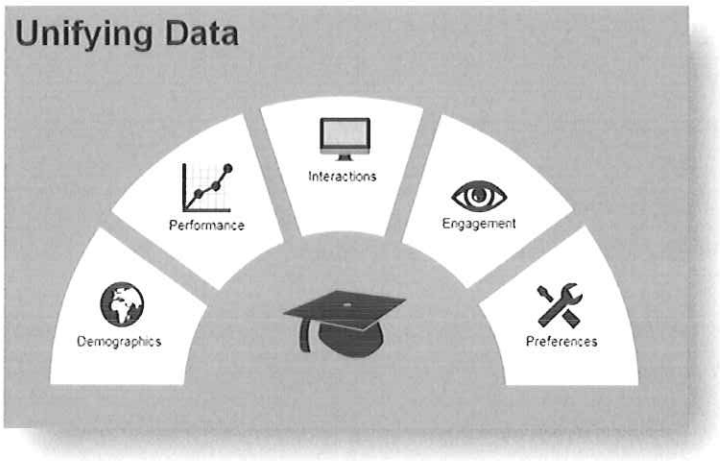
Mobile Ready

Engrade is optimized for use on iOS devices including iPhones and iPads as well as Android devices.


Architecture Overview
Native Apps
Reporting & Analysis
Web Client
Android & iOS Apps
Mobile Browser
3rd Party Applications
Assessment Providers
Curriculum Providers
Services Layer
Security Layer
Workflow Services
Process
Process
Business Rules Services
Notification Services
Identity Integration Services
Standards and Curriculum
Instructional Design, Practice, and Resources
Documentation Training Support
Meta-data Repository (MDR)
Logging Services
Professional Development
Data Integration Services
Learning Profile and Artifacts
Assessment and Growth
Recommendation Engine
Logs
DB
DB
Operational Data Store
DB
DB
Learning Object Repository
Content Interchange
Engrade LOR
Data / Identity Integrations



2. Support, pull, and transform data from/across multiple sources to be presented in a unified interface



Engrade pulls data in from virtually all sources. The data is presented powerfully on unified interfaces. Assessment data is centralized. Mastery data is centralized. Stakeholders go to one place for data, Engrade. They do not have to jump between systems, manage passwords or create their own

spreadsheets. The platform's backend and architecture pull and transform data across vendors as the foundation for the personalization of strategies, tools, and support for students and educators.

In West Virginia, Engrade already integrates WVEIS data, with classroom data, with McGraw-Hill/CTB Acuity data, with Pearson data, with Scholastic data and on and on. More importantly, Engrade transforms this data into one unified view. Below Basic proficiency is red across Pearson, Scholastic and WESTEST data even though Pearson is a percentile, scholastic is a Lexile and WESTEST is a scaled score.

Engrade's stated company goal and a core competency is aggregation of data across multiple sources for improved accessibility and analysis. Specifically for West Virginia counties, Engrade currently integrates WVEIS data, with classroom data, as well as data from CTB Acuity, DIBELS, Renaissance Learning, Scholastic, and others.

Some of the challenges Engrade has overcome in pulling data from multiple sources include disparate:

- Data Types
- Performance Measures
- Standard / Topic Keys
- Single-Sign-On Technologies

Our flexible and dynamic backend integrations allow Engrade to access virtually all data sources.

- Engrade supports batch and event-based data exchange
- In addition to our RESTful API, Engrade supports bulk-ingestion/reporting data exchanges.
- Engrade supports data interchange via flat files, structured files and other XML file formats.
- Engrade ingests from a number of varied transport protocols (SFTP, TCP, SOAP, RPC, etc.) and widest array of data formats XML, JSON, CSV, Ed-Fi, SIF, QTI, SCORM and serialized PHP.
- Manual data entry is performed via templates to minimize user error and direct data access for single entries or corrections is granted via permissions.

Additionally, Engrade maintains performance groups / tiers or other data indicators from 3rd party provider. Engrade can uniquely make this data available for day to day classroom use alongside other learner profile information such as daily grades, assignment scores, standards scores, or attendance data.

For example, for Acuity for WESTEST results in West Virginia, Engrade displays benchmark results alongside formative classroom data and maintains:

- Color Coded Performance Tiers
- Item Analysis / Answers Reported
- Standards Analysis

Engrade unifies people

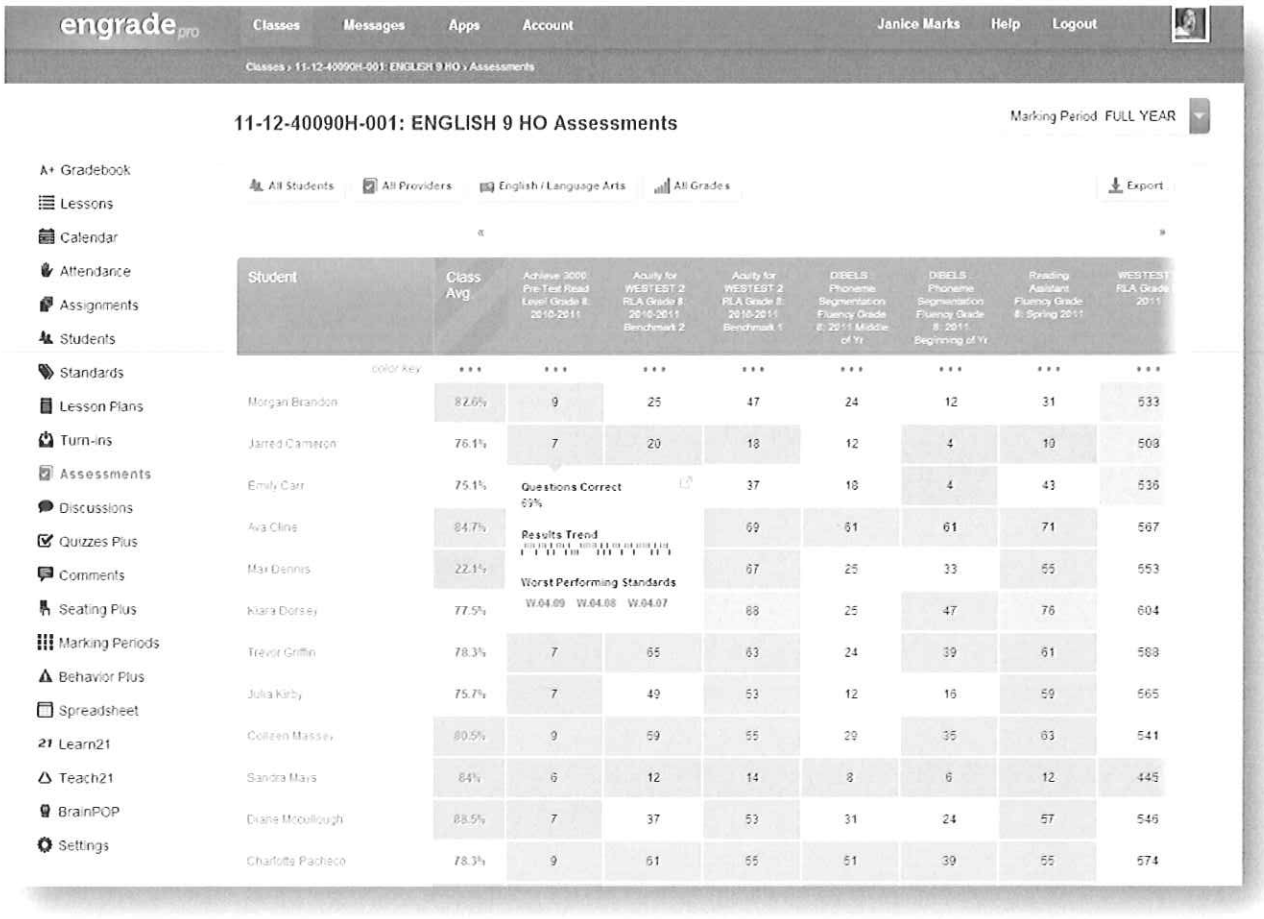
Engrade's platform brings administrators, teachers, parents and students together. With access to timely and relevant data, all stakeholders are empowered to make a difference. Engrade is a permission based system. We show the right piece of data to the right user, at the right time.

Engrade unifies data

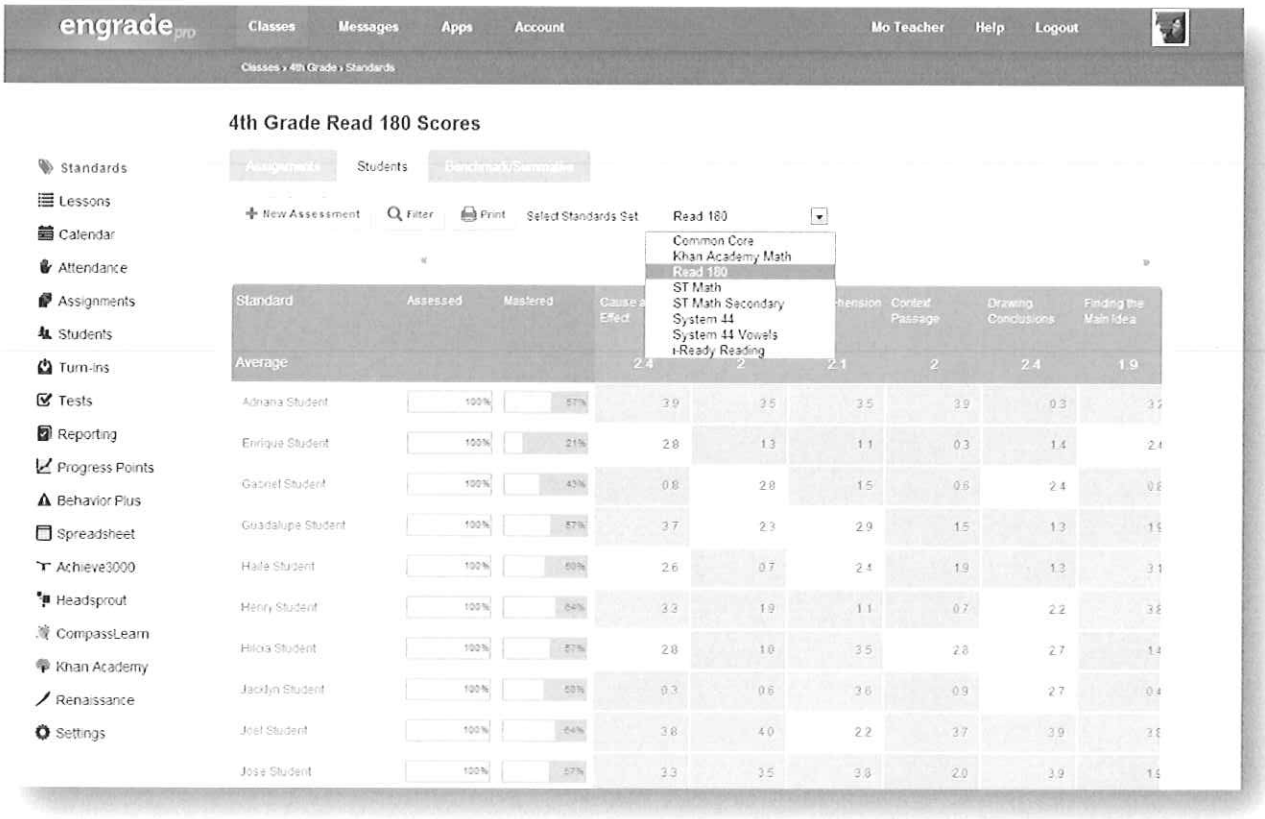
We integrate data across disparate data sets with multiple measures and present it in a unified interface. Our strong visual analytics team has created extraordinary interactive tools that empower educators with

the kind of automated insights that allow for instructional precision. Multiple measures are normalized for customizable performance metrics.

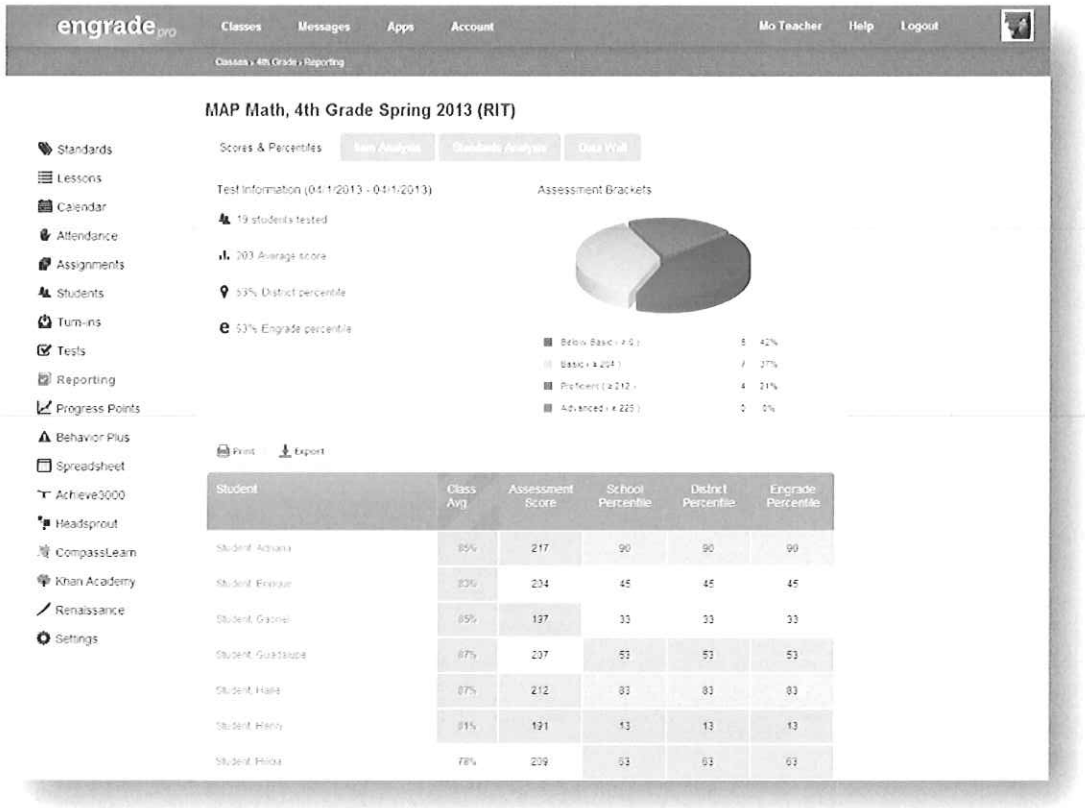
Based on the kind of data imported in the system we give users the ability to customize data sets across parameters from all assessments. For example having imported WESTEST Reading and Scholastic Reading Inventory (SRI) and Renaissance Learning, a teacher for their class or an administrator can get a data set of students who are in Grade 4, with a WESTEST Scale Score of 431 and an SRI Lexile range between 300L-400L with an ATOL aligned to CCR of 5.2. Likewise for secondary students, you can view students with Free Lunch Status who have in classes with teachers having < 3 years' experience. The world of data is limitless.



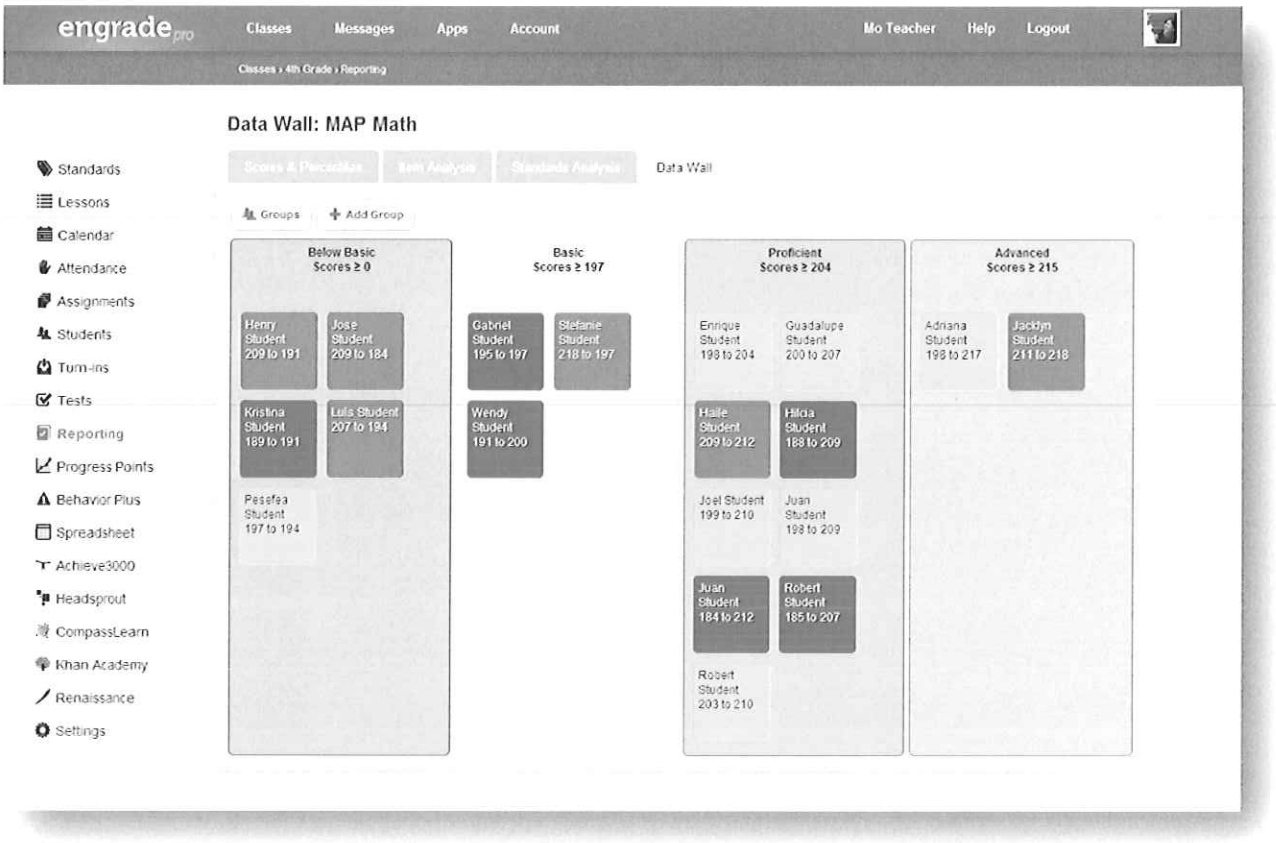
Engrade unifies benchmark and summative data from many assessment providers: We normalize performance brackets across vendors enabling educators to quickly group and act on a whole collection of data at once.



Engrade unifies formative data from many assessment providers: We normalize scoring across vendors and across standards or objectives enabling educators to quickly group and act on a whole collection of data at once.



Engrade unifies data across class, school, and county: We surface scores in comparison to percentiles for big picture comparisons.



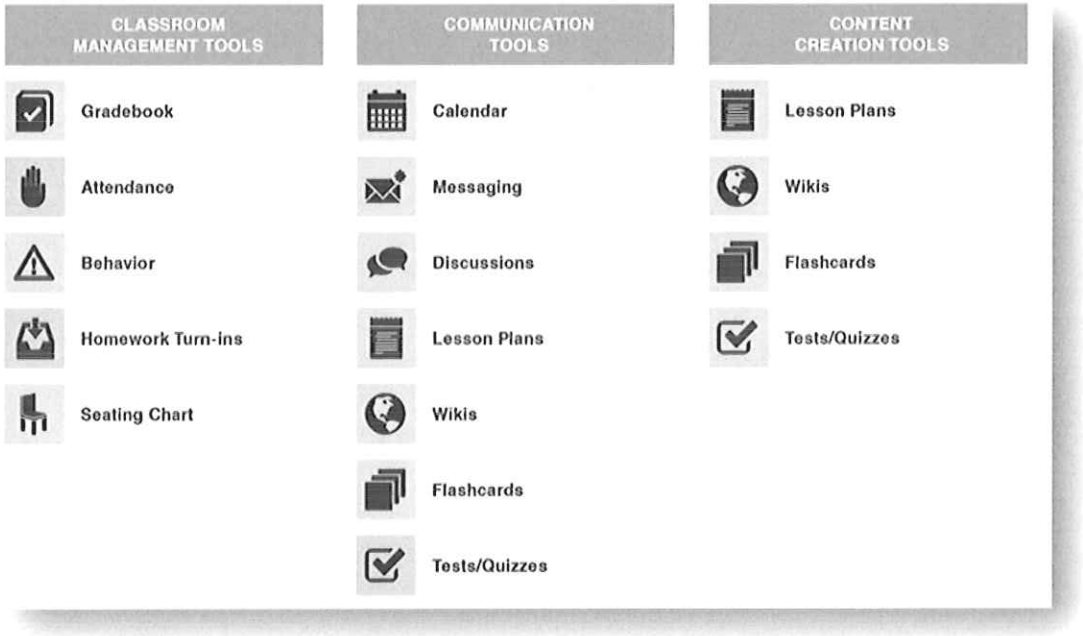
Engrade unifies data as progress transpositions: Our data wall tracks progress over time by assessment provider.

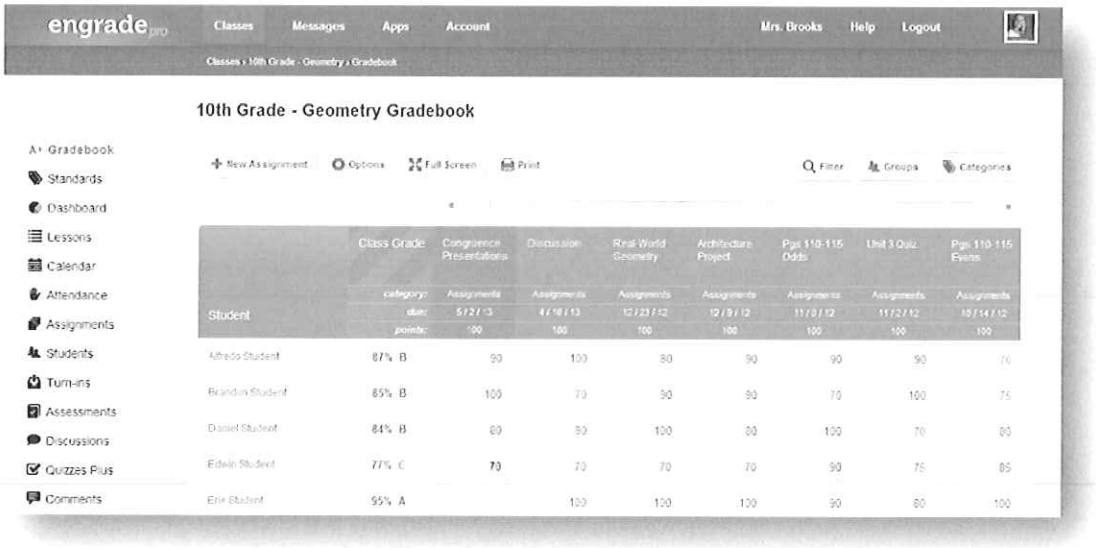
3. Have a platform that can integrate existing and new tools (e.g., attendance, grades, messaging, user-level customized reports, assessment results, etc.)

Engrade knows that to be the best, it has to integrate with the best and it does. Engrade integrates with new tools and data daily to ensure the widest breadth of curriculum and data access.

Engrade also builds powerful tools that work. They are always accessible. They are always easy to use. But most importantly Engrade's designers and engineers skillfully harness the power of technology and then systematically and meticulously fine-tune the user experience for each tool so optimally that users can't help but to produce astonishing results in seconds. This is Engrade's number one design principle and raison d'etre.

Engrade's Native Toolset





Online Grade Book

Engrade's gradebook has incredibly flexible settings that can be customized at the class, school, or district-level. Grade scales can be set for specific subjects / grade-levels or can be modified by teachers at the district's discretion. Engrade includes the ability to weight categories, drop lowest score, and sort students and assignments by various parameters.

Engrade's gradebook has a full screen view for easy data entry and can be filtered by student demographic data such as ELL or IEP status or specific performance group. From the grade book, teachers can print progress reports, missing assignment reports, or export the grade book to Excel. Assignments can be imported in bulk from Excel or entered directly on the screen with arrow key navigation.

- Acuity
- Compass Learning Odyssey
- Renaissance Learning
  - Accelerated Reader
  - STAR Reading
  - STAR Math
- Scientific Learning Fast Forward
- Pearson Successnet
- Achieve 3000
- Discover Education
- Edvation
- Google Apps
- Learn21
- Lexia
- Raz-Kids
- SAS
- Khan Academy
- Learn Zillion

Engrade's Third Party Tools

However, Engrade is unlike most learning management systems in the following ways:

- Service Oriented Architecture
- Modularized Applications
- Data Integration Framework
- Enterprise-ready

Service Oriented Architecture

Engrade is built on a robust Service Oriented Architecture (SOA). There are no functions in Engrade that are not implemented through the SOA which means that anything you can do in Engrade, you can do through integrations. This allows us to uniquely facilitate integrations with new applications and 3rd parties. Engrade has a proven track record of integrating with 3rd party applications, Student Information Systems, Google Docs, and integrating curriculum / content and assessment data.

Our Service Oriented Architecture empowers counties and certified partners to access Engrade data for analysis or to provide new functionality to teachers or students.

Modularized Applications

Engrade applications can be turned on / off by user role at the school or county level, providing millions of configuration possibilities depending on the specific needs. For example, an elementary school may use the Seating Chart application, while a middle school within the same county may prefer this application was disable. Similarly, schools or counties may have to different content party single-sign-ons.

Data Integration Framework

Engrade has developed a suite of backend integration tools that allow efficient exchange, transform, and load of assessment data or curriculum materials. This allows Engrade to develop a complete learner profile, pulling student data from disparate sources and displaying it to the appropriate users in a variety of native reports. This data is also available to the school, county, or authorized partners via the Engrade API.

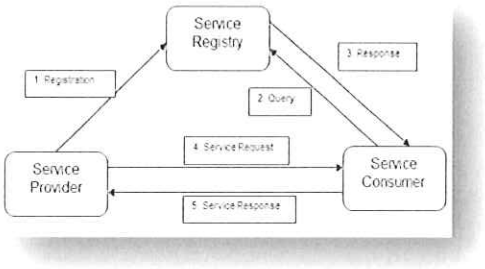
One platform, many tools

Engrade's solution is entirely modularized. At its core, it is simply a platform that connects tools and surfaces data. Built on a Service Oriented Architecture (SOA), the Engrade platform streamlines integrations into a consistent look and feel. The user experience is preserved between Engrade and the tools it connects. Moreover, Engrade is tool agnostic, i.e., Engrade's platform is designed to plug-and-play products from most vendors. The online educational products that are in use in West Virginia counties today can be integrated on Engrade's platform and many of them already are. West Virginia decides on the suite of tools that best meet their needs and the best-of-breed solutions win.

Many times, vendor products do not support a native single sign on technology. In these scenarios, Engrade has built Single Sign On adaptors that allow for custom portal integrations.

Integration Approach

Our Service Oriented Architecture can leverage an internal or external Service Registry component to integrate with several applications owned by different clients as depicted in the picture below. Any 3rd party application who is able to consume and/or provide services can participate. We federate data where possible across our Ed-Tech Federation so we can provide users with a single unified view of the data they need most. We can refactor data across multiple vendors from instructional resources to professional development resources and link them together through common visualizations providing for the automated insights that enable teachers to grow with a clear focus on students' needs. The unified service model and data interchange formats of our SOA, support for industry standard SSO protocols and our data integration and movement architecture make all of this possible.



There are three steps in providing and consuming a service:

- All 3rd party services are published in a directory of services, referred to as a Service Registry. This Service Registry can exist within or outside of Engrade. A registry is freely accessible and can be searched in various ways to discover the services available for various organizations depending on scope of contracts in place.
- A Service Partner, e.g. like Pearson Successnet, issues one or more queries to the registry to locate an available service. In this instance Pearson would like most recent roster changes from Engrade. The result of these queries is part of the service description information originally provided by the service provider. From this information, the service consumer can determine how to interact (i.e., requests and responses) with the particular service provider.

- The Service Consumer uses this information to query the Service Provider. The Service Provider can, in turn, consult other Service Providers using the same mechanism available to the Service Consumer. In this example, Engrade would consult with master data management look ups to validate permissions and direction of data and then query WVEIS before submitting the request back to Pearson Successnet.

Engrade can serve as West Virginia's Identity Access Manager for all vendors under contract in West Virginia. Under this paradigm, roster management between all vendors can be centralized and automated. Similarly, data pass backs between products are equally possible. For example, quizzes taken in Brain Pop can be submitted to Engrade's grade book.

4. Can integrate with existing single-sign-on structures

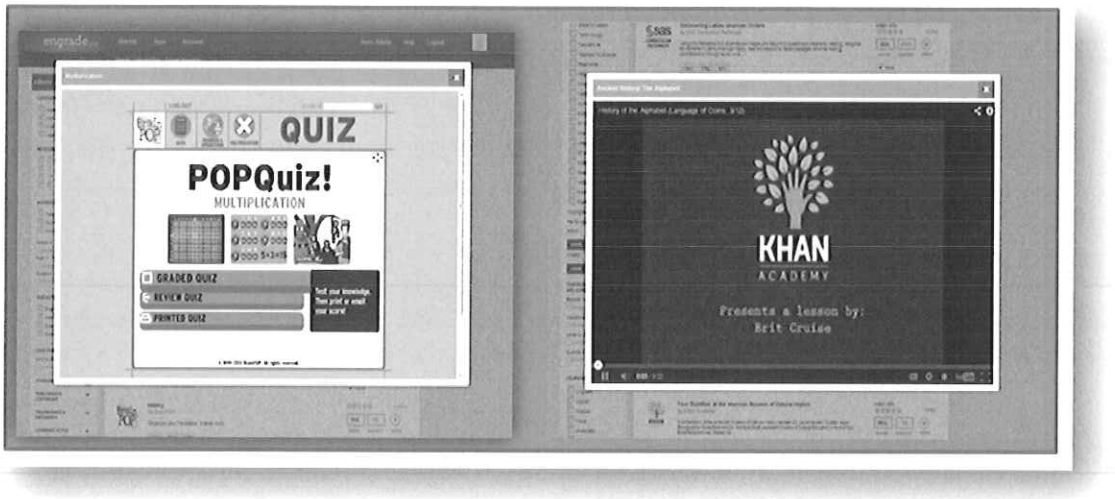
A teacher logs into Engrade, clicks on her lesson planner and views today's Scientific Learning's Fast Forward Lesson. She does not have to remember her Fast Forward password nor does she have to enter it in. Engrade has it covered. When she searches for more content to support the day's lesson she searches across 50 publishers. She could use Google, but her Engrade Repository is curated for exactly this moment and hence far more relevant. Within her list of search results she can directly view content from the top 5 providers without entering 5 different passwords. Likewise students can view all of today's content with only her Engrade password.

This is the power of Single Sign-On.

And, Engrade supports the widest array of SSO technologies integrating with virtually all single sign-on technologies and protocols including: SAML, LTI, LDAP, OpenID, OAuth, and more. We also integrate with state and county services such as Active Directory and Oracle Internet Directory. By integrating with the customer's directory services and Student Information System (SIS) Engrade is able to provide a centralized identity service for all third party vendors.

Since Engrade is already integrated with WVEIS, Engrade can roster all third party vendors. All vendors can be centrally managed from Engrade. All account provisioning, rostering and transferring can be handled in Engrade. WVEIS' exposure to external applications is minimized. WVDE's keeps more of its valuable IT resources. Load diminishes. Onboarding is streamlined.

Interested counties will simply "turn on" 3rd party integrations without the duplication of effort across each county or school contract. This will also afford each county's participation the buying power of the entire state of West Virginia.

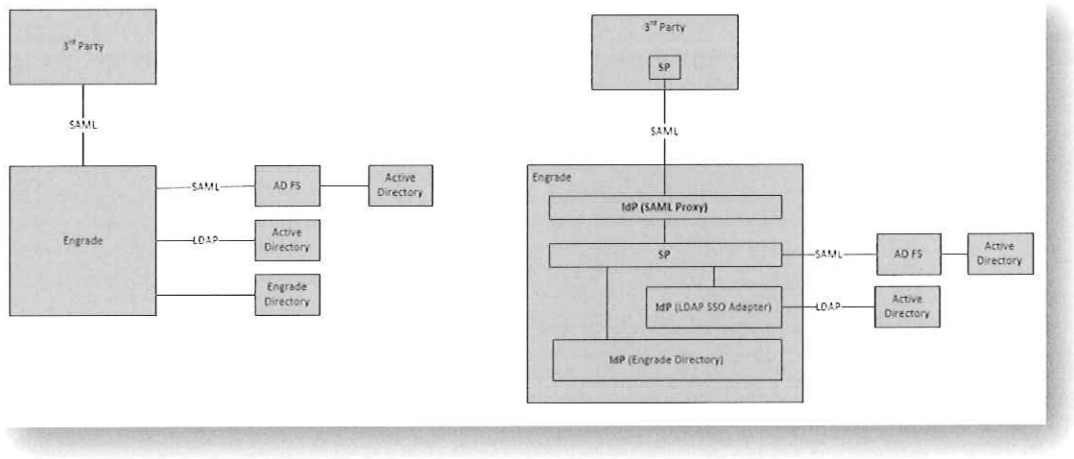


Single Sign-On: Students watch lesson, complete quiz and third party auto-populates the grade book, assessments and reports

Single Sign-On with Achieve3000

The number and type of resources for learning about and addressing student instructional needs grows almost each day. With these increased instructional opportunities comes increased confusion, as parents, teachers, and administrators have to manage multiple logins for a variety of assessment and curriculum solutions.

As a platform technology dedicated to unifying education, we support an ever increasing list of single sign-on technologies and methodologies. We integrate with state and county directory services such as Active Directory and Oracle Internet Directory (OID) using either LDAP or SAML combined with technologies like Active Directory Federation Services (AD FS) or CA SiteMinder. By integrating with the customer's directory services and Student Information System (SIS) Engrade is able to provide a centralized identity service for all third party vendors. Third party vendors then connect to Engrade through widely adopted single sign-on protocols that include SAML, LTI, OpenID and OAuth. With SAML and LTI protocols especially, we can federate identity across all vendor services as discussed under Integration Approach. As a central directory service proxy, Engrade provides West Virginia a master authentication and authorization resource for all 3rd party integrations. Within Engrade, third party vendors can be managed. Third party vendor privileges and access can be approved or revoked. And information about usage and effectiveness can be reviewed.



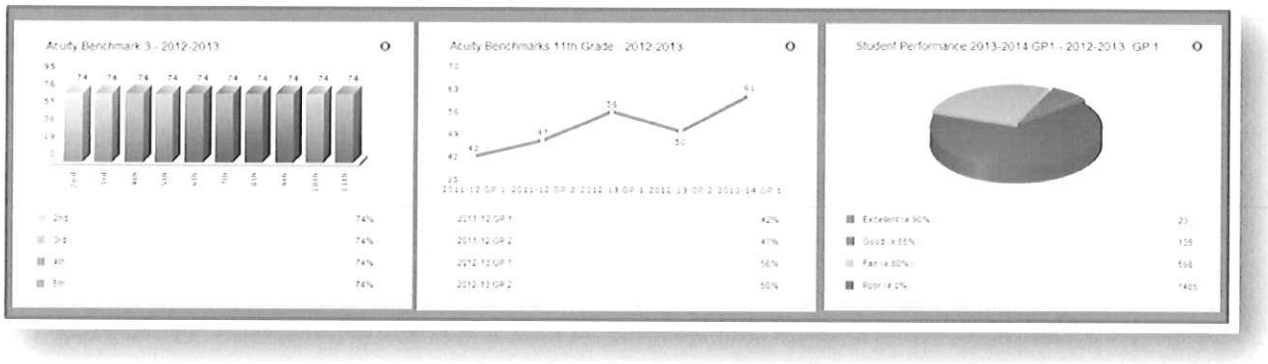
Since Engrade is integrated with WVEIS, Engrade can serve the central directory providing master authentication and authorization to all 3rd parties. This means that all users always have access to the right 3rd party sign-ons, applications, and data.

5. Have interfaces/dashboards that are intuitive, well designed, easy to use across multiple role based access levels

Engrade's dashboards are beautiful. They are intuitive and well designed. They show just the right amount of information to be useful and actionable. And they are componentized to allow stakeholders to

see only what they want to see, where they want to see it. More importantly, all graphs drill down to their relevant data sources for deeper analysis.

Dashboards are available to each role including district / school administrators, counselors, teachers, students, and parents. At the district, school, and class level, performance, attendance, and other data can be disaggregated and compared by school, class, subject, grade-level, and demographics such as gender or ethnicity.



Acuity Benchmark Graph Drills Down to Acuity Data and Student Performance Data Drills down to Assignments

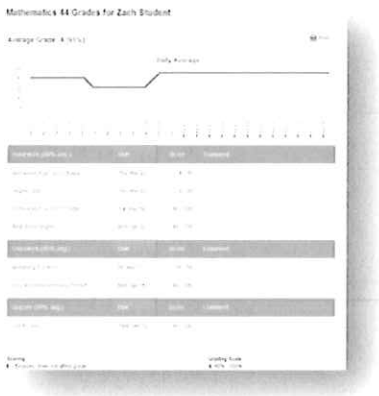
Engrade's portals are organized around well designed, easy-to-use dashboards across multiple role based access levels. Each user type has their own personal interface giving teachers, specialists, counselors, principals and administrators access to data and tools they use most. The dashboards are configurable and updated in real-time. Dashboard visuals drill down to any school, classroom or student report. An administrator can click on "Failing at least one class" view the list and then message all the parents.

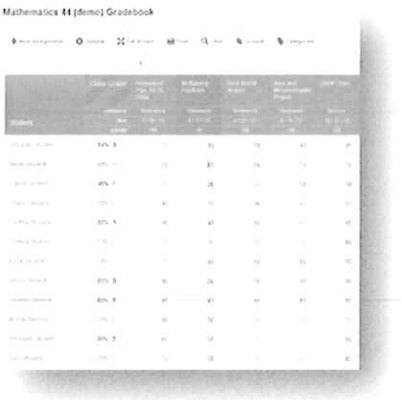
Engrade provides access to reporting and dashboards optimized for each user type. This reporting starts from the student's individual student profile, which surfaces data such as:

- Grade / Assignment Scores
- Standards Progress / Performance
- Class List
- Attendance
- Behavior Marks
- Assessment Data
- Demographic Info

All data rolls up from the individual student, to the classroom, to the school, and to the county level. Similarly, all reports support drilldown access to the source data.

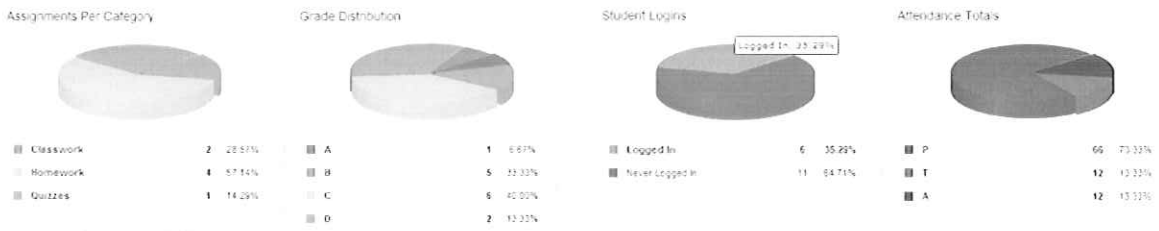
Individual Student Scores ←→ Classroom Student Scores ←→ School Student Performance by Class

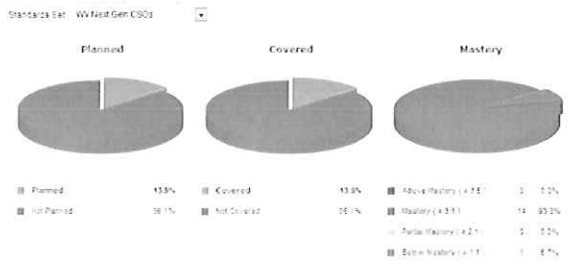




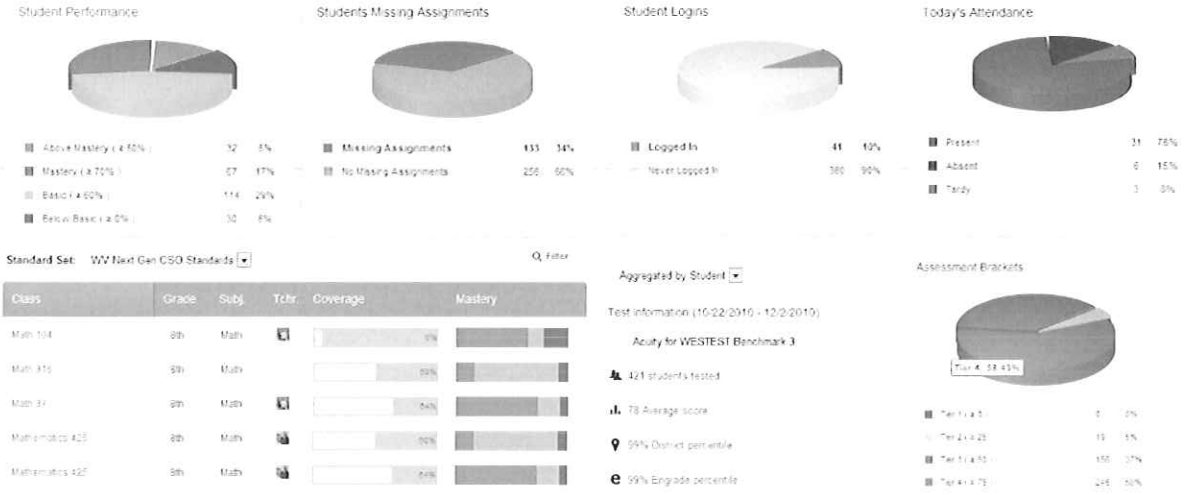
Dashboards show engagement statistics such as Attendance and Logins, along with performance metrics for day-to-day grades, standards mastery, and benchmark / summative assessments. Below are some examples of the dashboard graphs available at the student, class, and school-level.

Classroom:





School:



All dashboards include intuitive drilldowns, quick export / print functions, and the ability to disaggregate by student group. Since Engrade can pull demographic data directly from WVEIS, as well as support custom student data fields, reports can be uniquely filtered.

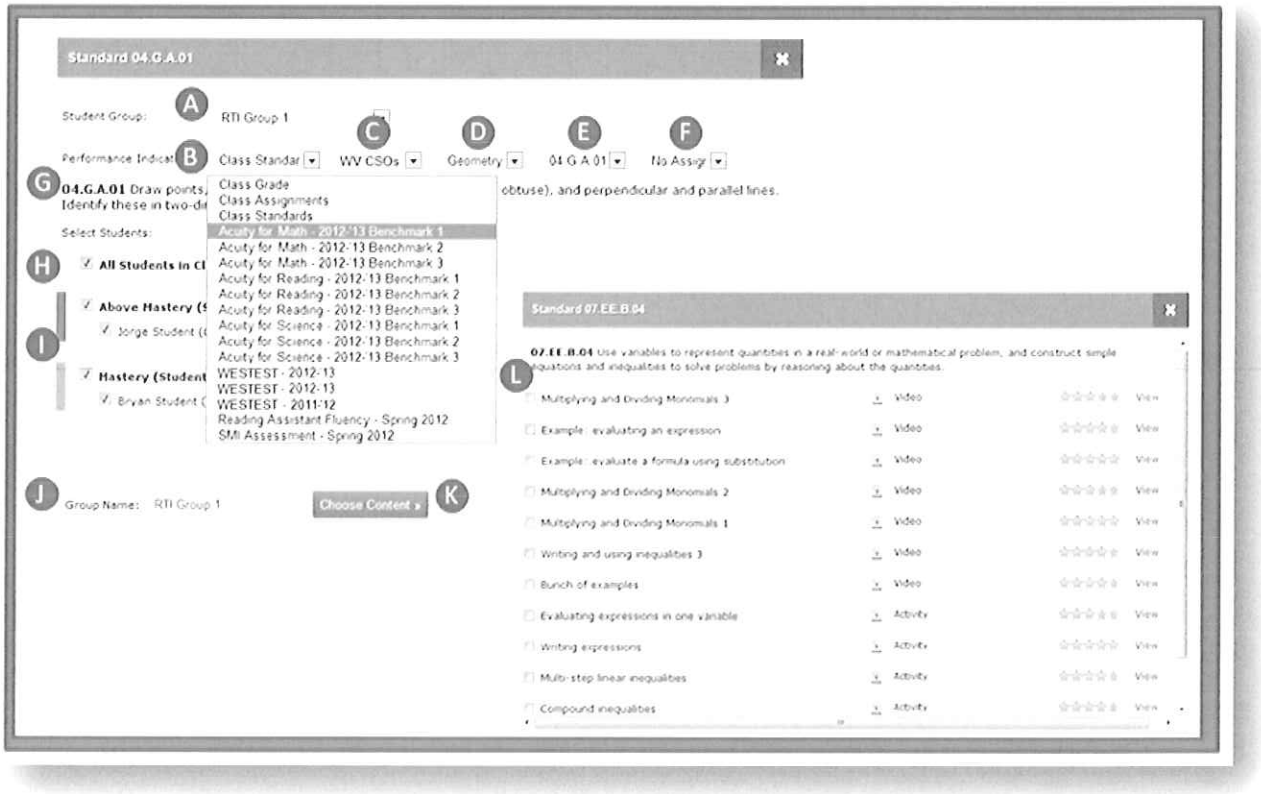
Engrade employs a configurable role-based security model where roles are granted privileges via Access Control Lists (ACL). Roles include Teachers, Specialists, Students, Parents, School Administrators, County Administrators and State Administrators. Roles with Read permissions may only view data; they may not create, modify or delete it. Roles with Write permissions may create modify or delete data. Write ACLs may be finer grained. For instance, some roles may have only create and modify permissions without having the ability to delete. Execute permissions apply to modules and services that result in the execution of programming logic. There are additional classes of permissions and privileges that do not fall neatly into the Read/Write/Execute paradigm, but these cover the most common set of use cases.

6. Allow for customized reports that provide instructional recommendations (e.g. strategies, tools, resources, or supports) based on data-driven and standards-based results. – add regular grade book screenshot down low

Grouping and personalization in education is the fruit of good data - mastery is simply the next step.

Because Engrade hosts data from multiple sources, such as assessments, attendance data, biographical, demographical data and grades, all on one portal, grouping for action and following up for accountability is what makes Engrade so powerful.

Engrade's grouping tool allows educators to effectively use data-driven targeted instruction to intervene and enrich sub-groups via personalized delivery of content and follow-up.

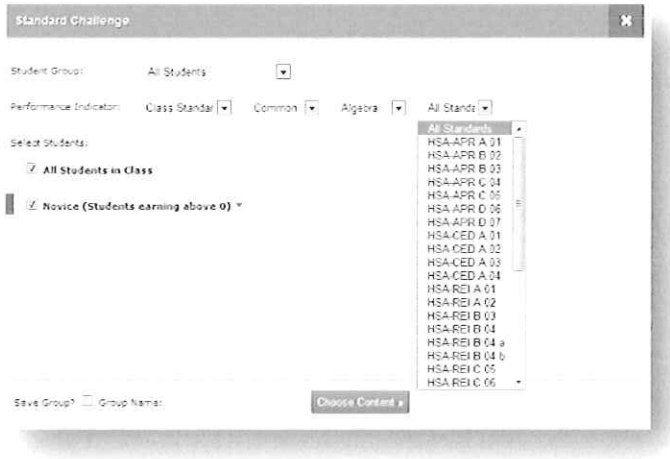


Instructional Recommendations for Standard 04.G.A.01

A. User can select a group or individual students. Once the group is selected the students in H and I are filtered out.
B. User selects whether to pull recommendations from Class Grade, Class Assignments, Class Standards or any Third Party Assessment or Mastery Data
C. The performance indicators will automatically adjust its sub-filters depending on what was previously selected. In this case, because the user selected Acuity for Math Benchmark 1 the following sub-filter offers WV CSOs because the content in the benchmark are tagged with these standards.
D. The sub-filter offered after the WV CSO selection are all the clusters
E. Since Geometry was selected, the next sub-filter will show all objectives descended from Geometry.
F. User can further filter on whether content related to this standard has ever been assigned
G. The standard selected is presented for user's convenience
H. All students in the group can be selected
I. Or, the students can be selected on mastery of the given standard
J. If a subset is generated or the user simply wants to track the group as a separate group, the user can give the selected group a new name.

K. User, clicks on choose content to get recommendations

Group Filtering: By Thread



Group Filtering: By Standard

Group Filtering: By Standard's Homework, Formative or Summative Test

Group by Third Party Provider

Reports available by stakeholder include:

Teacher reports

- Grades
- Attendance
- Behavior/Conduct
- Progress Reports
- Assignment Level Performance Level Breakdown
- Standards Performance Reports
  - Standards Trends Reports
  - Standards Mastered by Class
  - Student Performance by Teacher (Class Average, Missing Assignments, Failing Students)
  - Quiz Item Analysis Report

Principal reports

Dashboard Reports

- Daily Attendance
- Daily Behavior/Conduct
- % of Students Logged In
- % of Parents Logged In
- Missing Assignment Report
- Performance Level Breakdown
- Student's Failing Classes Report

Student reports

- Report Cards
- Progress Reports
- Detailed Progress Reports
- Student Profile (Grades, Attendance, Behavior, Assessments, Trends, Accounts)

State & County reports

- Custom Dashboard (Cross reference Attendance/Grades, Conduct/Grades, etc.)
- Standards Mastery across counties and schools
- Standards Coverage across counties and schools
- Attendance Export Log
- Grades Export Log
- Drill down capabilities for summary information

7. Have the capability of creating student profiles that provide information about students' full educational careers.

Engrade has the capability to display a student's longitudinal data record that we believe is the most extensive history ever been maintained. Some samples of the types of data in Engrade include:

- Summative assessment results
- Grades from classes
- Attendance
- Logins to Engrade's system

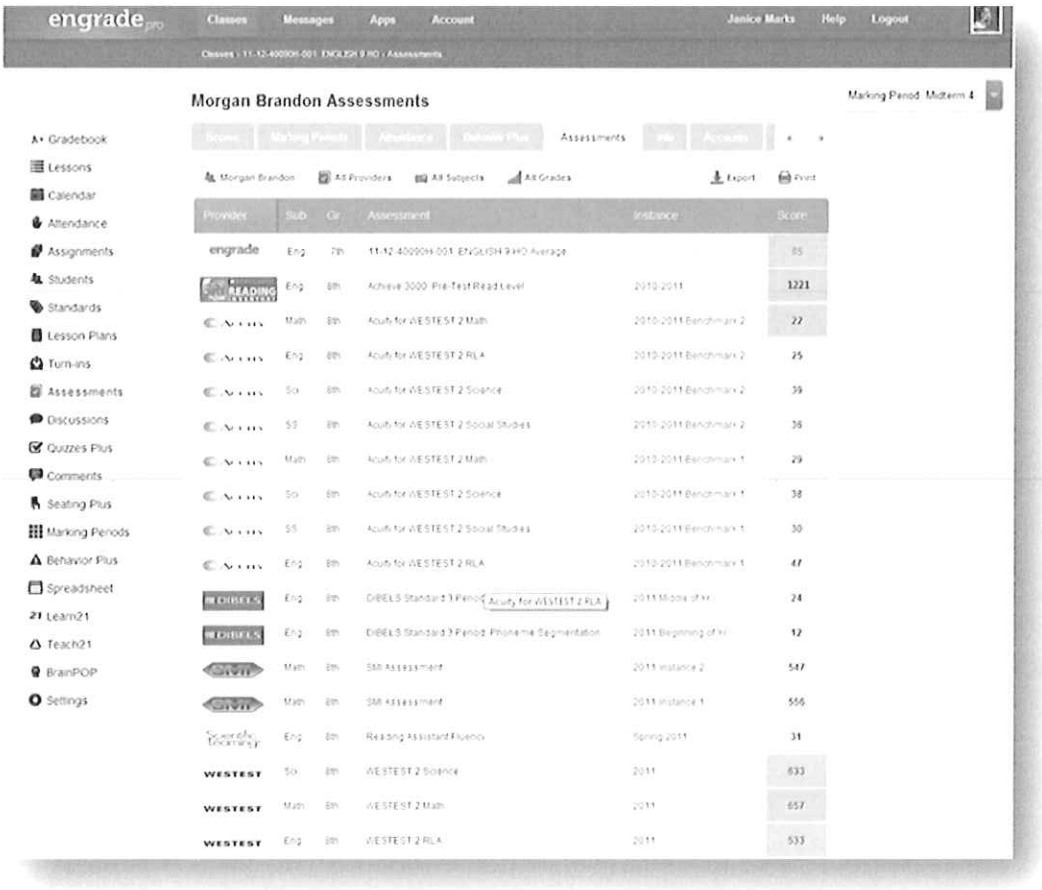
- Actual homework assignments that were turned in
- All assignments ever completed

Engrade is P-20 ready with the ability to track the entire educational career integrating early learning through higher education data and opportunities in one learner profile that all stakeholders, including parents and students, can view from one easy to use online and mobile ready platform.

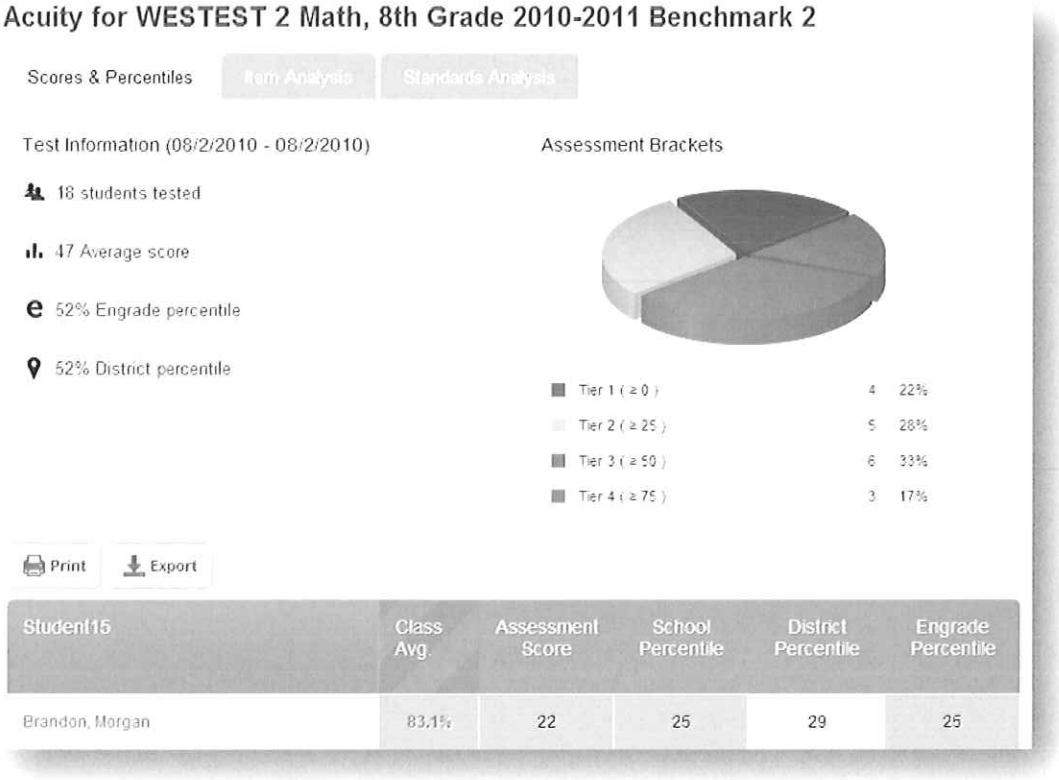
More than data, the entire portfolio of a student's online work is stored in Engrade's digital locker. She can view her work in 5th grade when she's in 7th. This reflective practice enables the student to assess her experience, learn from mistakes, repeat successes and plan for the future.

All data created in Engrade is stored with that student. The Engrade platform creates a complete and persistent student record, including all summative assessments, formative assessments, and demographic data and makes dashboard data available to all stakeholders. Engrade provides Students, Parents, Teachers, Specialists, Principals, and Administrators with their own dashboard with quick, easy access to the information that matters most to them.

Engrade's Student Profile page not only surfaces historical and current assessment data it also includes grades, attendance and behavior marks. Reports can be printed or exported. They can be filtered and expanded to show all years of a student's data. Colored cells quickly tell a student how they are doing overall and drilling down allows a student to see how they compare in percentiles to other students across the school, county and even Engrade. They can even see how they did on individual questions through item analysis and standards analysis.



Student Profile: Assessments



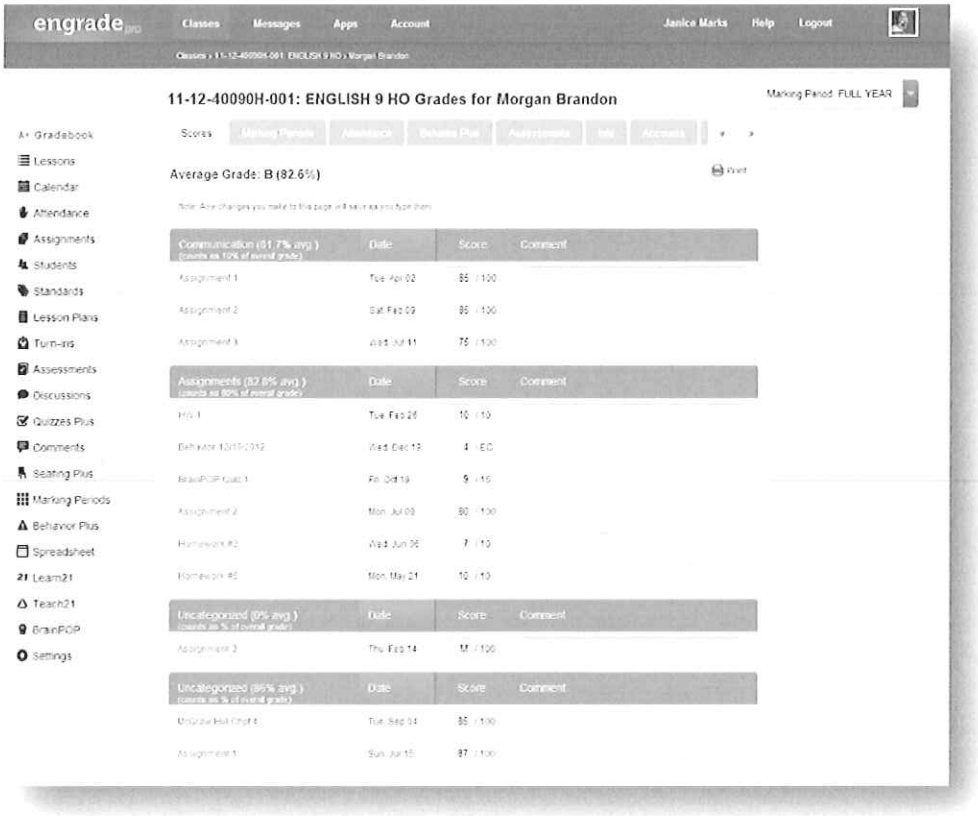
Student Profile Page: Assessment Percentiles

Student	School Percentile	L.04.01 (48% Avg.)	L.04.02 (45% Avg.)	L.04.03 (52% Avg.)	L.04.04 (48% Avg.)	W.04.01 (55% Avg.)	W.04.02 (48% Avg.)
Brandon, Morgan	37	33%	31%	19%	20%	25%	20%

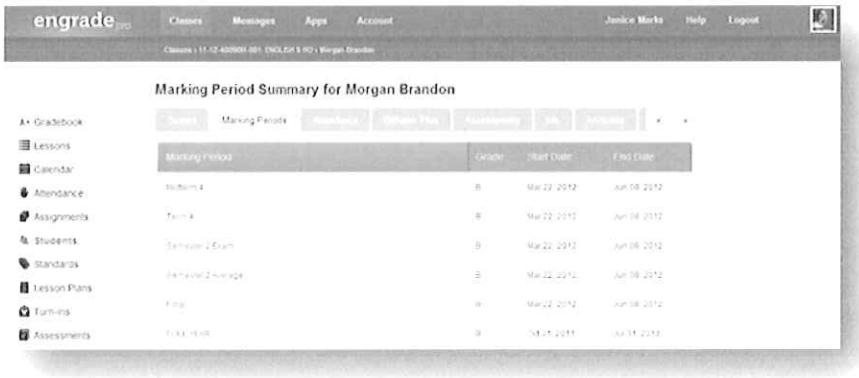
Student Profile: Assessments: Standards Analysis

Student	School Percentile	Q1 (61% Correct)	Q2 (50% Correct)	Q3 (44% Correct)	Q4 (50% Correct)	Q5 (61% Correct)	Q6 (44% Correct)
Brandon, Morgan	37	C	E	D	D	D	C

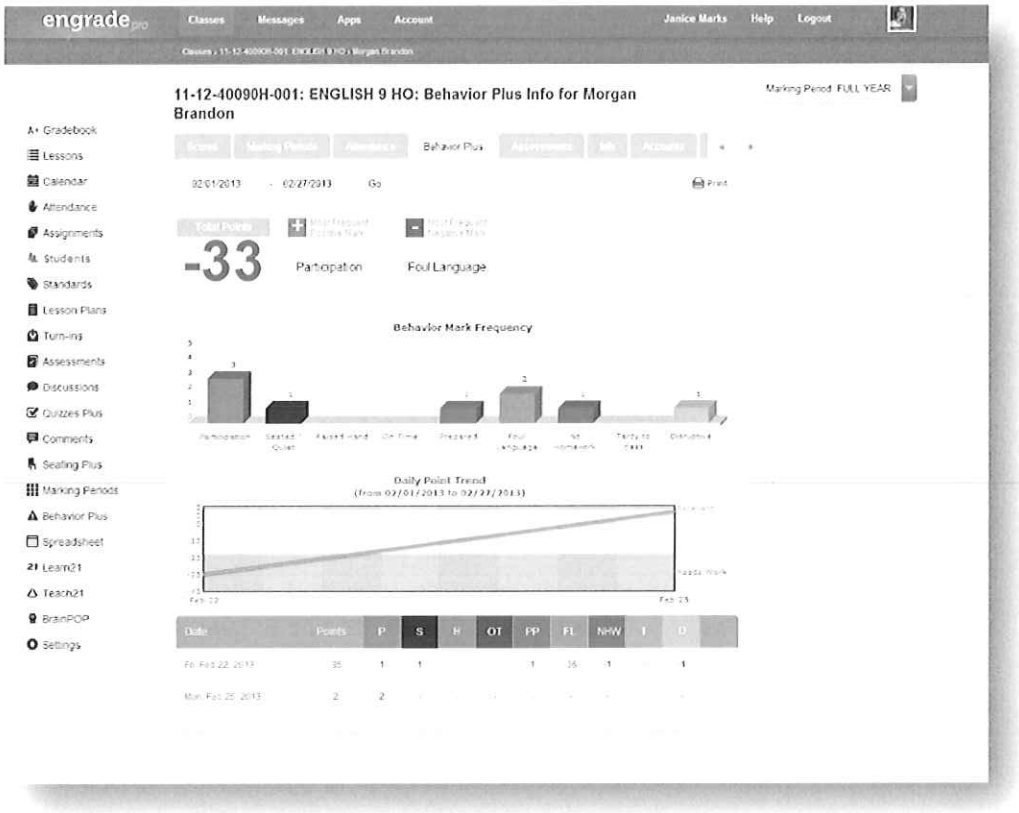
Student Profile: Assessments: Item-Level Analysis



Student Profile: Assignments



Student Profile: Grades



Student Profile: Behavior

8. Can be seamlessly integrated with existing data sets/systems

An administrator logs in and views his dashboard. He reviews benchmark data from Acuity, standards performance across all third party vendors, growth data from summative assessments and parent activity on Engrade. That is quite a commanding view on the state of operations in a school district.

This is the power of data integration at work on the Engrade platform.

<u>Extract, Transform and Load</u>

Engrade can access virtually all data sources including Microsoft SQL, Oracle, DB2, Microsoft Excel, Microsoft Access, MySQL, Sybase, Informix, Teradata, Neoview, Flat files, CSVs, etc. Engrade provides connectivity to virtually all types of data sources and types, operating systems and hardware environments using both native access and open standards. It also supports the reading and writing of data from message queues and the sending and receiving of data to and from Web services. Our extraction process can source data from heterogeneous systems using varied transport protocols (TCP, FTP, SOAP, RPC etc.) and data formats (XML, CSV, Structured etc.). Based on the information gathered during the discovery phase of an integration project, we create wire diagrams to extract, transform, and load data from the source system and map that to the target data ports in the Engrade API and ingestion

schemas. The transformation process standardizes data across various sources, removes duplicates, cleanses data, and generates consistent keys. Our target ingestion schema stores historical data with versions numbers.

Often it is not enough to ensure that a job completes successfully. When working with large data flows, it is important to make sure that the job performs well. Saved metadata statistics are collected for each transformation step to help tune performance.

Master Data Management and Data Flow

Engrade uses sophisticated data analysis tools to analyze existing data resources, build a unified view of that information, and manage that master view over time while providing the data quality, data integration and data governance framework that drives successful MDM programs.

For each master data item, we build a Master Data Model where we specify the master data item name, authoritative owner, who maintains the data, the datatype, size, default values, allowed values, constraints, dependencies, retention period, change authorization level, last audited, and source mapping look-ups. In addition, we create Master Data Movement Diagrams. For Engrade and Engrade Partners, we establish this metadata as part of our partnership agreements. The Master Data Model will be governed by the Master Data Management Council (MDMC) identified at the start of the project.

The MDMC is preliminarily identified as WVDE Project Staff and Engrade, who will have the knowledge and authority to make decisions on how the master data is maintained. The MDMC will agree to decision processes, priorities and identify the process for decision resolution. The MDMC will also ensure that all business services providing or using master data employ operational governance through policies and procedures that will be approved and periodically audited by MDMC appointed representatives.

To support the MDMC, Engrade will provide:

- A data stewardship console that allows data stewards and business analysts to analyze existing data resources and design MDM workflows and business rules
- Role-based access for data stewards that controls user access to critical master data and protects sensitive and confidential information such as Social Security numbers and other personally identifiable information
- Auditable, historical views of master records, meaning that the relevant data history required for governance is maintained in the solution infrastructure

One of the metadata attributes we track and capture is "Authoritative Source". Engrade's APIs respect this attribute and prevent any updates to data for which it is not an Authoritative Source. The Master Data Model and the system of MDM governance employed will inform and be validated in the System Integration and Test Plan.

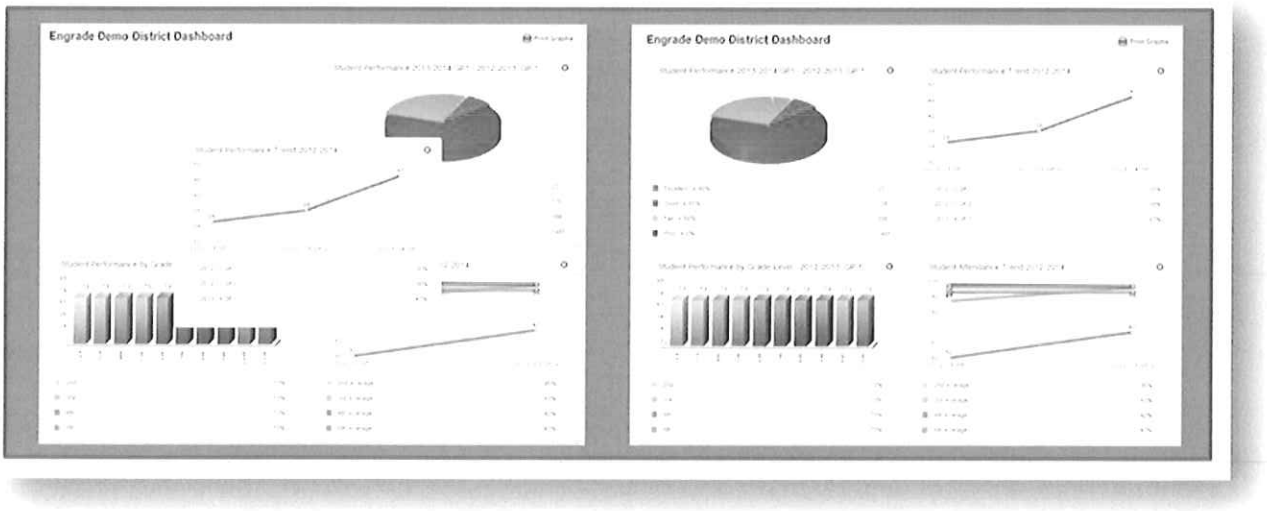
9. Provide custom and on-the-fly reporting capabilities and analytics

Engrade adapts to the way you work. Engrade enables custom and on-the-fly reporting capabilities. Users can select which graphs they want to see and where they want to see them. They can even create their

own graphs with their own titles and attributes. All reports are filterable by all available filters including Groups, Subject, Provider, User, Time and more. In addition to many printable and web based reports, Engrade allows administrators and teachers to export all data via CSV / Excel or our API.

Create On-the-Fly Dashboards

A. Enter your own personal title
B. Select a time range or select Over All Time
C. Select Category of Graph
D. Optionally select Group By Gender, Ethnicity or Grade Level
E. Select Starting Period
F. Select Ending Period
G. Select Schools
H. Select Gender
I. Select Ethnicity
J. Select Subject



Drag-and-Drop To Customize Dashboard View

10. Comply with industry standards for data exchange

Engrade is committed to staying current and using proven industry standards for data exchange. In fact, we own the only viable open source School Interoperability Framework (SIF) agent thanks to one of our formidable and talented engineers who dedicated a better portion of a decade to develop. In addition to a SIF agent, Engrade's offering includes a bundled SIF Zone Integration Server to complete our commitment to standardized models of education data. With a flip of switch, Engrade can provide vertical interoperability between state or county SIF data stores and Engrade's.

Engrade supports exchanging data through various data interchange standards:

- Ed-Fi: Ed-Fi is an XML-based data specification combined with a free tool suite developed by the Michael & Susan Dell Foundation to improve student achievement in the K-12 education sector.
- SIF: School Interoperability Framework, developed by The SIF Association, is an industry initiative to enable interoperability and data sharing between software applications in the pK-12 instructional and administrative environment.
- CEDS: Common Education Data Standards
- QTI: Question and Test Interoperability specification defines a standard format for assessment content and results allowing assessment materials authored and delivered on multiple systems interchangeably.
- LTI: Learning Tools Interoperability enables applications to connect via SSO with data pass backs.

11. Support standards structured query language (SQL)

Engrade supports SQL. Engrade's data is contained in MySQL with the InnoDB database engine which has all of the critical features WVDE expects in a relational database management system (RDBMS) including:

- High-Availability Clustered Database
- ANSI SQL, SubQueries, Joins, Cursors, Prepared Statements
- Stored Procedures, Triggers, SQL and User-Defined Functions
- Updateable Views
- ACID Transactions with Commit, Rollback
- Distributed Transactions
- Row-level Locking
- Snapshot/Consistent Repeatable Reads (readers don't block writers and vice-versa)
- Server-enforced Referential Integrity
- Strong Data type support (Numeric, VARCHAR, BLOB, etc)
- High-Precision Numeric Data types
- Indexing (clustered, b-tree, hash, full-text)
- Dynamic Memory Caches
- Cost-Based Optimizer
- Unicode, UTF-8
- XML, XPath
- Geospatial support
- Replication
- Table and index Partitioning
- VLDB (terabytes) capable
- High-speed, data load utility
- Online Backup with Point-in-Time Recovery
- Automatic Restart/Crash Recovery
- Automatic Storage Management (auto-expansion, rollback management)
- Compressed and Archive Tables
- Information Schema/Data Dictionary
- Security (GRANT/REVOKE, SSL, fine grained object privileges)
- Built-in data encryption and decryption
- Built-in Task Scheduler
- Drivers (ODBC, JDBC, .NET, PHP, etc)
- GUI management and development tools

Additionally:

1. Engrade's SOA offers a complete API that exposes all data and functionality available on the Engrade platform. Engrade's integration team will develop any desired integrations with the WVDE data warehouse factoring in master data management concerns such as authoritative data sources and data transfer periodicities including batch or event driven integrations.
2. SAS: Engrade uses SAS Data Integration tools for a full, mature suite of ETL and data quality processing with endpoints for all major data repositories.

12. Provide adequate data privacy and security

We take data privacy and security very seriously. There is not a stone unturned in our infrastructure. We audit and reinforce regularly to ensure the utmost of compliance. Our systems are highly engineered, challenged and validated on a regular basis. The success of our product depends on it.

Security

- 256-bit HTTPS/SSL key encryption: All data exchange is performed over encrypted channels, either SSL or SSH both inside and outside of Engrade's data centers.
- Our componentized technologies are implemented as services through which encapsulated data is exchanged over hardened interfaces, ensuring secure connections to functionality.
- Interfaces are isolated ensuring little to no impact to other components of the overall system.
- Only allow confirmed connected users (e.g. student-teacher and teacher-school)
- User passwords are encrypted in database as a non-reversible, salted hash
- Each student is assigned an Access Code with a 13-bit security hash
- Password Cracking Countermeasures
- Session Security
- Secure Messaging
- Engrade employs a configurable role-based security model where roles are granted privileges via Access Control Lists (ACL).
    - Roles with Read permissions may only view data; they may not create, modify or delete it.
    - Roles with Write permissions may create modify or delete data.
    - Execute permissions apply to modules and services that result in the execution of programming logic.
- Consistent with the principle of least privilege, roles may not access any modules or services until such grants are affirmatively made.
- Engrade will only permit writes to non-authoritative data (data owned by other systems) by system or administrative accounts that satisfy the appropriate checks.

Privacy

- Engrade dedicates full-time resources on data collection and reporting specifications and standards.
- We support standards that make data interchange easy and efficient and we are devoted to protecting Personally Identifying Information (PII).
- All of our employees and subcontractor's agreements affirm that PII is not intentionally or unintentionally used or disclosed in a manner that would violate the Family Educational Rights and Privacy Act (FERPA) or any other federal or state regulation governing confidentiality and privacy of students.
- Engrade trains on procedures to prevent improper use and disclosure of PII and to limit incidental use and disclosure of PII that is, or will be, contained in a student's record.

13. Are supported with training and end-user support

Training

Engrade's training program has proven itself across the US including West Virginia. Developed and executed by seasoned teachers and professionals, Engrade's training program is modularized so that the focus is on only one skill at a Time. Following a blended-learning model, we deliver training in a variety of media, including face-to-face training, short video presentations and webinars. Also found on our Help Menu are a detailed online Help narrative, Quick Start Guides used in our training sessions and parent support documents.

Training sessions are segregated by user type, i.e. West Virginia Department of Education IT and support staff, county administrators, building administrators, specialists, counselors, elementary teachers, and secondary teachers are trained in groups, etc. West Virginia Department of Education IT and Support Staff will receive training from Level 2 Engrade Tech Staff and our Data Integration Services Team.
Training is most successful when it is hands-on. So training should take place in an environment where users have hands-on access to Engrade and can follow along with the instructor on-screen.

For cost-effective training, Engrade proposes a Train-the-Trainer model where West Virginia Department of Education Trainers are Engrade certified and can then conduct a 90 minute live overview for end-users. Engrade complements this approach with follow up 30-minute webinars.

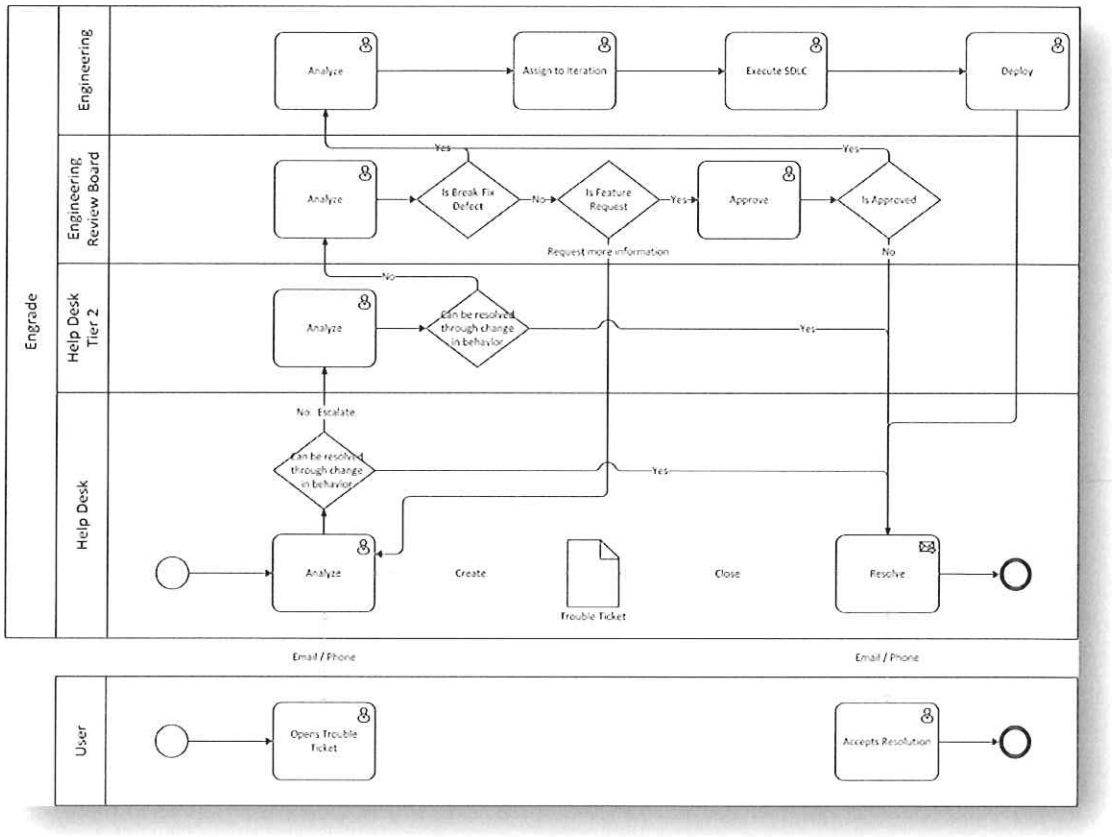
Training designed for advanced users, county trainers, and technical support staff is markedly different from that of the typical end user. These advanced user-groups will be trained on a higher technical understanding of the platform, and be able to troubleshoot the problems of other users. Therefore, these groups will receive a larger amount of face-to-face training and if the county chooses, may be required to pass a certifying assessment in Engrade Support. Courses match the necessary level of proficiency required by each group, and subject specific modules will be available on-demand for individuals that need a wider knowledge base within the platform.

Support

Through the life of the contract, Engrade offers end user telephone support through a toll free phone line available Monday – Friday from 8:00 AM to 8:00 PM Eastern Time.

Engrade additionally has email support through a contact form inside the application. Email contacts are processed through a ticketing system, Zendesk.

Our Customer Service Agents have strong backgrounds in technology and the majority are former classroom teachers. Should an end-user issue require escalation, the ticket is moved to Level 2 Support immediately. Level 2 Support is available during regular support hours, as well as extended hours off-site for emergency support, as needed.

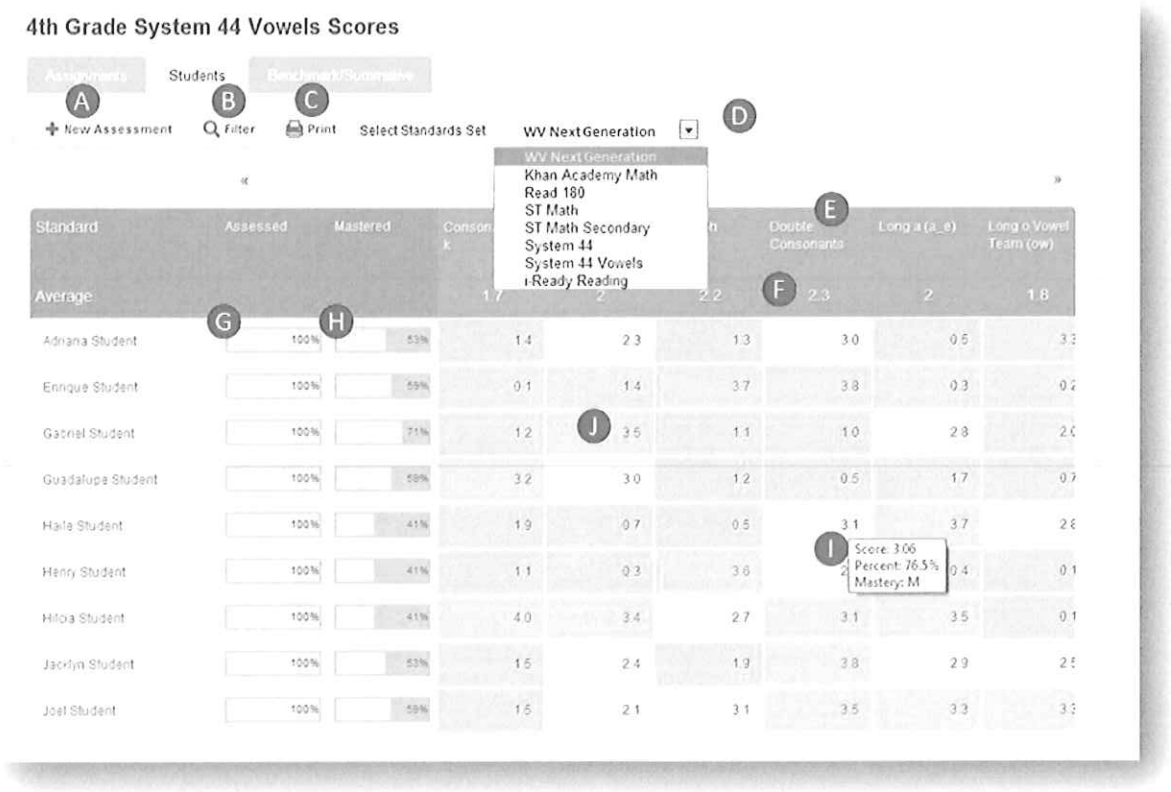


Engrade's Support System

14. Align and report on all content including integrated third party content as a cross-sectional analysis of daily instruction and student performance by standard

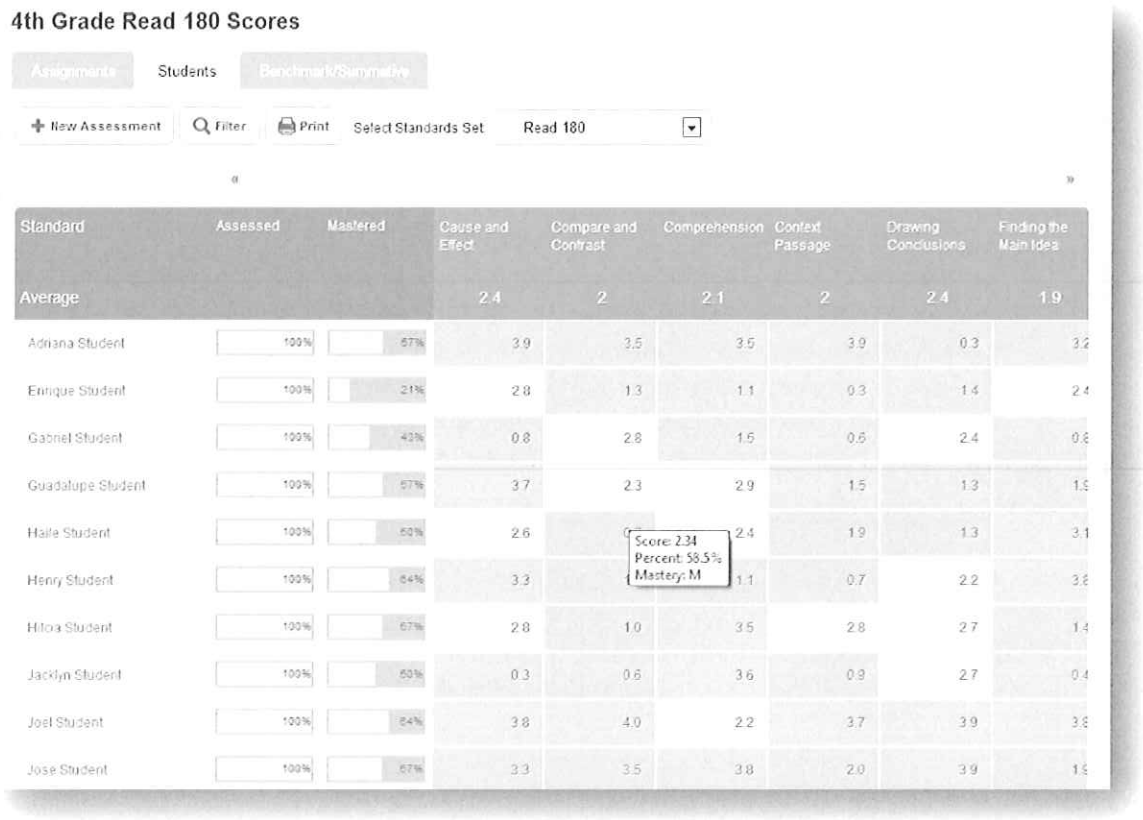
Standards-based instruction and analysis in Engrade is easy and powerful. Engrade aligns and reports on all content including integrated 3rd party content as a cross-sectional analysis of daily instruction and student performance by standard.

Engrade allows third-party content to be normalized against its own objectives or standards and even cross-walked to state standards. Scores are normalized on a configurable scale so that vendors can inform the same unit, objective or standard. And, publishers can be weighted for a given standard. For example, for standard 123 Sally has a 3. 50% of this 3 is from assignments, 10% is from Khan Academy, 10% from Scholastic Read 180 and 30% is from Engrade formative assessments. Standard 3 is a West Virginia CSO which maps to Khan Academy's unit, Cause and Effect and Scholastic's Read 180 objective Drawing Conclusions.



Unified Mastery Data: Combines standards based data from Engrade and Third Party Content Providers

A. Create an assignment
B. Filter by Standard, Publisher, Student Groups, Grade Level, Subject, Category
C. Print Report Options (Students on Top, Standards on Top, Individual Student Reports)
D. Select standards set or third-party content provider
E. Click for full definition of standard, unit or objective
F. Average class score for standard, unit or objective
G. Percent of curriculum covered
H. Percent of curriculum mastered
I. The score is a composite score across Engrade grade book assignments and imported third-party data. This score is 10% System 44, 20% DIBELS and 60% Grade book



Read 180 Normalized Scores

15. Have the ability to support batch and event-based data integrations

Engrade has the ability to support batch and event-based data integrations. Batch based integrations may be performed at various periodicities depending on the source and target systems and data involved; periodicities ranging from monthly, nightly to near-real-time are possible. Engrade can integrate with virtually all data sources and has the resources and power to consume data in real-time.

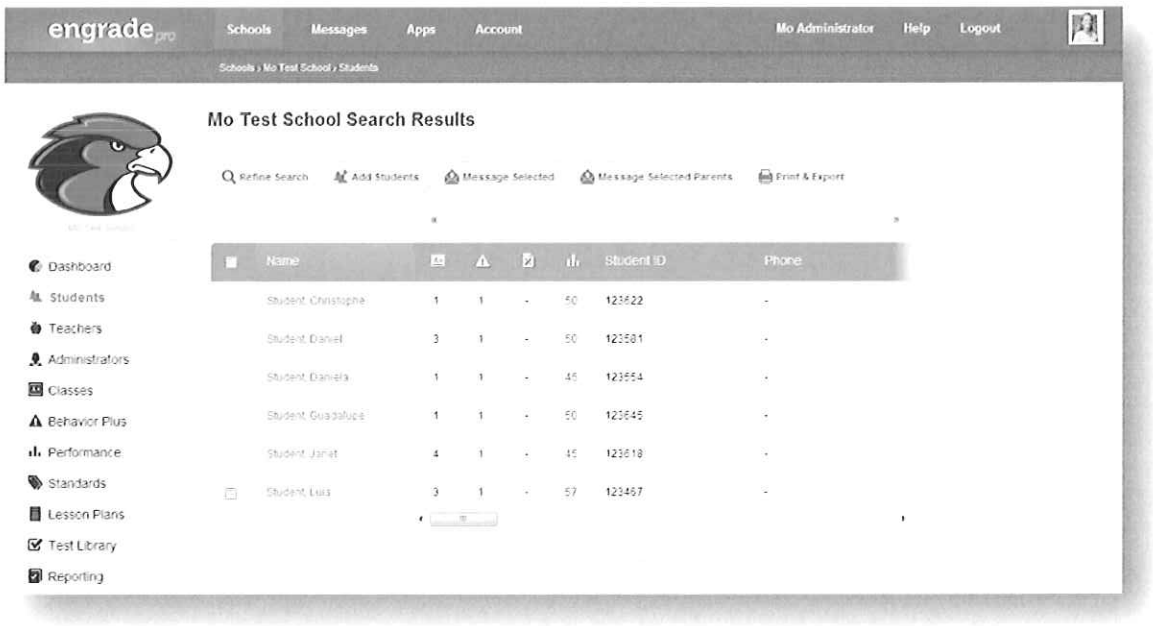
16. Integrate existing Early Warning System or provide a student-focused early warning system and corresponding reporting

Engrade's Early Warning System can be configured to flag data thresholds for assessments, grade averages, missing assignments, absences etc. Once the configurations are set, early warnings surface on dashboards and reporting interfaces.

Stakeholders can also create ad hoc warning configuration reports.

In both scenarios, users are empowered to act on the data. This is the power of Engrade. In a matter of minutes the administrator can send an email or a text with a personal message and attachment if desired and truly make a difference.

For example, we know that missing a threshold of assignments and or days of school greatly jeopardizes matriculation. We flag these students and create reports. Principals and other Building Administrators can also use filtering tools to generate lists of students meeting criteria, such as failing at least one class with two or more missing assignments. The list generated offers a quick click to send all the users on the list a Message which can accommodate a personal message from the sender and an attachment, if desired. The building admin may choose to send auto Alerts once a week or once a month to any set of students with a missing assignment or a failing grade for example.

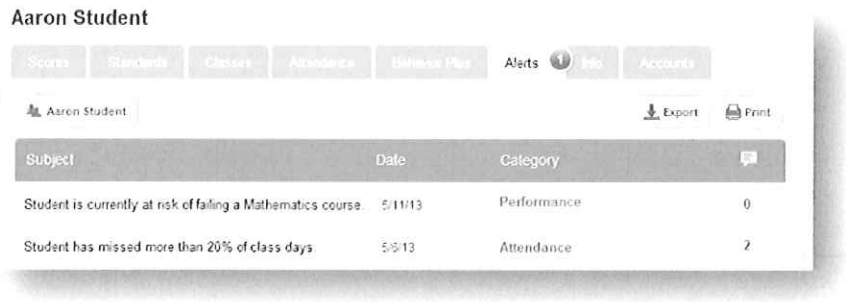


Messaging students failing one class

Early Warning System

Engrade can integrate an existing early warning system through our API or application interfaces or surface research-based insights and reporting through our "Alerts" application. Engrade's existing integrations with WVEIS and 3rd party benchmark and summative data such as Acuity and WESTEST can allow administrators and teachers to create rule-based alerts that span the entire student profile. Engrade can pre-set these alerts based on research by Robert Balfanz1, conducted across West Virginia schools. As soon as a student crosses the threshold or meets the criteria for this indicator, Engrade can surface an alert for teachers and administrators associated with that student.

[1] Balfanz, Robert, and Vaughan Byrnes. "Dropout Prevention through Early Warning Indicators: A Current Distribution in West Virginia Schools." (2010).



Student Alerts Page

Robert Balfanz and Craig Jerald's research note the following early warning indicators:

Drop Out Indicators:
Two or more indicators at the elementary or middle school level are strong predictors.

Elementary

- 16.4 absences in the 1st grade versus 10.2 absences for successful peers
- Failing grades in the 1st grade
- Aggressive behavior of chronic behavior problems in the 1st grade
- Repeating a grade increases dropout odds by a multiple of 3
- Students with single parents

Middle School

- Missing a total of five weeks of school (America's Promise states that missing ten days of school is the indicator instead of five weeks)
- Failing an English or Mathematics class
- Aggressive behavior of chronic behavior problems
- Older age than peers

Specifically in 6th grade:

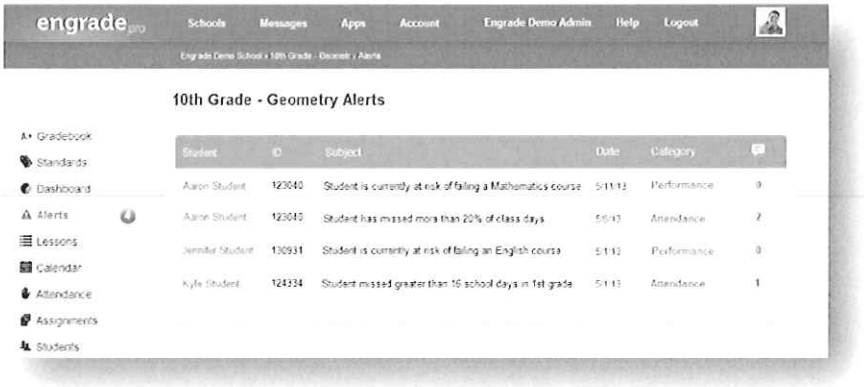
- Less than 80% attendance
- Failing English or Mathematics

High School

- Freshmen with more than one failing class
- Freshmen with 10 days of absence in first 30 days of school
- Failure to be promoted to 9th grade
- Less than 70% attendance overall

Graduation Success Predictors:

- Reading at grade 3 at grade-level is a predictor of high school graduation
- Enrollment and successful completion of Algebra I
- Transition point data from the ACT test
- From the Alerts application teachers may track all students within a class that meet the indicators above, based on integrated WVEIS, assessment, and daily performance / attendance data.

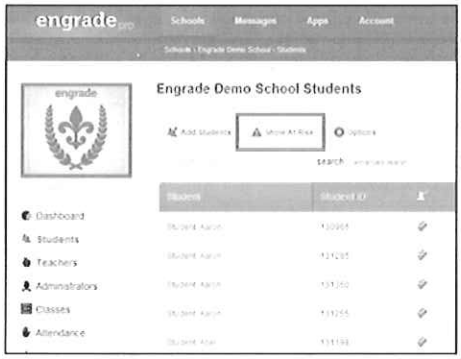


Class Alerts Page

Advanced Search / Real-Time Reporting

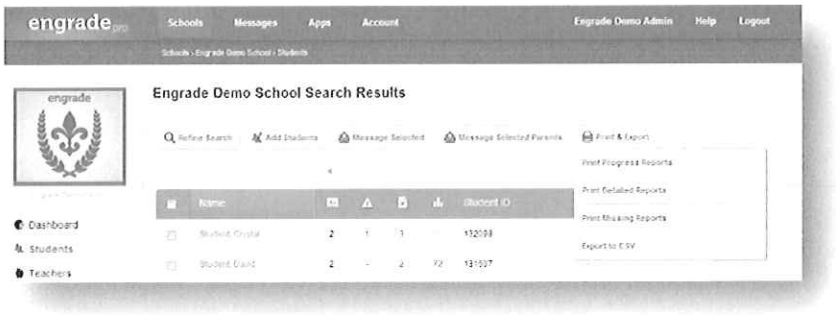
In addition to automatic alerts, Engrade allows administrators to build on the fly results by searching across student data fields. A convenient "Show At Risk" button can also be configured to search students for predefined at-risk criteria. For example, a search could return:

- • Any students with attendance below 90% or failing a Mathematics or English course (per the research of Robert Balfanz)
- • 7th Grade students with more than 10 absences, a failing grade, and more than 3 missing assignments
- • 6th grade students who are failing Math or English and have less than 80% attendance.
- • All students:
  - Failing a Class in a Specific Subject
  - Missing X Days of Absence over a Specified Time Period



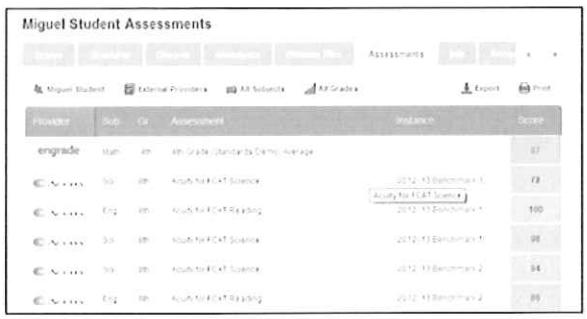
Actionable Results

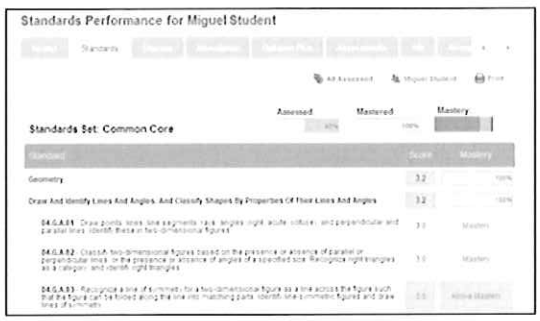
When Alerts and At-Risk results are returned, a school administrator or counselor can take immediate action. They have access to messaging for the specific students or parents and various print / export reports. Additionally, they can click on specific student names to see details of all data in Engrade for that student.



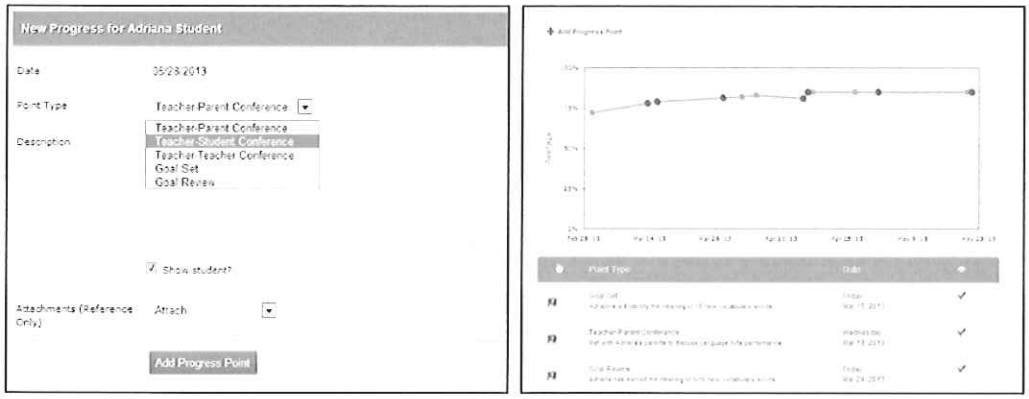
Below is an example of an individual student profile that may show:

- Grade / Scores in each class
- Standards Performance (if applicable)
- Attendance
- Behavior
- Assessment Data (Created in Engrade and 3rd Party Integrated Data)
- Student / Parent Accounts
- Demographic and Custom Student Data Fields

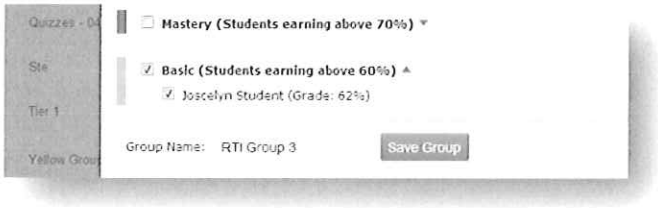




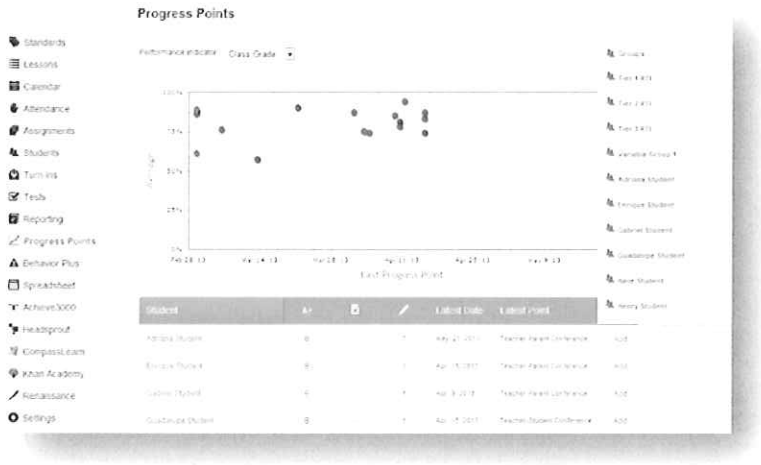
Teachers may also utilize Engrade's Progress Points application to track actions and notes for each student at the time of the Early Warning Alert. This helps ensure that real action occurs, whether online or offline. In the example below, teachers choose from a list of actions such as holding a Teacher-Parent Conference or setting a goal with the student. These interactions can be plotted against the student's grade in the class or attendance record to provide a quick view of any associated improvement.



Administrators and teachers may also add at-risk students to custom groups for additional monitoring or intervention.



All reports can be filtered by student group. For example, below a teacher may view all notes for all students or sort by specific intervention or alert groups.



Progress Points

Engrade allows administrators and teachers to easily identify students who meet research-based *Early Warning Indicators*, take and record action immediately, and track changes in performance, attendance, or other data through intuitive trend line graphs and reports.

17. **Provide lesson planning capabilities for teachers that could include third-party content**

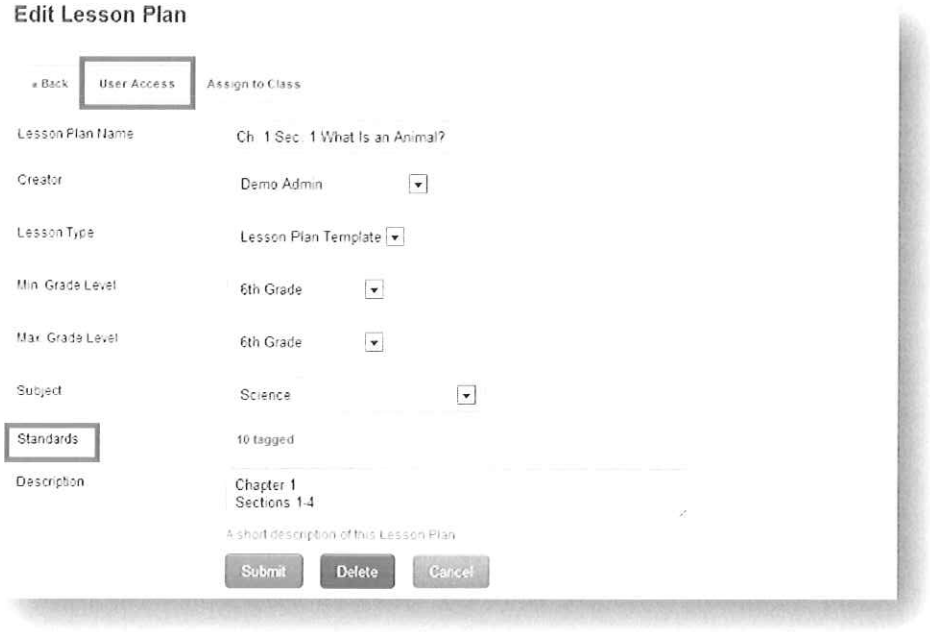
Engrade provides a flexible lesson plan builder allowing teachers to build a lesson plan de novo or from a template. From the *Lesson Plans* application, teachers can author new lesson plans, access past lesson plans, or develop lesson plans based on administratively set templates.

Lesson plan templates may be authored at the county / school administrative level and shared to teachers. Lesson plan templates provide required fields, standards or sections specified by an administrator. At the discretion of a county or school administrator, teachers may modify sections of a lesson plan template.

Templates may be only a general outline or full lesson plans. Administrators may allow multiple users to collaborate on lesson plan templates and group available lesson plans in a hierarchy by subject, grade-level, units, or other sub-folders. For teacher-authored lesson plans, teachers may also provide "User Access" to other teachers for collaborative efforts.

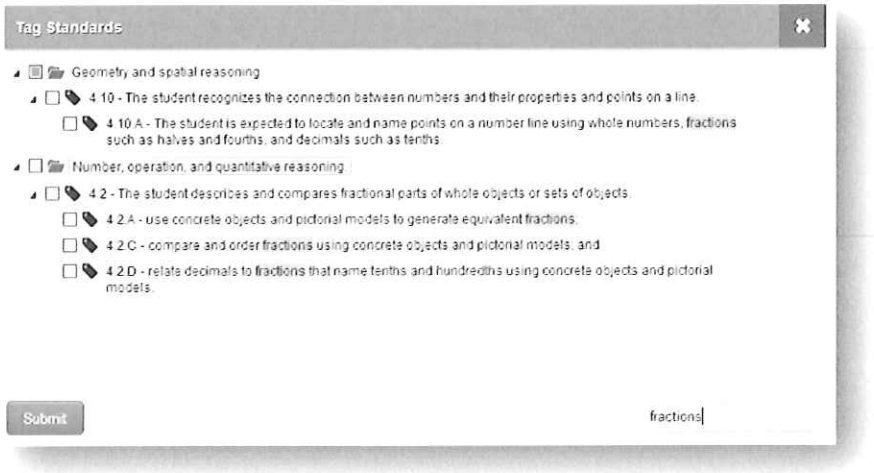
Lesson plan templates may be authored at the district / school administrative level and shared to teachers. Templates may be only a general outline or full lesson plans. At the discretion of a district or school administrator, teachers may modify sections of a lesson plan template.

Administrators may allow multiple users to collaborate on lesson plan templates and group available lesson plans in a hierarchy by subject, grade-level, units, or other sub-folders. For teacher-authored lesson plans, teachers may also provide "User Access" to other teachers for collaborative efforts.



Lesson Template

When tagging lesson plans with standards, administrators or teachers can conveniently search all appropriate standards by keyword and receive instantaneous results. Standards are viewable in a hierarchical tree structure as seen below.



Tagging Standards to Lesson

Engrade's Lesson Plan builder is incredibly flexible. Teachers may build from a template with required fields, standards, or sections specified by an administrator or author completely new lesson plans.

Once an item is submitted for sharing, an administrator may review the material and approve it for sharing at the teacher's school or across the county. The administrator may review, add, or edit the standard-alignments or other item details before approving. When approved, the material will become instantaneously available to relevant users. This lesson plan will then be searchable by subject, grade-level, keyword, and other filters by any teacher at the school or county. With Engrade's central repository for lesson plans and various copy options, it is very easy to use scheduled lesson plans from one year to the next. All lesson plans can be reorganized or rescheduled as needed.

Engrade uniquely facilitates lesson plan and resource sharing between colleagues by integrating

- Teacher-Generated Lesson Plans and Resources,
- Administrator-Generated Lesson Plans and Resources,
- Open Educational Resources, and
- 3rd Party Learning Materials into one searchable lesson plan / resource repository. Currently, more than 10,000 items are available and more resources are frequently added. This Lesson Plan repository is closed to the county and can be curated by school or county curriculum administrators.

Teachers may generate Lesson Plans, Flashcards, Wikis, or upload Files such from Word PowerPoint, Excel or Google to Engrade. These items may be private or shared across a school or county with administrator approval.

Engrade integrates several Open Educational Resource materials such as those from Khan Academy and LearnZilllion. Engrade integrates with county or school licensed 3rd party content providers such as BrainPOP and can provide single-sign-on content access in the repository.

Engrade's *Lessons* and *Lesson Plans* applications allow users to attach multiple files and file types including:

- Documents (ex: .doc, .ppt, .pdf, .rtf)
- Video Files (ex: .avi, .mpg, .mp4)
- Audio Files (ex: .mp3, .midi)
- Images (ex: .png, .jpg, .gif)

Additionally, within a Lesson Plan, users may embed links, videos, images, rich formatted text, or documents as shown in the image below.

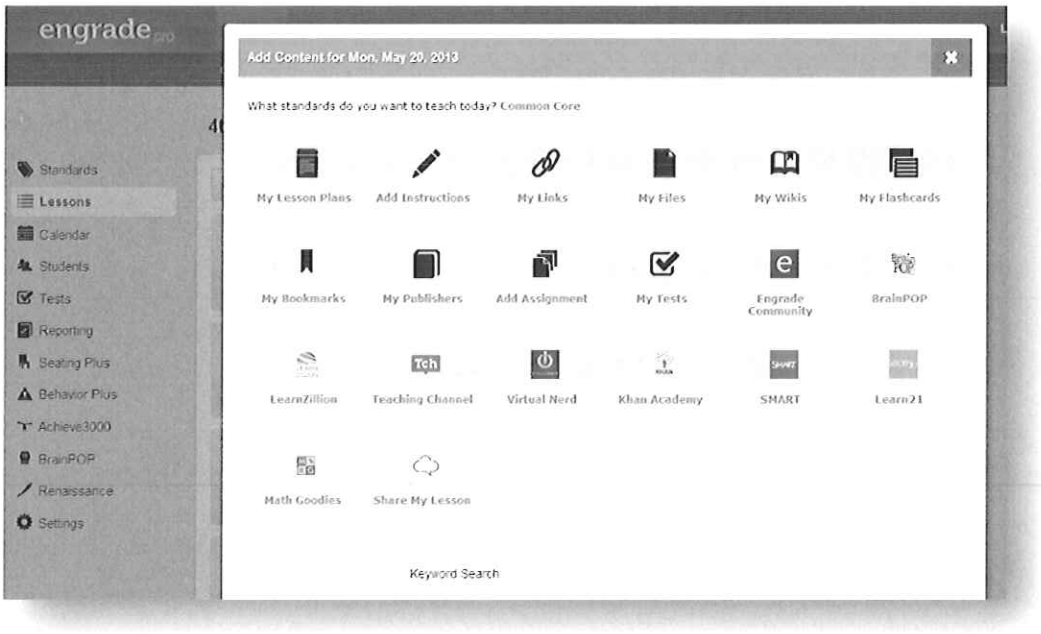
When tagging lesson plans with standards, administrators or teachers can conveniently search all appropriate standards by keyword and receive instantaneous results. Standards are viewable in a hierarchical tree structure as seen below.

Teachers may enter a "Notes" section within any lesson plan or the default template can be configured with a "Notes" section. Additionally, an optional discussion area is available between administrators and teachers once lesson plans are submitted for school or county sharing.

Once lesson plans, content, and assignments / assessments are scheduled across a course, teachers and administrators can view what standards have been *Planned*, *Covered*, and *Mastered* at a glance through class and administrative level dashboards. In addition to generating lesson plan templates, administrators may add events to a school-wide calendar that will appear on all teacher calendars.

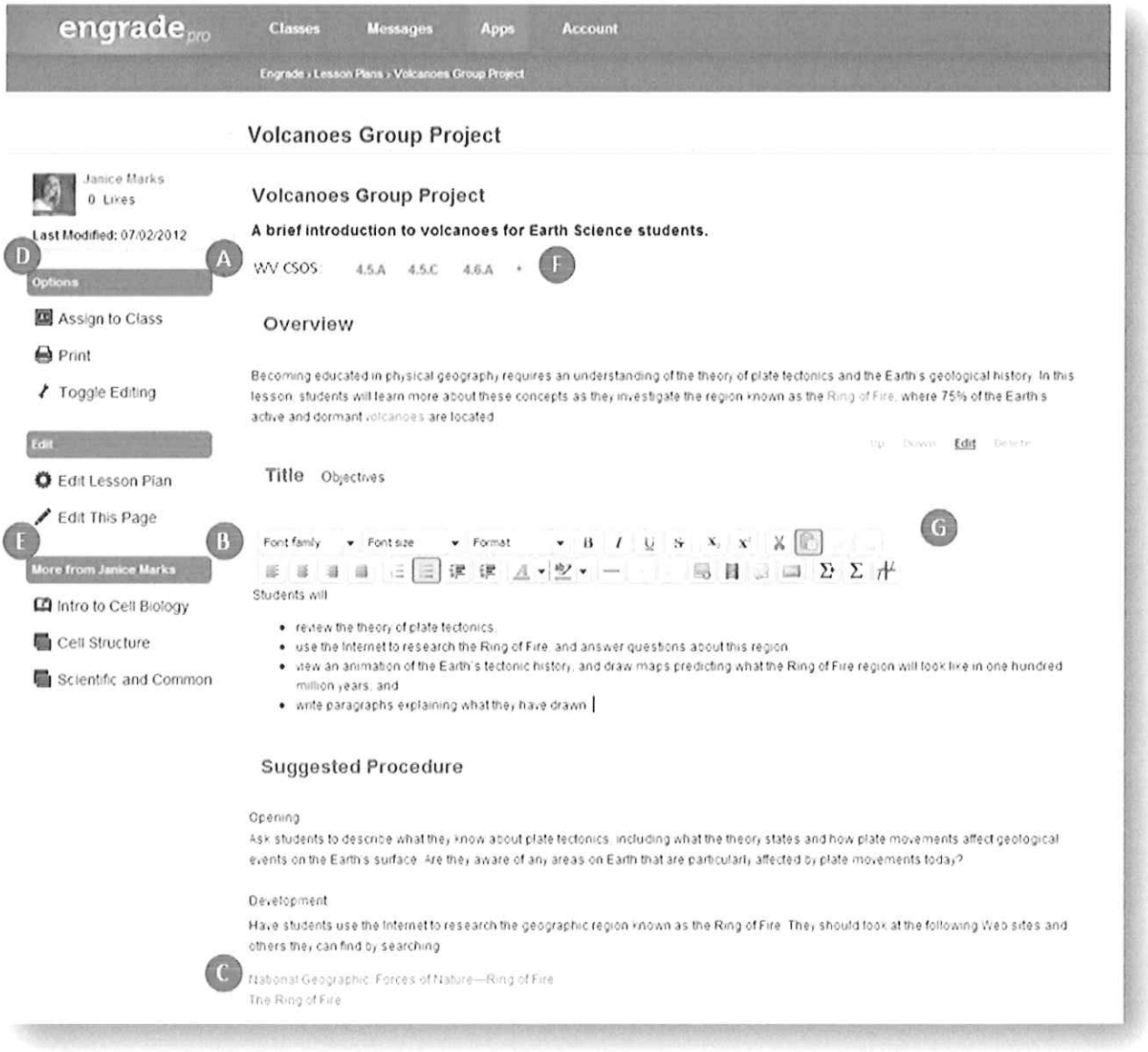
Planning, coverage, and mastery reports by national, state, local, or other standard set can be easily viewed by using the "Standard Set" dropdown. Additionally, reports can be sorted or filtered by period of time, grade-level, or subject area. Administrators may drilldown into any class to see lesson plans scheduled by teacher. Administrators may also review any submitted lesson plans in the *Lesson Plans* app or in the *Repository.*

From the lesson plan / day, week, or class view, teachers can click "Print" at any time.



Scheduling Lessons with Teacher and Administrator Content and Third Party Content Side-By-Side

From the week view, teachers may also hover over any item to view details about when students accessed a specific material and for what duration.



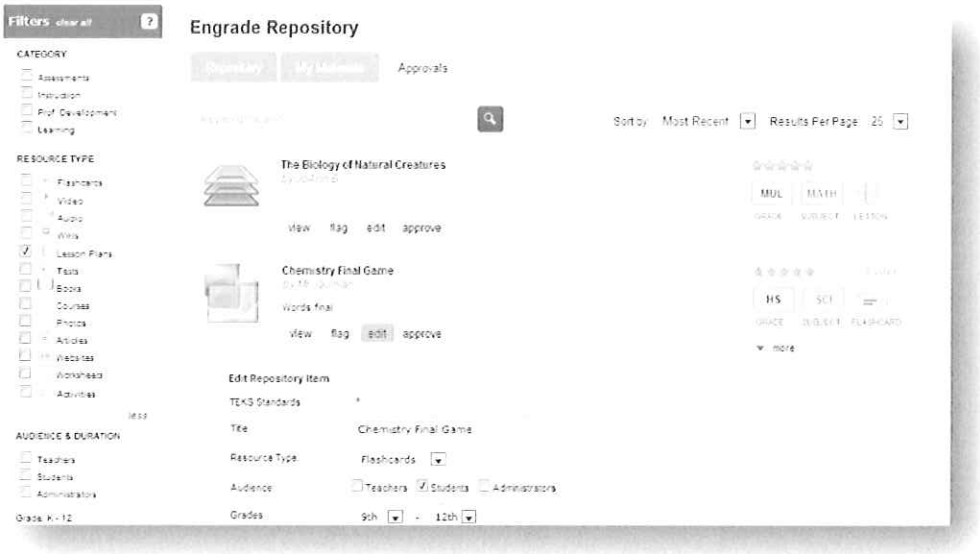
Engrade's Lesson Plans

A. Lesson plans can be aligned to standards in a few clicks.
B. Each section of the lesson plan has a full WYSIWYG (What You See Is What You Get) editor that allows

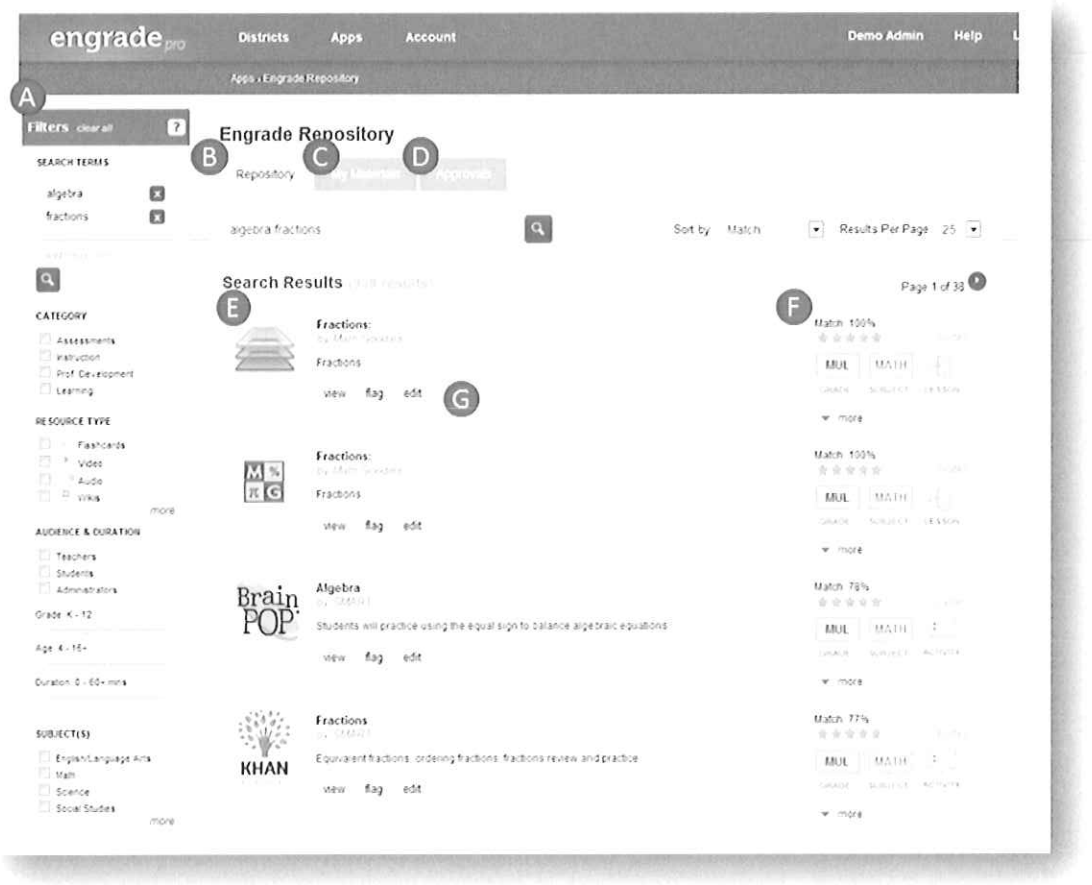
teachers or administrators to use font formatting, embed images, embed math symbols or graphs, and perform other functions similar to those in Microsoft Word.

C. Links to websites or integrated learning content can be embedded into any plan.
D. Teachers can assign personal lesson plans, those created by administrators, or those created by other teachers.
E. Teachers can see other lesson plans that have been shared by other teachers and approved by administrators.
F. Lesson plans can be aligned to standards in a few clicks.
G. Each section of the lesson plan has a full WYSIWYG (What You See Is What You Get) editor that allows teachers or administrators to use font formatting, embed images, embed math symbols or graphs, and perform other functions similar to those in Microsoft Word.

Sharing teacher generated content into the shared repository



Approving and editing curriculum artifacts for sharing at the teacher's school or across the county



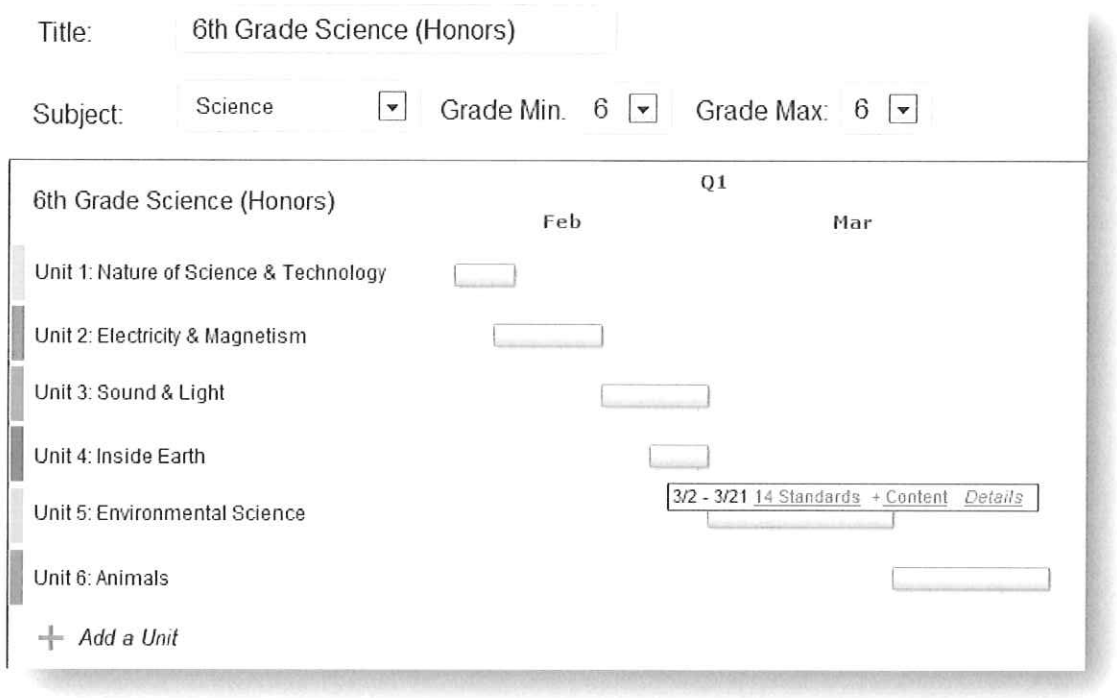
Engrade's Education Repository of Third Party Content

A. Engrade's Repository features an extensive list of item-level filters / details that can be configured for the county depending on needs.
B. Search full repository including third-party content
C. Search personal repository
D. Search district and school approved content
E. All resources in the repository can be rated by teachers on a 1-5 scale.
F. Lesson Plans can be surfaced by highest rating, most recent, or recommended, based on upcoming units / standards in a specific course.
G. 3rd Party Resources can be viewed or assigned to a class with one-click. All resources in the repository can be viewed, assigned, bookmarked, or flagged if necessary by teachers or administrators.

Curriculum Management / Development

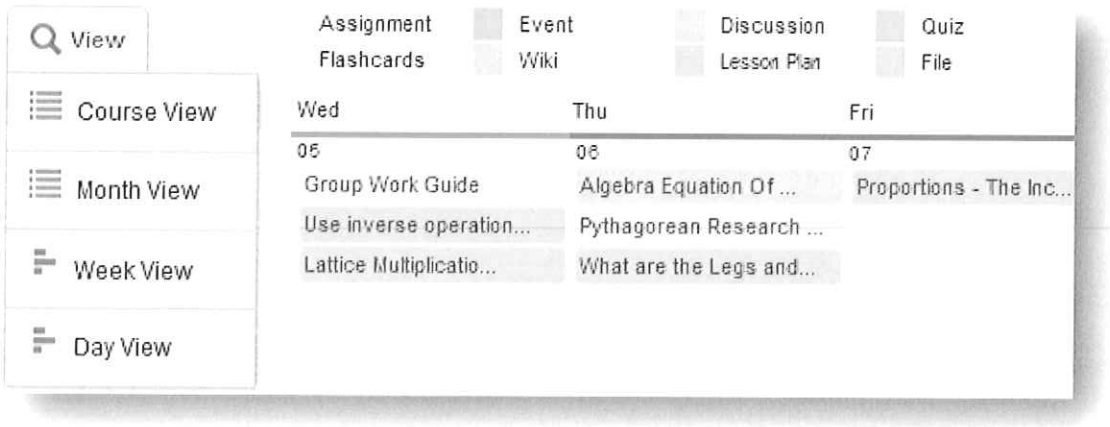
Engrade allows administrators to create curriculum outlines aligned to specific courses, grade-level, or subject area. Administrators may suggest or require specific Units, Standards, Lesson Plans, or Learning Materials by day, week, or month.

An administrator can build multiple course outlines. Each Unit functions like a folder of standards / objectives, lesson plans / learning materials, and additional details, descriptions, or files. Administrators can easily specify unit durations and associate courses. Each course outline may be build out to varying levels of granularity.



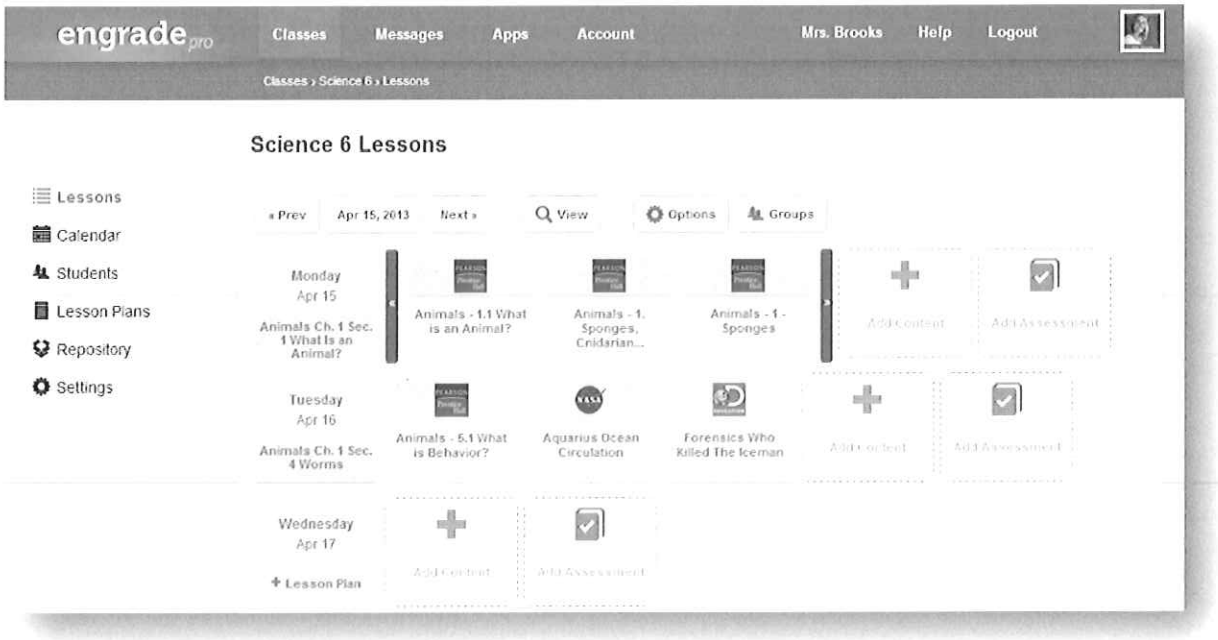
Courses

Course plans may be viewed by administrators or teachers who are assigned to relevant courses in four ways with increasing granularity (1) Course-view (shown above), (2) Month View (shown below), (3) Week View (shown below), or (4) Day View (not shown).



Month View

From the week view, administrators or teachers can add Lesson Plans, Learning Materials (Content), or Assessments such as Quizzes or Assignments. All materials may be aligned and searched by the TEKS Standards.



Week View

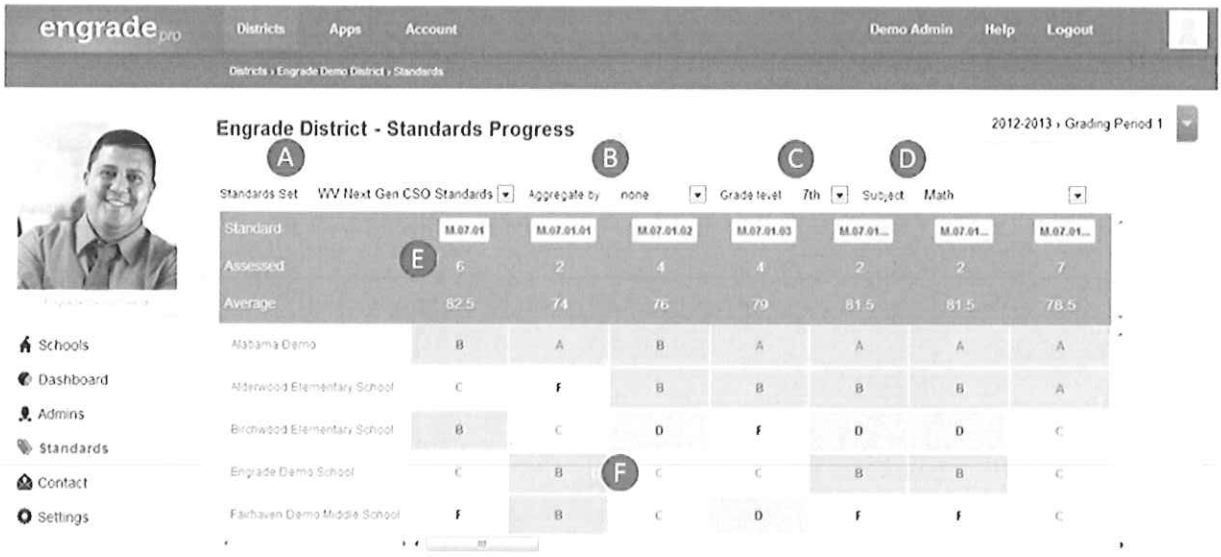
Additionally, from this view, teachers may use a "Groups" dropdown to see materials aligned to specific student groups.

Standards Planned, Covered, and Mastered at a Glance

Once lesson plans, content, and assignments / assessments are scheduled across a course, teachers and administrators can view what standards have been Planned, Covered, and Mastered at a glance through class and administrative level dashboards.

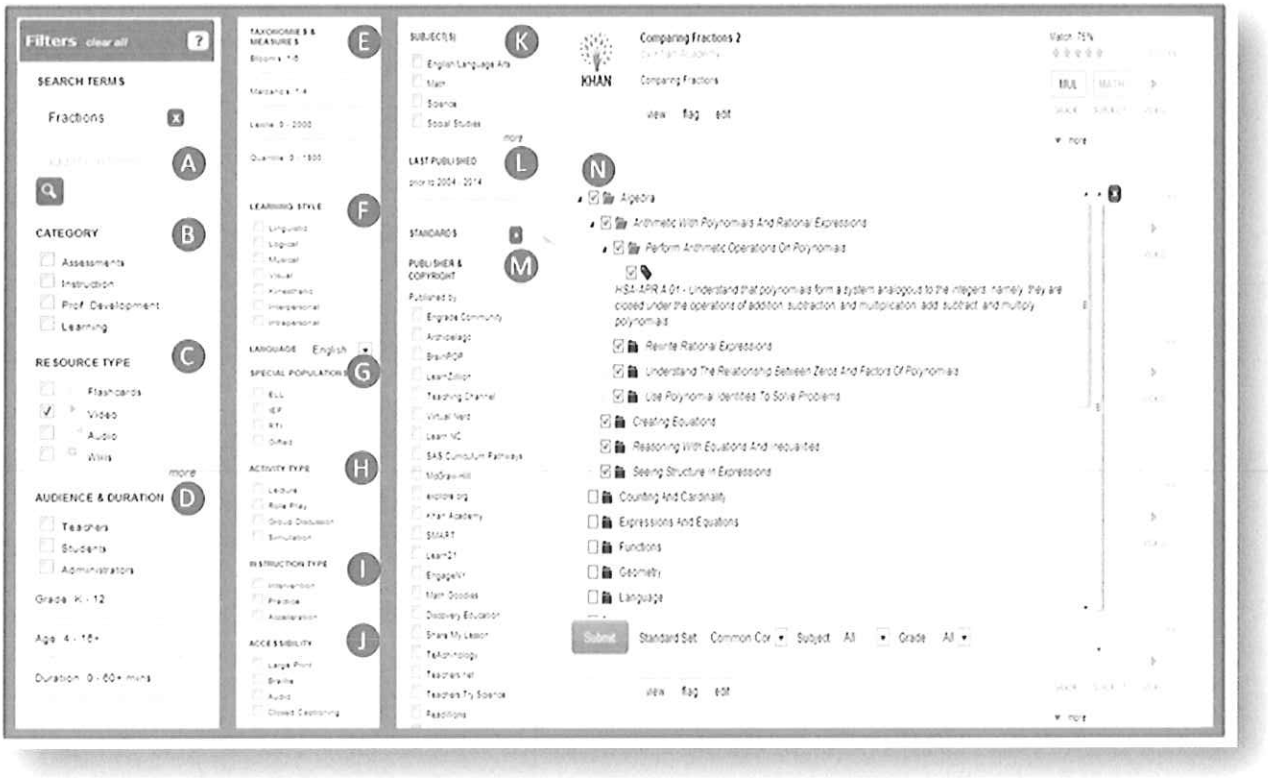
18. Allow for system components to be tagged with flags/identifiers that are state-defined (e.g., Common Core State Standards, WV State Standards, etc.)

Engrade's tagging and alignment system is extraordinary. Any number of standards can be uploaded and managed. They are assigned and editable. Assignments are easily tagged with Common Core standards, WV State Standards, or standards created by a district or school. Assignments can even be tagged by Khan Academy units of study or Scholastic's objectives. Any meta information on data from Counties, Schools, Engrade or Third-Parties can be applied to most educational artifacts in Engrade. A very good example of the extent to which tagging can be taken in Engrade is the Content Filtering Tool. See below.



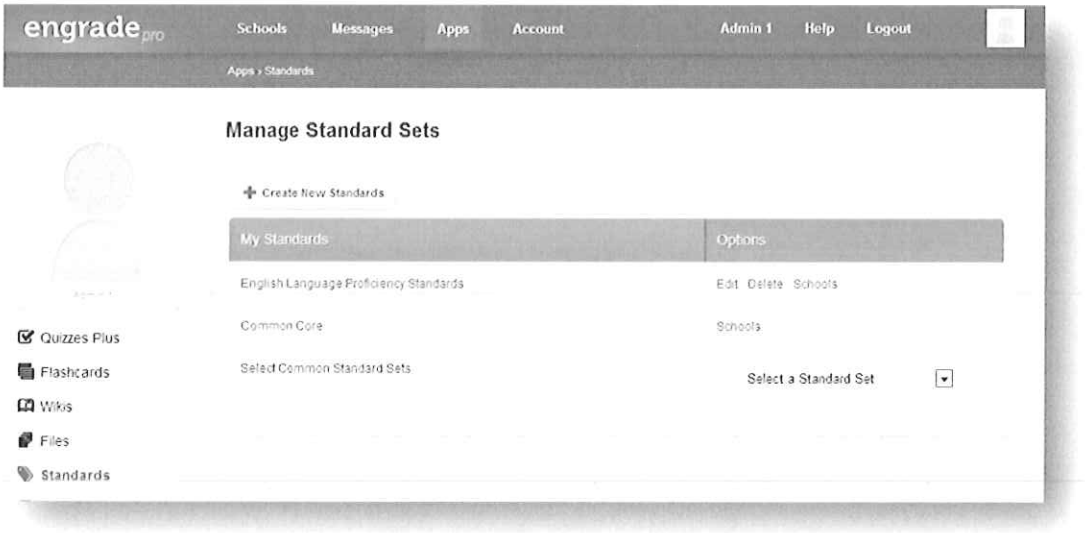
Review Standards Progress across Schools

A. Select Standard
B. Group by Grade-Level or Subject
C. Select Grade
D. Select Subject
E. Data is organized by school for each standard. Administrator can see how many times a standard has been assessed and its working average.
F. Standard performance is configurable to any scale. In this report the administrator is viewing mastery by letter grades. Engrade Demo School reports a C for standard M.07.01.02

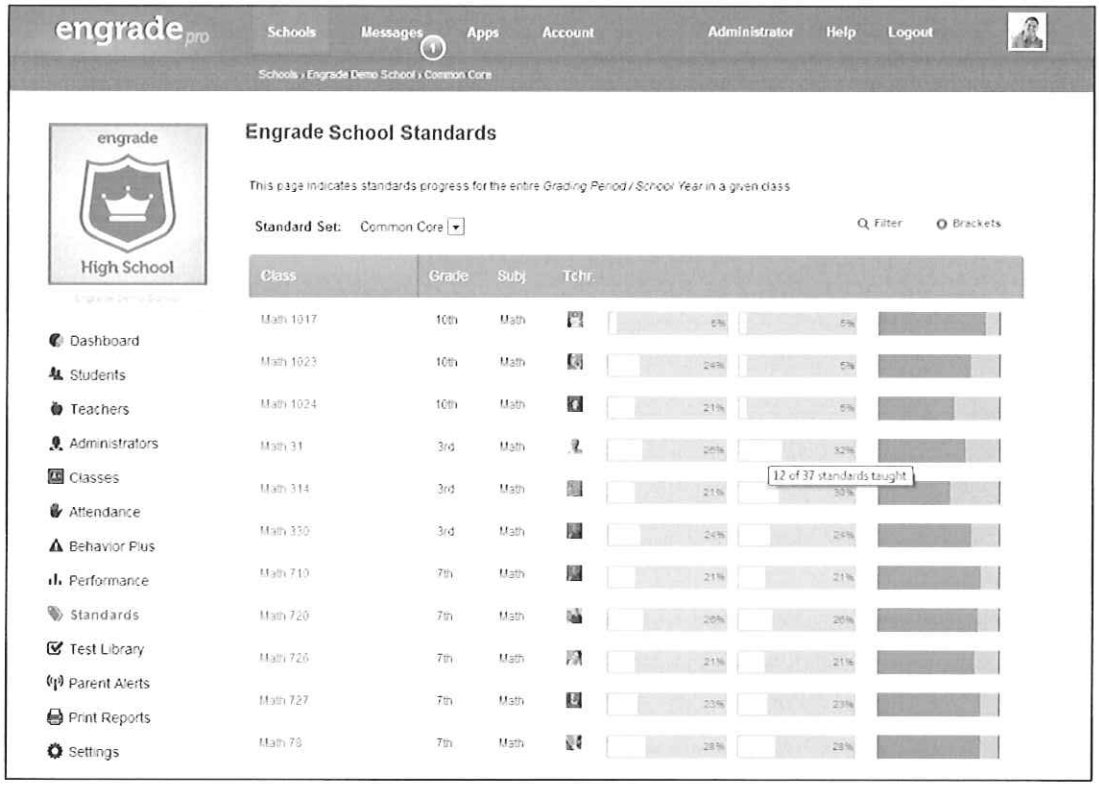


Filtering Content By Numerous Tags

A. Search by any keyword
B. Filter content category(s): assessments, instruction, prof. development, learning
C. Filter resource types such as flashcards, video, audio, wikis and more
D. Filter content to PD or Instructional, or by Grade Range, Age Range or Duration
E. Filter by Blooms Taxonomy, Lexile or Quantile
F. Filter by learning style such as linguistic, logical, musical, and more
G. Filter by language or special populations such as ELL or IEP
H. Filter by activity type such as role play, lecture and more
I. Filter by instruction type such as intervention, practice or acceleration
J. Filter by accessibility options such as braille audio and closed captioning
K. Filter by subjects such as ELA and math
L. Filter by last published
M. Filter by standards and actually drill down
N. Filter by Company or Publisher



Managing Standards



Standards Introduced, Completed and Mastered.

Section IV: Implementation

Typical Implementation

Engrade's Integration Team will begin this project by consulting with West Virginia Department of Education Technology and Administrative leadership to determine the scope of project and the best approach and options for successful integrations. WVEIS as a state-wide student information system greatly reduces the effort of a state-wide rollout. Since we are already integrated with WVEIS and have the business and automated processes in place to "turn on" counties, this project's timeline is significantly reduced. Turning on State Administrator accounts is trivial. However, we'd like the opportunity to fine-tune WVDE's user experience customizing views, reports and dashboards. In the timeline below, we created a project plan that includes analyses and development for custom work over the summer. In addition, we included time ranges for automating data imports and business development expectations for new partner integrations.

Engrade proposes an initial project organization (core team) that provides a single point of contact to WVDE and also ensures timely and quality deliverables across the project. Within first 30 days of contract being awarded, Engrade will work with WVDE on refining the Project Organization as necessary and incorporating mutually agreed expected work products.

Working with WVDE, we will refine the project team organization. The project team (core and extended) will be responsible for overseeing the project, including prioritization of customizations and the general health of the project as a whole. The technical members of the team will be responsible for infrastructure and integration, customizations, implementation, and testing.

Engrade proposes to use the Engrade Project Management Methodology (PMM) to facilitate the effective planning and control to support the successful delivery of the proposed project. The Engrade PMM is based on best of industry standards including the Project Management Institute's Body of Knowledge (PMBOK), PRINCE2, Keane's methodology, and Agile Project Management. Once an overall release plan is in place, we continue and enhance detailed planning in periodic sprints called iterations, allowing for more agility and transparency in the development and implementation process. Intermediate and/or integration milestones are incorporated into the schedule to closely monitor progress of deliverables.

The methodology is flexible and can be tailored to fit the specific requirements of WVDE. It can also be blended with standard WVDE project management practices to ensure that the project will match the specific requirements of the proposed project.

The central elements of the PMM approach are outlined below. The description includes some of the core principles Engrade believes must be incorporated into a project. For example, it is key that WVDE and Engrade work together as much during the planning phase of the project as during the execution phase. Working together during the planning phase ensures that the teams apply the principles in a way that fits the project circumstances.

The methodology itself consists of five phases. The first two focus on gathering a high-level definition of the project's objectives and background so that an initial estimate and a proposal can be developed. The remaining three phases take place once a contract is in place.

Planning

The Project Planning phase refines project objectives and establishes the proper project management and quality environment for the project at its onset. The foundation of every successful project is a detailed definition of the project that is understood and agreed to by all stakeholders. In this phase, the project charter document is developed. The project charter document consists of the defined work products, the project risk profile, the detailed project plan for the initial phases together with an outline plan for the remaining phases, and the project management rules of engagement.

Execution

The Project Execution phase establishes and manages every aspect of project delivery to assure the project is successful. At this point, the resources are in place and the project management and quality environments are established. In this phase, the execution of the project is managed and its progress tracked according to the plans established during the Planning phase.

Summation

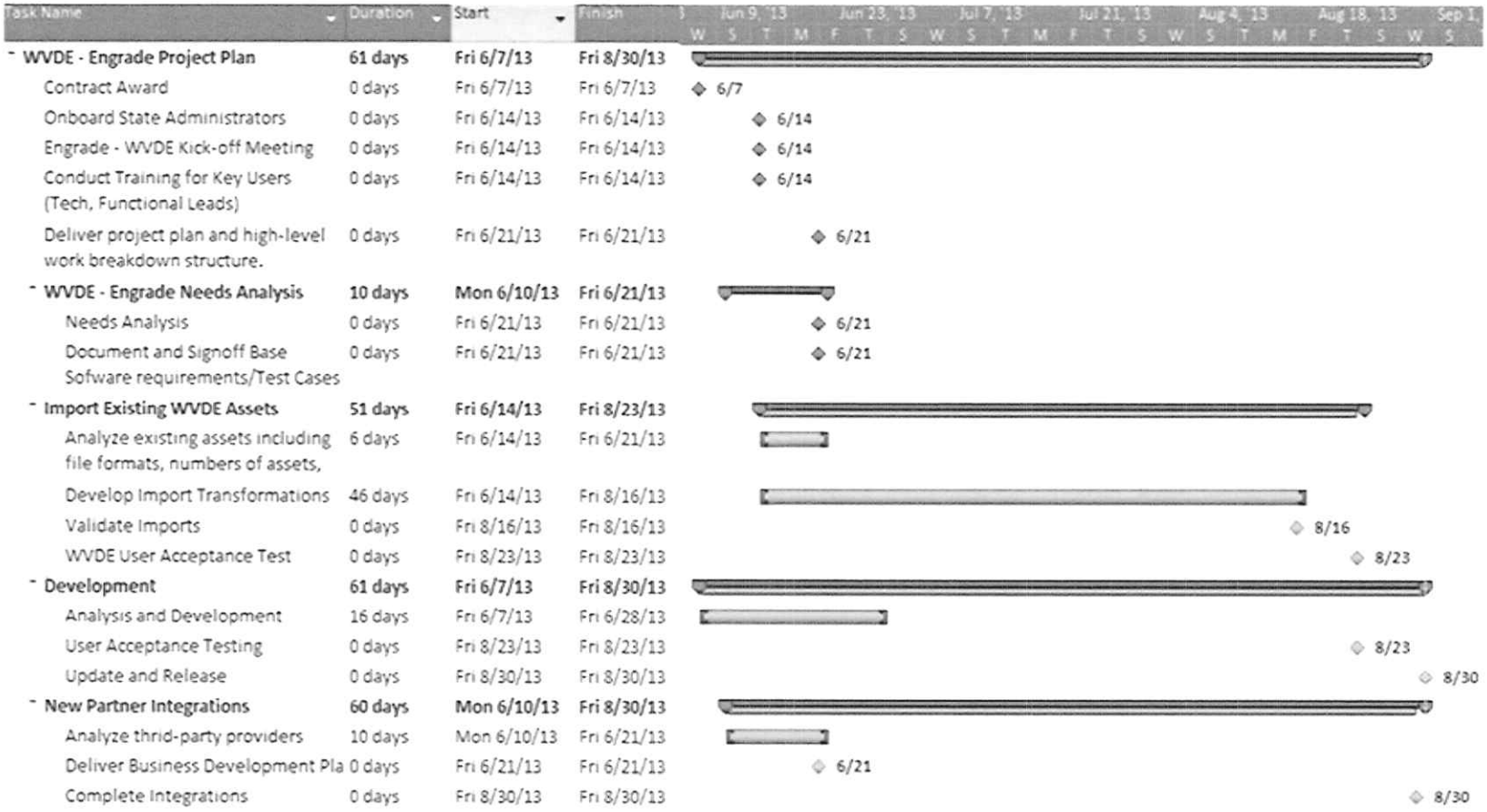
The Summation phase properly manages the closure of a project. Closing the project is an important step for today's learning organization. Consultants and WVDE team members conduct a thorough review of the project. The review is the first step towards developing best practices for both organizations. Team members record and discuss lessons learned, analyze metrics, and archive all relevant project information so feedback can be used to improve methodologies, tools, techniques, and general service offerings.

Engrade has a reputation for listening to its customers and forming strong partnerships with them. By participating in reviews, gathering feedback and recording lessons learned, those relationships become even stronger and future engagements even more successful.

Within this unified project environment, it is ultimately Engrade's responsibility to ensure that the PMM best practices are adhered to, during the life-cycle of this project, within their respective organizations. And that required level of staffing is provided by these organizations, for their respective software components, and their deployment, integration, services, and support.

We will schedule regular project and technical reviews - not only focusing on status and risks but also review on our integration strategy, implementation/rollout schedules, prioritization of customizations, and training. This frequent exercise, adopting some of the Agile methodology (e.g. monthly sprints) will complement the high-level release plan that we will finalize within 30 days of contract award.

Timeline



Task Name	Duration	Start	Finish
WVDE - Engrade Project Plan	**61 days**	**Fri 6/7/13**	**Fri 8/30/13**
Contract Award	0 days	Fri 6/7/13	Fri 6/7/13
Onboard State Administrators	0 days	Fri 6/14/13	Fri 6/14/13
Engrade - WVDE Kick-off Meeting	0 days	Fri 6/14/13	Fri 6/14/13
Conduct Training for Key Users (Tech, Functional Leads)	0 days	Fri 6/14/13	Fri 6/14/13
Deliver project plan and high-level work breakdown structure.	0 days	Fri 6/21/13	Fri 6/21/13
WVDE - Engrade Needs Analysis	**10 days**	**Mon 6/10/13**	**Fri 6/21/13**
Needs Analysis	0 days	Fri 6/21/13	Fri 6/21/13
Document and Signoff Base Sofware requirements/Test Cases	0 days	Fri 6/21/13	Fri 6/21/13
Import Existing WVDE Assets	**51 days**	**Fri 6/14/13**	**Fri 8/23/13**
Analyze existing assets including file formats, numbers of assets,	6 days	Fri 6/14/13	Fri 6/21/13
Develop Import Transformations	46 days	Fri 6/14/13	Fri 8/16/13
Validate Imports	0 days	Fri 8/16/13	Fri 8/16/13
WVDE User Acceptance Test	0 days	Fri 8/23/13	Fri 8/23/13
Development	**61 days**	**Fri 6/7/13**	**Fri 8/30/13**
Analysis and Development	16 days	Fri 6/7/13	Fri 6/28/13
User Acceptance Testing	0 days	Fri 8/23/13	Fri 8/23/13
Update and Release	0 days	Fri 8/30/13	Fri 8/30/13
New Partner Integrations	**60 days**	**Mon 6/10/13**	**Fri 8/30/13**
Analyze thrid-party providers	10 days	Mon 6/10/13	Fri 6/21/13
Deliver Business Development Pla	0 days	Fri 6/21/13	Fri 6/21/13
Complete Integrations	0 days	Fri 8/30/13	Fri 8/30/13

Confidential and Proprietary

Section VI: Final Thoughts

Final Thoughts

In taking this step toward centralizing your data and systems to work better for all stakeholders, West Virginia Department of Education is taking an important step towards providing greater insight into the education system, thus enabling teachers and administrators, parents, and most importantly, students, a wonderful opportunity to increase their academic performance and pride in their schools.

Engrade shares the desire of West Virginia Department of Education to better support the students, parents, and educators in the county through increasing transparency, communication, and a better understanding of all information available. It has long been our belief that information and technology can be leveraged to increase the personal responsibility of each stakeholder in the education process; and to provide the support families are able to give their students outside the classroom. That is what Engrade does. We bring your data to life and give you the tools to harness its power.

We hope you will consider the details we have provided and invite you to engage us in a discussion to answer any questions you might still have.

Please contact us:

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