edmentum™

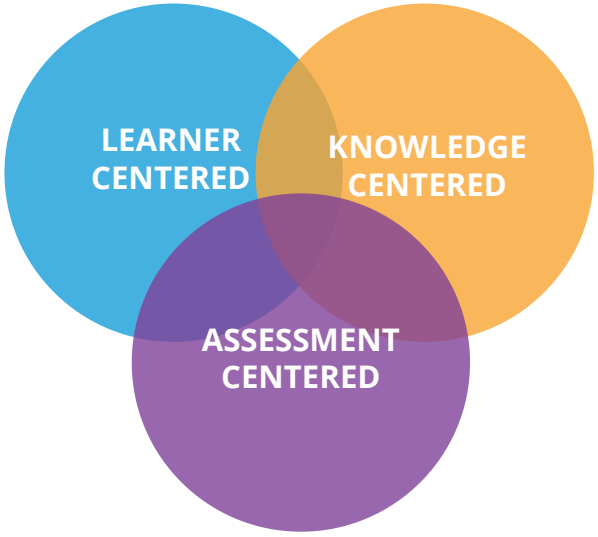
Calvert Digital

Learning Design and Research Base

CALVERT LEARNING

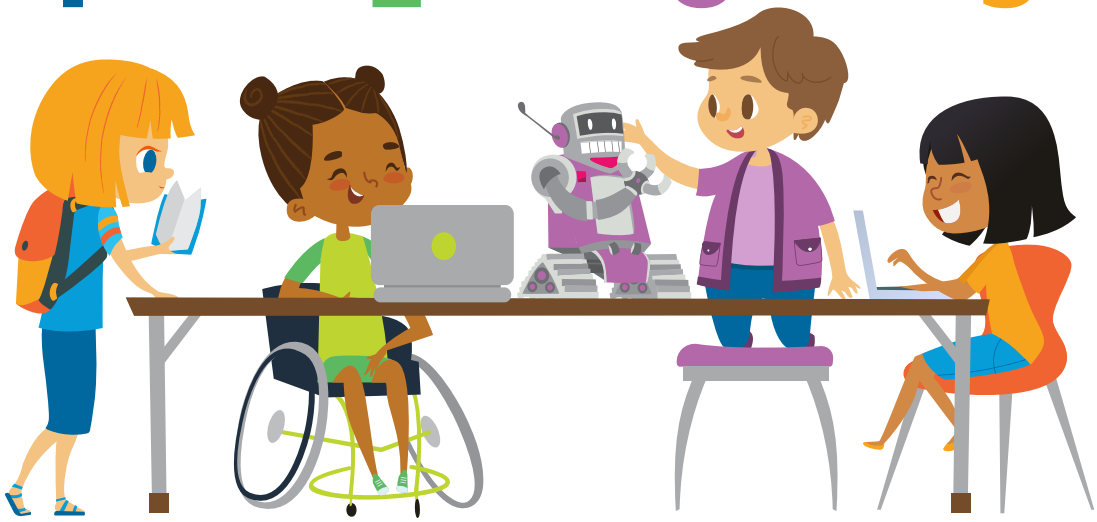
The Calvert Digital Framework

Calvert Digital is designed based on the principles outlined in the National Academies of Science, Engineering, and Mathematics publication, *How People Learn*. In this comprehensive report, Bransford et al. (2018) summarize a large body of research around how students learn, integrate, and retain concepts. The authors describe a framework that provides the optimal learning environment for fostering long-term learning: an environment that centers on the learner, knowledge, and assessment.



Calvert Digital uses the **PLUS Framework** to deliver high-quality curriculum that embodies these three important principles. The framework consists of four elements:

P → L → U → S



Project

Projects are embedded throughout Calvert courses to give students fun and engaging real-world opportunities to creatively show what they have learned.

Learn

Courses contain a variety of active learning activities that encourage students to think independently and formatively assess their understanding.

Use

Students complete mastery assessments at the end of each lesson to ensure that they can use what they have learned and demonstrate mastery.

Show

Students have many opportunities to show what they've learned and receive teacher feedback.

The Research Behind Calvert Digital

The Calvert Digital curriculum brings the PLUS framework to life through principles of learning design featured in the work of John Hattie. John Hattie conducted a meta-analysis of over 800 evidence-based educational research studies to identify practices with the highest positive impact on student learning, which he ranked by effect size (Hattie, 2009, 2015). Calvert Digital's learning design is based on high-impact instructional practices identified by Hattie: explicit instruction, active learning, project-based learning, scaffolding, feedback, and evaluation and reflection.

Explicit Instruction
Structured instruction that supports successful learning with clear skill statements, teacher preparation, and predictable steps.

Active Learning
Students actively participate in doing as they learn, rather than receiving a one-way transmission of knowledge.

Project-Based Learning
Projects motivate students and provide authentic opportunities for sustained inquiry, reflection, revision, and sharing.

Scaffolding
Just-in-time supports buoy all students to achieve grade-level learning; scaffolds are removed as learners gain independence.

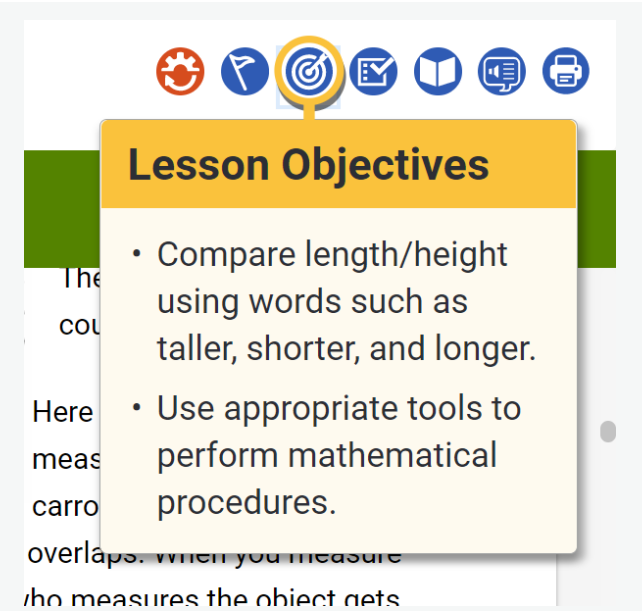
Feedback
Teachers are supported in providing expert feedback in Teaching Notes and Quick Checks to clarify student misconceptions.

Evaluation and Reflection
Prompts throughout the curriculum ask students to reflect on their work and learning process; resources support students in evaluating and revising their work as needed.

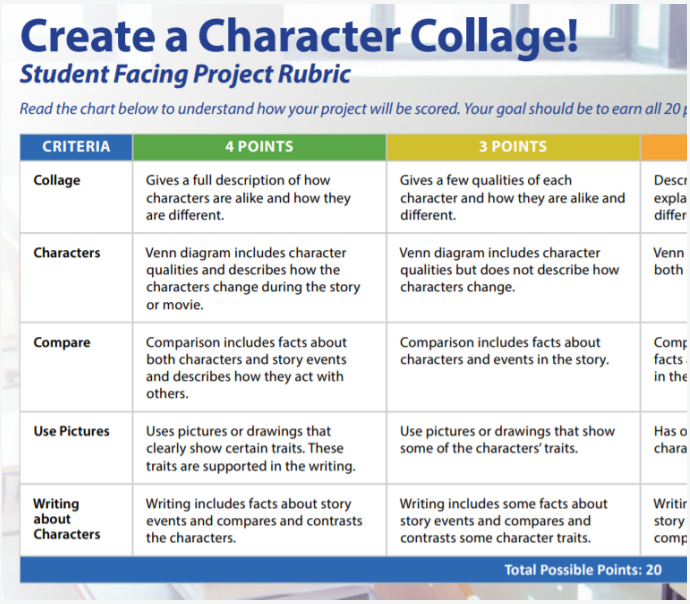
Explicit Instruction

Explicit instruction refers to a variety of research-based practices that deliver instruction in a clear and concise way with the specific goal of reducing students' cognitive load (Adams & Engelmann, 1996; Hattie, 2009). Calvert Digital uses direct skill statements to focus student attention on the most important concepts, as well as offering rubrics for supporting student success Other explicit instruction features include:

Stated **objectives** that describe lesson learning outcomes.



Clear definitions of quality work, defined by rubrics and student models.



Create a Character Collage!

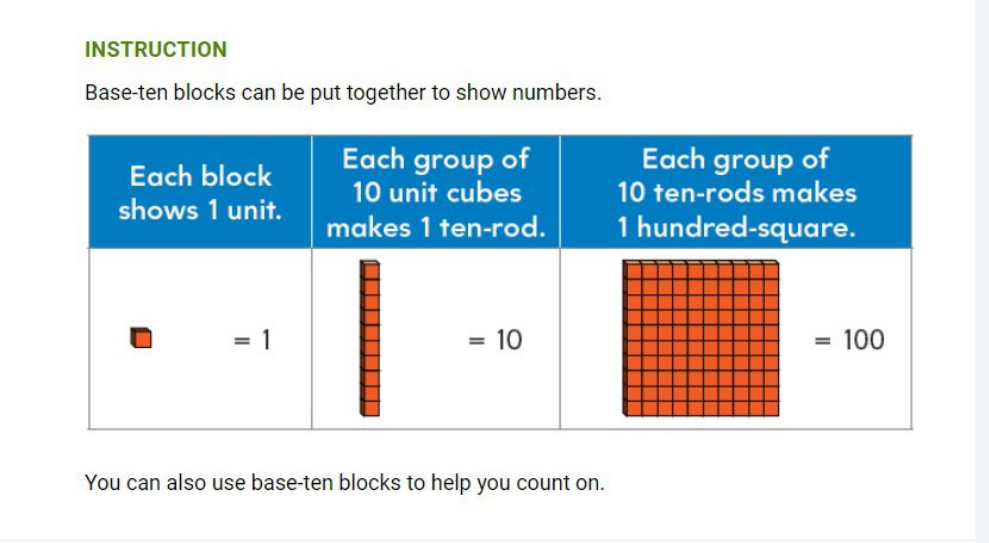
Student Facing Project Rubric

Read the chart below to understand how your project will be scored. Your goal should be to earn all 20

CRITERIA	4 POINTS	3 POINTS	
Collage	Gives a full description of how characters are alike and how they are different.	Gives a few qualities of each character and how they are alike and different.	Descr expla differ
Characters	Venn diagram includes character qualities and describes how the characters change during the story or movie.	Venn diagram includes character qualities but does not describe how characters change.	Venn both
Compare	Comparison includes facts about both characters and story events and describes how they act with others.	Comparison includes facts about characters and events in the story.	Comp facts in the
Use Pictures	Uses pictures or drawings that clearly show certain traits. These traits are supported in the writing.	Use pictures or drawings that show some of the characters' traits.	Has o chara
Writing about Characters	Writing includes facts about story events and compares and contrasts the characters.	Writing includes some facts about story events and compares and contrasts some character traits.	Writir story comp

Total Possible Points: 20

Effective teaching methods, such as modeling, experiments, exploration, and practice (e.g., shared writing, problem sets, simulations, and Use for Mastery checks).



INSTRUCTION

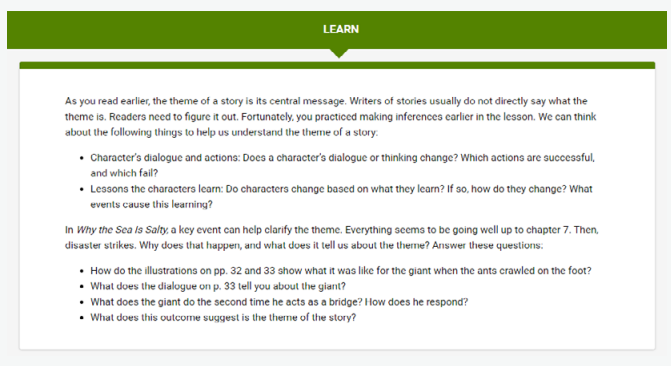
Base-ten blocks can be put together to show numbers.

Each block shows 1 unit.	Each group of 10 unit cubes makes 1 ten-rod.	Each group of 10 ten-rods makes 1 hundred-square.
= 1	= 10	= 100

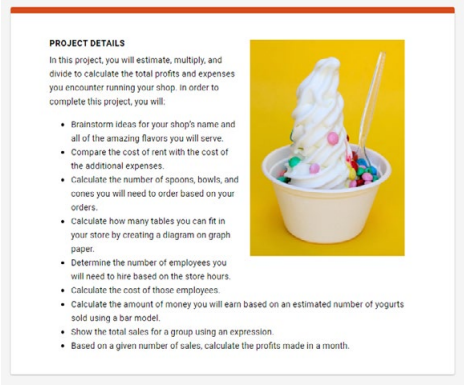
You can also use base-ten blocks to help you count on.

Active Learning

Active learning occurs when students have opportunities to determine relevance, self-organize information, and integrate learning with their prior knowledge. (Mayer, 2004, 2009; Mayer et al., 2009; Hattie 2012). Calvert Digital integrates **questioning techniques** and **quick student responses** within learning experiences that serve this important purpose. Examples can be found in Teaching Notes, Quick Checks, and Use for Mastery features. These elements focus students on big ideas and lead learners from discrete skills to deeper understandings. **Projects** leverage unit learning, integrate with daily activities, and support discussion between students and Family Learning Guides or peers.



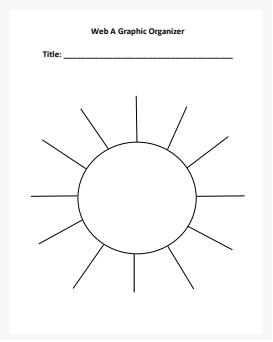
Project-Based Learning



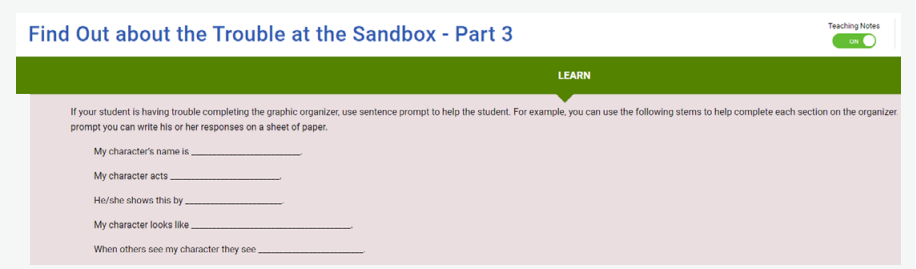
Many Calvert curriculum units include **Projects** that motivate students with **real-world scenarios** and opportunities for **extended learning application**. The Projects are woven throughout the unit as motivating opportunities for independent skill practice that spark memorable learning. Aligned to the Seven Essential Project Design Elements of Gold Standard PBL developed by PBLWorks (formerly Buck Institute, 2020), Projects include challenging problems, sustained inquiry, authenticity, student choice and selection, revision, and a public product.

Scaffolding

Instructional scaffolding is a process in which temporary supports are provided to help students master new content and are then systematically removed as students gain independence (Hattie, 2015, p. 129). Volman & Beishuizen (2010) also note that scaffolding keeps students on track, helps them meet task requirements, and facilitates performance while decreasing frustration. Calvert Digital offers multiple scaffolds, as well as Teaching Note guidance on when to remove them, including:

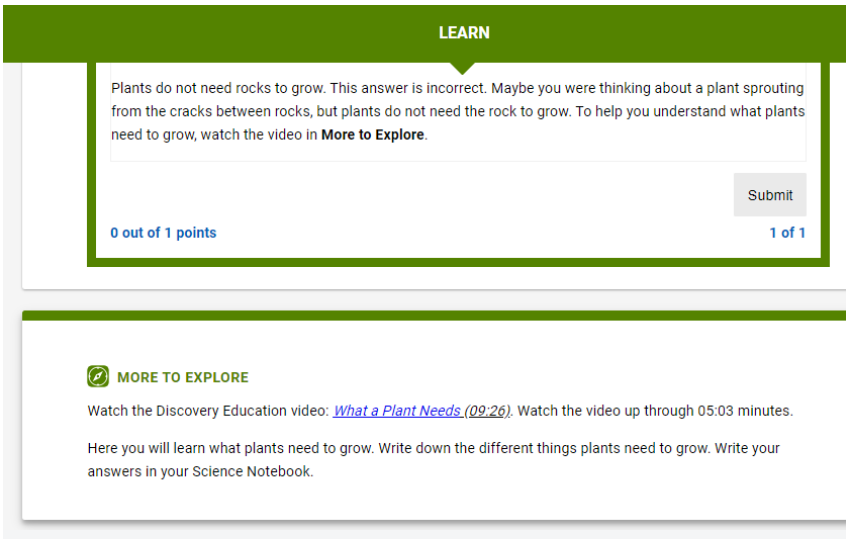


- fillable graphic organizers
- math manipulatives
- word banks
- sentence frames
- multimedia support



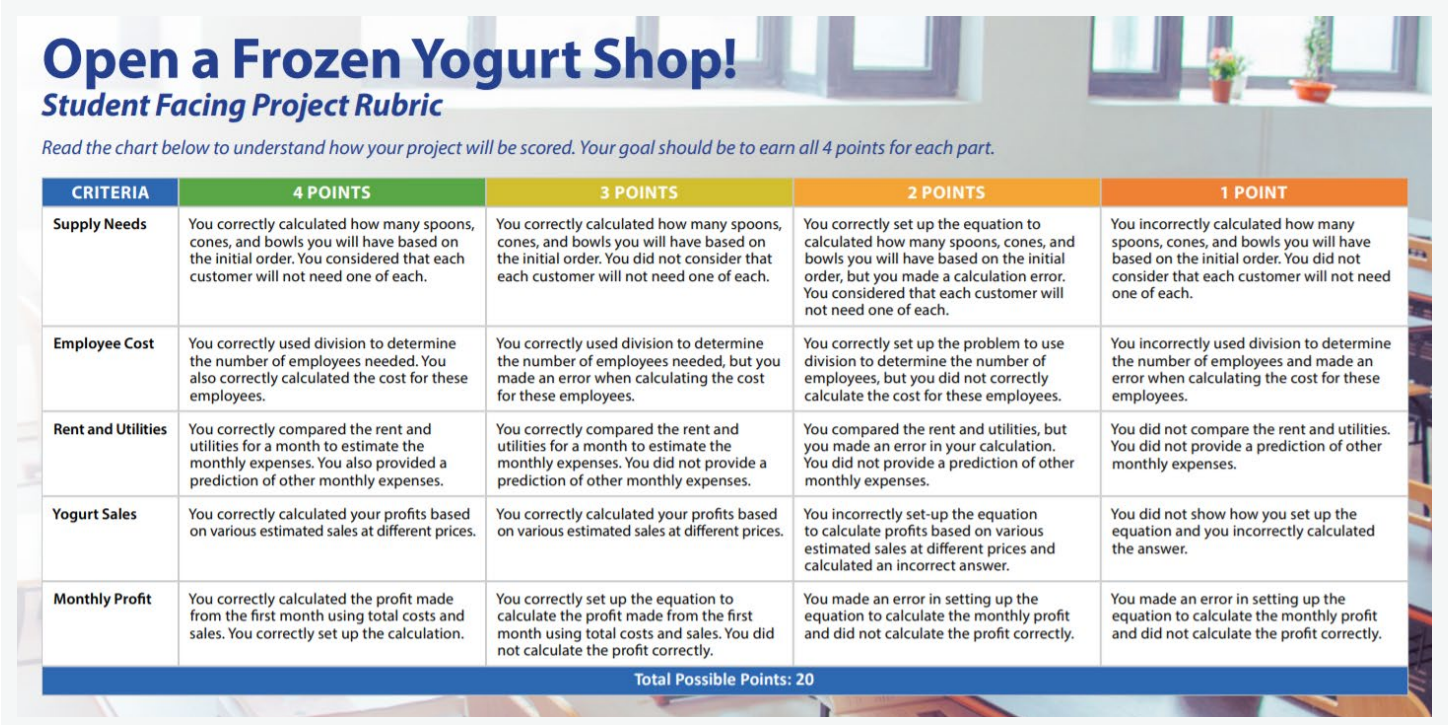
Feedback

Feedback from a teacher or a learning system in response to student work draws student attention to a gap in knowledge and fosters improvement. Feedback can address processes, information, misunderstandings, or motivation to lead students to success (Hattie & Timperley, 2006). In Calvert Digital, **Teaching Notes** support adults in providing student growth-producing feedback. **Quick Check** formative assessments describe why answers are correct and repair student misconceptions.



Evaluation and Reflection

Research underscores the importance of helping students evaluate their work, identify mistakes, and create a plan to improve (Nuckles, Hubner, & Renkl, 2009). According to Hattie (2012), "students can use prompts to monitor and reflect on their own learning approaches." Within the lessons, **reflection prompts** ask students to think critically about their process and resulting work (e.g., *Was the problem in your experiment solved?)* Similarly, each lesson contains **Use for Mastery guidelines** that ask students to evaluate the quality of their response before submitting for grading. Finally, a **Project rubric** prompts student self-evaluation and reflection of their work.



Open a Frozen Yogurt Shop!

Student Facing Project Rubric

Read the chart below to understand how your project will be scored. Your goal should be to earn all 4 points for each part.

CRITERIA	4 POINTS	3 POINTS	2 POINTS	1 POINT
Supply Needs	You correctly calculated how many spoons, cones, and bowls you will have based on the initial order. You considered that each customer will not need one of each.	You correctly calculated how many spoons, cones, and bowls you will have based on the initial order. You did not consider that each customer will not need one of each.	You correctly set up the equation to calculated how many spoons, cones, and bowls you will have based on the initial order, but you made a calculation error. You considered that each customer will not need one of each.	You incorrectly calculated how many spoons, cones, and bowls you will have based on the initial order. You did not consider that each customer will not need one of each.
Employee Cost	You correctly used division to determine the number of employees needed. You also correctly calculated the cost for these employees.	You correctly used division to determine the number of employees needed, but you made an error when calculating the cost for these employees.	You correctly set up the problem to use division to determine the number of employees, but you did not correctly calculate the cost for these employees.	You incorrectly used division to determine the number of employees and made an error when calculating the cost for these employees.
Rent and Utilities	You correctly compared the rent and utilities for a month to estimate the monthly expenses. You also provided a prediction of other monthly expenses.	You correctly compared the rent and utilities for a month to estimate the monthly expenses. You did not provide a prediction of other monthly expenses.	You compared the rent and utilities, but you made an error in your calculation. You did not provide a prediction of other monthly expenses.	You did not compare the rent and utilities. You did not provide a prediction of other monthly expenses.
Yogurt Sales	You correctly calculated your profits based on various estimated sales at different prices.	You correctly calculated your profits based on various estimated sales at different prices.	You incorrectly set-up the equation to calculate profits based on various estimated sales at different prices and calculated an incorrect answer.	You did not show how you set up the equation and you incorrectly calculated the answer.
Monthly Profit	You correctly calculated the profit made from the first month using total costs and sales. You correctly set up the calculation.	You correctly set up the equation to calculate the profit made from the first month using total costs and sales. You did not calculate the profit correctly.	You made an error in setting up the equation to calculate the monthly profit and did not calculate the profit correctly.	You made an error in setting up the equation to calculate the monthly profit and did not calculate the profit correctly.
Total Possible Points: 20				

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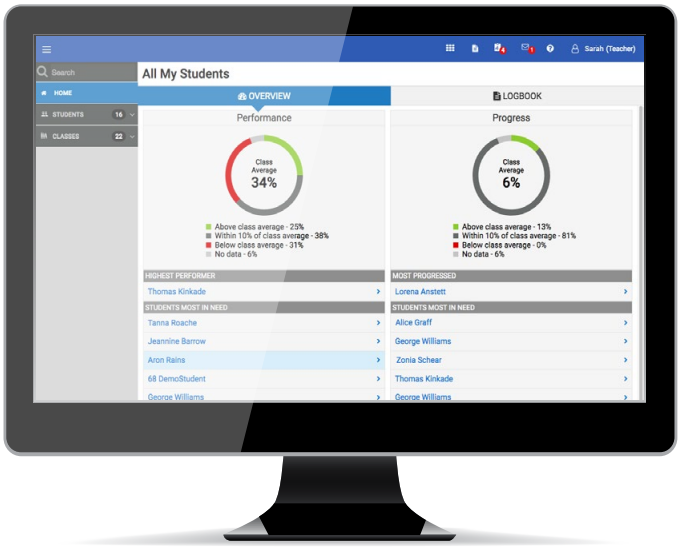

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