

**Topic:** Using Project-Based Learning in the Classroom to Provide *All* Learners Access to Rigorous Mathematics

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Why project based learning?	<ul style="list-style-type: none"> <li>• Opportunity for kids to explore within a structured, yet flexible environment; “easy” opportunities for differentiation for all learners</li> <li>• Practice “life” skills and work through struggle</li> <li>• Learn to collaborate and communicate with peers in a productive and respectful manner</li> <li>• Work from a place of purpose and urgency</li> <li>• Try something, fail, give up, think, and try again</li> </ul>		
Differentiation: Project Topics and Student Choice	<b>Extra Support</b> <ul style="list-style-type: none"> <li>- Provide a short list of possible project options/examples</li> <li>- Give content specific roles/tasks</li> <li>- Standards can be accessed in different ways</li> </ul>	<b>Language Learners</b> <ul style="list-style-type: none"> <li>- Provide students with visual representations and key vocabulary</li> <li>- Partner students strategically</li> <li>- Encourage students to bring culture into the project</li> </ul>	<b>Need more?</b> <ul style="list-style-type: none"> <li>- Leave it open ended and see where things go!</li> <li>- Encourage students to think outside the norm</li> <li>- Can differentiate within groups for individual students</li> </ul>
Differentiation: Extension or Assessment?	<b>Extension</b> <ul style="list-style-type: none"> <li>- Not all projects need to go into the grade book</li> <li>- Using a project as an opportunity to explore concepts</li> <li>- Work on the project as you teach</li> <li>- Generates a purpose for learning</li> </ul>	<b>Assessment</b> <ul style="list-style-type: none"> <li>- Teach → Practice → Assess</li> <li>- Use projects to generate project-based performance task assessments</li> <li>- Students must apply what they did and learned during the project</li> <li>- Tactile experience for learners</li> </ul>	

<b>Differentiation: Student Groupings</b>	<b>Number of students in each group</b>  <ul style="list-style-type: none"> <li>- 3 students</li> <li>- 4 students</li> </ul> <b>Student Choice</b> <ul style="list-style-type: none"> <li>- Less content heavy/ beginning of the year projects</li> <li>- Select one person</li> <li>- Culturally responsive projects</li> </ul>	<b>Types of grouping</b>  <ul style="list-style-type: none"> <li>- Student choice</li> <li>- Teacher selected</li> <li>- Random</li> </ul> <b>Teacher selected</b> <ul style="list-style-type: none"> <li>- Strategic groupings: strengths vs collaboration</li> <li>- Content specific/heavy</li> </ul>	<b>Group roles and responsibilities</b>  <ul style="list-style-type: none"> <li>- Time keeper</li> <li>- Organizer</li> <li>- Material Gatherer</li> <li>- Group Lead</li> </ul> <b>"Random"</b> <ul style="list-style-type: none"> <li>- Can be strategic</li> <li>- Heterogenous by strengths, culture, and interests</li> <li>- Love what happens from random groups</li> </ul>
<b>Differentiation: Specific Learner Needs</b>	<b>Extra Support</b> <ul style="list-style-type: none"> <li>- What visual supports will you provide students?</li> <li>- What mathematical supports?</li> <li>- Group structures?</li> <li>- IEP goals?</li> <li>- Communication and Math</li> </ul>	<b>EL Services</b> <ul style="list-style-type: none"> <li>- What vocabulary is included in this project?</li> <li>- Visual supports</li> <li>- Communication supports: sentence stems for communicating with group</li> </ul>	<b>Extension</b> <ul style="list-style-type: none"> <li>- What other mathematical elements can this project include?</li> <li>- Questions to promote deeper thinking.</li> </ul> <b>Plan on flexibility</b>
<b>Differentiation: Rubrics (Group and Individual)</b>	<b>Math/Standard</b> <ul style="list-style-type: none"> <li>- Include specific content standards and expectations (exemplar, meets, approaching)</li> <li>- Clearly distinguish between categories</li> </ul>	<b>Cooperative Learning</b> <ul style="list-style-type: none"> <li>- Include categories for cooperative learning (communicating with group mates, self and group reflection, etc.)</li> <li>- Can include specific learning goals for students</li> </ul>	<b>Specific Needs</b> <ul style="list-style-type: none"> <li>- Tracking an individual goal? Put it on the rubric.</li> <li>- Students with EL services: include language/vocab goals</li> </ul> <b>KEEP SPECIFIC Yet BRIEF</b>

Differentiation: Teaching Timeline	<b>Project→ Teach→ Project</b> <ul style="list-style-type: none"> <li>- Introduce the project and get "buy in"</li> <li>- Students will sit with group for the unit</li> <li>- Explore concepts</li> <li>- 3-4 days for project completion</li> </ul>	<b>Teach→ Project</b> <ul style="list-style-type: none"> <li>- Explore/teach concepts</li> <li>- Introduce project</li> <li>- 3-4 days for project (or more if needed)</li> <li>- Students do not have to sit with group mates throughout unit</li> </ul>	<b>Teach/Project</b> <ul style="list-style-type: none"> <li>- Teach and work on project simultaneously</li> <li>- Incorporate elements of the project into stations/daily tasks</li> <li>- 1-2 day project days at end</li> </ul> <b>KEEP SPECIFIC Yet BRIEF</b>
Differentiation: Student Friendly Planning Documents (Checklists; directions; work docs)	<b>Checklists</b> <ul style="list-style-type: none"> <li>- Provide students a simple and clear check list of tasks they need to accomplish to complete the project</li> <li>- Promotes organization, and self-directed learners</li> </ul>	<b>Directions</b> <ul style="list-style-type: none"> <li>- Provide students access to the why and outcomes of the project</li> <li>- Easy to identify project expectations</li> </ul>	<b>Work documents</b> <ul style="list-style-type: none"> <li>- Organized, easy to use work templates</li> <li>- Allow flexibility in how students use these, especially if presenting a project</li> </ul> <b>KEEP SPECIFIC Yet BRIEF</b>
Differentiation: Examples	<b>Examples</b> <ul style="list-style-type: none"> <li>- Create examples of multiple project representations</li> <li>- If a presentation, model it</li> <li>- Do not give away too much!</li> </ul>		
Differentiation: Reflection	<b>Reflect! Reflect! Reflect!</b> <ul style="list-style-type: none"> <li>- Student reflection and input is pivotal to a project's return and success</li> <li>- Empower that student voice</li> <li>- Take notes and reflect on your experiences, too</li> </ul>		