



C² Pipeline



Enrichment Lesson Plans Overview

Enrichment Title	STEM Chess
Enrichment Objective	To promote the use of math in a nontraditional format that will engage students while reinforcing algebra and math concepts, encouraging critical thinking and healthy competition.
Grant Alignments & Objectives Addressed	<ul style="list-style-type: none"> • 48.5% of regularly attending students will improve their reading grade by half a letter grade • 48.5% of regularly attending students will improve their math grade by half a letter grade • 77% of regularly attending students will improve in teacher-rated homework completion and class participation • 85% of regularly participating students will report improvements in other school subjects
Partner Alignment	<ul style="list-style-type: none"> • Honors college, College of Engineering
Academic Subjects	<p>Core Academic Subjects: Mathematics</p> <p>Auxiliary Academic Subjects: Technology and Reading</p>
Standards to Address	<p>Common Core Standards:</p> <p>CCSS.Math.Content.HSS.MD.B.5.A CCSS.Math.Content.HSS.MD.B.5.B CCSS.Math.Content.HSS.MD.B.7 CCSS.Math.Content.HSS.MD.A.3 CCSS.Math.Content.HSS.ID.C.9 CCSS.Math.Content.HSS.ID.B.5</p>
College & Career Readiness Skills Addressed	<p>[X] Technology & Tools [X] Argument & Reasoning [X] Communication & Collaboration [X] Problem Solving</p>
Personal Enrichment Categories	Students will: Learn to utilize math and practical applications. To break processes down into several steps. Use critical thinking to develop strategies. Utilize technology to communicate with others students outside of their school.

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Life Skills Identify and describe how these will be utilized	<ul style="list-style-type: none"> • Healthy competition and good sportsmanship will be reinforced throughout the enrichment. • Students will engage in a firsthand experience of practical applications for math. Many students have a hard time connecting math to real world relevance. • Thinking/Problem Solving will be used throughout the curriculum as the students develop chess strategies.
Duration of Enrichment	8 week
# of Students & Staff Involved	15 students: 1 staff
Frequency of Enrichment	Meets 1 time per week
Week by Week Timeline of SUGGESTED ACTIVITIES If an activity is used that is not listed, please turn in the lesson plan with the ARS to the Site Coordinator who will forward it to the C2 office.	Activity 1: Chess 101 How to Play Activity 2: Test your knowledge Activity 3: Chess Mapping Activity 4 and 5: Math and Chess Activity 6: Student Led Chess Math Activity Activity 7: Online Chess Activity 8: The Final Tournament Activity: Chess Kid Activity: Chess 24
Expected End Result/Product	Students will have a better understanding of multiple math skills and increased cognitive and critical thinking. Students will have had the opportunity to meet other C2 pipeline students from other schools.
Connection(s) to Regular School Day	See specific School Improvement Plans and Building Collaboration Guides to observe how this enrichment connects to the regular school day in each site This enrichment plan is directly aligned to the Math Common Core State Standards, and the Career and College Ready Standards.

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Adult Family Member Literacy and Involvement	<ul style="list-style-type: none"> • Family members with knowledge of Chess can join the class to assist. • Families will be encouraged and to come to the special event final tournament.
Educational Research	<p>(1) Chess in Education Research Summary, Dr. Robert Ferguson. Details see below: http://www.quadcitychess.com/benefits_of_chess.html</p> <p>(2) Mathematics and Chess, by Miodrag Petkovic, Dover Publications, Inc. Mineola, New York, 1997</p> <p>(3) Challenging Mathematics, Cheneliere/McGraw-Hill, Michael Lyons, Robert Lyons, 1995, Montreal, Quebec, Canada</p> <p>(4) Chess Teaching Manual, IM Tom O'Donnell, the Chess Federation of Canada.</p>
Additional Resources Used	<p>Advice-for-Starting-a-Chess-Club (word doc.) Basic Chess Rules Quiz (word doc.) CHESS AND COMMON CORE STANDARDS (word doc.) Chess-Guide-for-Teachers, ESpiegel (word doc.) <i>How to Read and Write Chess using Algebraic Notations</i> (word doc.) Chess Activities (PDF) (<i>Enriching Math Using Chess</i>) Let's play basic rules (PDF)</p>

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