- Name of Project: "Think This Through! Building Thinking Classrooms"
- **Project information:** Osceola Magnet has rebranded itself as a school of mathematics and engineering. This past year we put a great deal of effort into developing our engineering curriculum and Fab Lab (funded by the Ed Foundation). While we have tried different approaches with our math program, we have not been able to reach our students, especially the lower quartile, in understanding math concepts at a deeper level. Our data reflects this. At Osceola, we are using the Go Math series that SDIRC has provided, along with Think Mathematics strategies which help students by using the concepts of concrete, pictorial, and abstract. By using the strategies in the book "Building Thinking Classrooms in Mathematics" we feel that we can increase student learning by creating classrooms and lessons which encourage thinking and increases the number of minutes students think within a lesson. In order to create a thinking environment, teachers need to break away from the traditional classroom set-up and lesson delivery. We need to establish thinking tasks, which will begin with non-curricular thinking tasks and transition to curricular thinking tasks. Room set-up, student collaboration and note taking all impact how much time a student devotes to thinking during a lesson.
- How the project aligns with the SDIRC Strategic Plan or the School Improvement Plan: This project aligns with the focus area of Academic Success in the SDIRC Strategic Plan as we are working to improve Math scores on standardized testing. This grant will help our school reach its School Improvement Plan goal of moving our Math bottom quartile scores from 29% proficiency to 63% proficiency. It is one of five action steps we are taking to meet this goal.
- Amount Requested \$8097.47
- Total Project Cost \$8097.47
- Targeted Population: Kindergarten, 1st, 2nd, 3rd, 4th 5th grades
- Number of children to be served and grade level(s) 514 students K-5
- Succinct Summary The Issue, the change, and the action:

The Issue: What challenge or opportunity will this grant help your school: Historically our bottom quartile students have been declining in math. Based on our 2021 FSA School Data, our Math bottom quartile subgroup decreased significantly from 52% proficiency to 29% proficiency. Our goal, albeit lofty, is to increase our bottom quartile proficiency in Math from 29% to 63% thus returning Osceola Magnet back to the performance level of the year in which the downward trend began. In order to achieve this goal, we have increased our math instruction block from the mandatory 60 minutes to 90 minutes. To ensure that we are capitalizing on the extra math time, we have established collaborative planning for teachers, highlights of best practices, a math school improvement team and this book study. This book study, and the focus of this grant, will allow teachers to immediately implement research-based teaching strategies into their lessons as they work through the book. It will help the math block to be utilized to its fullest potential.

The Change: What change do you intend to see as a result of this grant? After looking at Peter Liljedahl's research and reading the book "Building Thinking Classrooms in Mathematics", we have decided that this is the "next step" needed at Osceola to improve our students' understanding of mathematics. If students are not thinking, they are not learning (Corwin 2020). In his research, Liljedahl found highly skilled teachers were teaching math assuming that students couldn't or wouldn't think. The *institutional norms* (Liu and Liljedahl, 2012) in place were not providing an atmosphere to think. These norms include vertical workspace for

teachers, horizontal workspace for students, a room organized with everyone facing front, lectures, notes, activity, and homework. This book looks at institutional norms and suggests ways to increase the number of minutes in a lesson in which students can think. He goes through the steps on how to create a thinking classroom. We will use this book as our guide this year to spend time creating thinking classrooms in mathematics at Osceola.

The Action: What strategic activities will be included in this grant (what are the steps) Osceola teachers will participate in a book study using the book "Building Thinking Classrooms in Mathematics" by Peter Liljedahl. Items purchased with this grant (books, vertical whiteboard easels and manipulatives) will be distributed to classrooms. Teachers will set up their classrooms to include vertical non-permanent surfaces and will arrange furniture so that they have a "defronted" classroom – a classroom where students sit facing in many directions. They will use strategies learned in the book to get students to think. Strategies include thinking tasks, thinking questions, careful assigning of tasks to promote thinking, homework, use of knowledge, hints and extensions, notes and assessment. Teachers will participate in the book study, and as they move through the book, will implement strategies learned and discussed in the book study.

- Grant Oversight: Who will be responsible for the project? Who provides the oversight? Who will ensure that the project is sustainable? Our principal, Dr. Bacon, Assistant Principal, Natalie Ern, will provide oversight for the book study, lessons, and funds. Math Coordinator, Kristen Bruckner will facilitate the book study, and Magnet School Coordinator, Janine Jones will manage the ordering and inventory of equipment purchased. Dr. Bacon will ensure that the project is sustainable by using our trained teachers as "subject area experts" that will mentor future new teachers in new practices. Equipment to be purchased is all non-consumable and will remain in classroom inventories.
- Monitoring Progress and Results: How will progress and results will be monitored and reported? FSA math scores and benchmark scores will be used to monitor student progress. These scores will be monitored throughout the year by administration and teachers. Benchmark data will be discussed at monthly data chats. Administration will monitor lesson planning and use of equipment. The book study will be monitored by the assistant principal. A mid-term and final report will be submitted to the Education Foundation that will include data on math scores, the progress of the book study and the use of grant equipment.
- Volunteers: While volunteers are not allowed on campus at this time, this project will open opportunities for parents and community members to come in and assist with math lessons by helping to organize the classroom and working with groups and individual students.
- Itemized Budget: Provide a line by line, itemized budget of all items needed for the project, including cost:

ITEM	QUANTITY	PRICE	TOTAL
Book "Building Thinking Classrooms in Mathematics,	10	\$33.26	
Grades K-12: 14 Teaching Practices for Enhancing			\$332.60
Learning" by Peter Liljedahl			
VIZ_PRO Magnetic H-Stand Whiteboard/Adjustable Dry	50	\$79.90	\$3995.00
Erase Easel			
Hands on Learning Station/Small group Learning Palette	13	289.99	\$3,769.87
			\$8097.47