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| **Subject:** | Math |
| **Title:** | Building an Arena |
| **Grade Level:** | 4 |
| **Purpose:** | * Students use their knowledge of measurement – area, perimeter, congruency etc. to build a Hockey arena.
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| **Curricular****Connections:** | * Demonstrate an understanding of area of regular and irregular 2-D shapes by:

 - recognizing that area is measured in square units. - selecting & justifying referents for the units cm2 or m2 - estimating area, using referents for cm2 or m2 - determining and recording area (cm2 or m2)* Demonstrate an understanding of congruency, concretely and pictorially.
* Demonstrate an understanding of multiplication (2- or 3-digit by 1-digit) to solve problems.
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| **Materials:** | * Pencil, ruler, eraser
* Paper, construction paper or visual journal
* IPads, chrome books, desktops etc.
* Building materials (cardboard, containers, construction paper, scissors, glue etc.) \*For extension activity.
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| **Activity:** | 1. As a class, brainstorm how measurement is necessary to build a Hockey arena. Ask students what type of measurements will be needed (perimeter, area, congruent shapes etc.), and the shapes that will be involved (rectangle, square, oval, etc.)
2. As a class, or in partners, students research hockey arenas: **size** of the rink, the **shapes** used to build an arena, and **shapes** seen on the ice (rectangles, circles).
3. In partners, using their research of hockey arenas and their knowledge of measurement, students estimate the area and perimeter of an arena, and design a hockey arena.
4. Students sketch their arena/skating surface and provide all the necessary measurements and calculations on their paper.
5. Teachers can provide a list (area in m2/cm2, perimeter in m2/cm2 etc) for their measurements, calculations, and sketches or have them use a visual journal or blank paper.
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| **Extension:** | * Students provide different forms of measurement for the ice surface (in feet and inches, cm’s, mm’s, and m’s).
* Students build a hockey rink to scale using previous knowledge, calculations, and sketches.
* Provide more information such as: **parking, arena location, ticket prices etc.**
* Students find the measurement of red line, blue lines, goal line, circles, etc.
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| **Assessment:** | 1. Anecdotal: How well are students explaining how they solved for their answers.
2. Product: Students hand in their work, showing their sketches, measurements, and calculations.
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