Task: Check Your Radar

Suggested Timing
60–75 minutes

Materials
• scissors
• tape or glue
• 2 different-coloured pencils (optional)

Blackline Masters
Master 4-Level Project Rubric
BLM Check Your Radar
BLM Check Your Radar Shapes
BLM Check Your Radar Game Board

Mathematical Processes
√ Communication
√ Connections
√ Mental Mathematics and Estimation
√ Problem Solving
√ Reasoning
   Technology
√ Visualization

Specific Outcomes
SS4 Identify and plot points in the four quadrants of a Cartesian plane using integral
        ordered pairs.
N3 Solve problems involving percents from 1% to 100%.

Planning Notes
Introduce the Task in a large group. Have students work individually to place their shapes
on a game board and then work in pairs to call out points on each other's grid. Have
students work individually to develop their report.

You may wish to use the following steps to introduce and complete this task:

1. Provide students with **BLM Check Your Radar**, **BLM Check Your Radar Shapes**
   and **BLM Check Your Radar Game Board**. Explain how to play the game.
2. Clarify that the task is to
     • place four shapes in any quadrant of the coordinate grid on the game board
     • with a partner, take turns to call out a coordinate pair on the perimeter of each other's
       shapes
     • place each call on the second coordinate grid provided on the game board; record it
       as either a hit or a miss

    • report on what percent of the grid is covered with shapes and compare the number of hits to the number of calls
    • use words, numbers, and visuals to communicate effectively
3. Review **Master 4-Level Project Rubric** with students so that they will know what is expected.

Meeting Student Needs
• Some students may find it easier to work with a larger game board. If so, you may wish to enlarge each half of the game board and glue the pieces to the inside of a file folder.

Gifted and Enrichment
• Challenge students to solve the following problem: There are 100 squares on the coordinate grid shown on the game board. There are 121 possible calls. Explain why the total number of possible calls is different from the total number of squares.

Check Your Radar
3. a) Number of squares in coordinate grid = 100
    Number of squares covered by shapes = 1 + 5 + 4 + 6 = 16
    Percent of board covered = 16%
  b) Answers will vary.

Assessment *of* Learning	Supporting Learning
Check Your Radar Introduce the task to the class. Have students work • individually to place their shapes on the coordinate grid, • with a partner to identify the placement of each other's shapes, and • individually to answer #3.	• Use **Master 4-Level Project Rubric** to assist you in assessing student work. For notes on how to use this rubric for this task, see below. • To view student exemplars, follow the links.

The chart below shows **Master 4-Level Project Rubric** for tasks such as this one and provides notes that specify how to identify the level of specific answers for this project.

Score/Level	Holistic Descriptor	Specific Question Notes
4 **(Exceeds Expectations)**	❏ Applies/develops **thorough** strategies and mathematical processes making **significant** comparisons/connections that demonstrate a **comprehensive** understanding of how to develop a complete solution ❏ Procedures are **efficient and effective** and may contain a **minor mathematical error** that does not affect understanding ❏ Uses **significant** mathematical language to explain their understanding and provides **in-depth** support for their conclusion	• provides a complete and correct solution
3 **(Fully Meets Expectations)**	❏ Applies/develops **thorough** strategies and mathematical processes for making **reasonable** comparisons/connections that demonstrate a **clear** understanding ❏ Procedures are **reasonable** and may contain a **minor mathematical error** that may hinder the understanding in one part of a complete solution ❏ Uses **appropriate** mathematical language to explain their understanding and provides **clear** support for their conclusion	• completes all parts, with an error or omission in #3 *or* • provides a complete and correct solution based on an incorrect #1
2 **(Meets Minimum Expectations)**	❏ Applies/develops **relevant** mathematical process(es) making **minimal** comparisons/connections that lead to a **partial or incomplete solution** ❏ Procedures are **basic** and may contain a **major error or omission** ❏ Uses **simple** language to explain their understanding and provides **minimal** support for their conclusion	• correctly completes #1 and #2 *or* • correctly completes #1 and #3a *or* • correctly completes #1 and #2 and makes an initial start to #3a or b *or* • correctly completes #2 based on an incorrect #1 and correctly completes #3a and b
1 **(Not Yet Within Expectations)**	❏ Applies/develops an **initial start** that may be **partially correct** or could have led to a correct solution ❏ Communication is **weak or absent**	• completes #1, but fails to meet the requirements of the question

For student exemplars, follow the links.