

# Math Topic: Plot Yourself!

## Graphing in the Cartesian Plane

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*Grade Level(s): 7*

### **Learning Outcomes:**

C4: identify and plot points in the four quadrants of the Cartesian Plane using integral ordered pairs

**Context of Lesson within the unit:** This lesson is a chance to apply a little creativity (design of your initials) while demonstrating that points can be both identified from and plotted onto a graph properly.

**Materials:** pencil, student handouts, ruler, coloured pencils

### **Lesson Ideas:**

1. Share Learning Intention: from overhead/student handout, clarifying the goal of “identifying points and plotting ordered pairs on a Cartesian plane”
2. Warm-up or review of concepts: oral review to set the lesson... “points are always identified using the ordered pairs  $(x,y)$ .. quadrants are numbered 1 to 4...”
3. Intro: think of an interesting way to draw your initials in large, clear block letters. In this task we will PLOT those shapes and IDENTIFY THE POINTS on a Cartesian Plane. You will swap papers with a partner and see if you can each recreate the others’ initials exactly.
4. Establish Criteria for success: discussed and clarified with students.

The grade 7 class this was lesson was tested on came up with:

You will know you fully understand the concept when you:

- Have clear, well labeled initials that fill most of the Plane
- Identify the ordered pairs using  $(x,y)$  ordered pairs
- Can graph your partners initials accurately
- Our 2 sets of initials match each other

## Lesson Ideas:

5. Activity with many levels of entry introduced and practiced: largely review of previous orienting work to identify points on a graph and plot ordered pairs; overhead demo, students as teacher/demo up front. Work in pencil first! Use a ruler! Demo block letters. Shade letters in lightly.

Part 1: sketch/draw your own initials onto the "Plot Yourself" plane, then, label the points(A, B, C...) and then list the points using ordered pairs on the ""Ordered Pairs for My Initials" sheet

6. Activity continued: Teacher checks work at this point... then...

Part 2: review your work, check that ordered pairs are accurate, and ensure that any required Instructions are included for your partner to accurately complete your initials (ie the center of a capital R... ("point M not joined to point N..")

Part 3: Find a partner and trade "Ordered Pairs for My Initials" sheet. Using their pairs, plot their initials on your "Plot Your Partner" sheet (reverse side of the "Plot Yourself") Try to work independently; only seek clarification if absolutely required.

7. Reflection: Self and peer assessment based on criteria and learning intention. Copied onto the back of the "Ordered Pairs for My Initials" sheet. Compare your original with their version and look for areas needing better description, errors, etc.
8. Ticket out the door: Question that links to the learning intention:
- Why is it important to always start at the Origin?
  - How does it help to know that points are always ordered using  $(x,y)$
  - Why use a ruler when joining points?

## Lesson Review:

- ✓ Did I connect the concept to previous experiences?
- ✓ Did I provide individual choice?
- ✓ Was there an open-ended task?
- ✓ Was it possible to enter the task from a variety of levels?
- ✓ Was time provided for 'Turn and Talk' for sharing of strategies and perspectives?