

Whoopsies, Graphing Edition

Coordinate Plane Graphing

K20 Center, Alexandra Parsons, Valerie Wiegman
Published by *K20 Center*

This work is licensed under a Creative Commons CC BY-SA 4.0 License

Grade Level	6th – 7th Grade	**Time Frame**	2-3 class period(s)
Subject	Mathematics	**Duration**	150 minutes
Course	Middle School Mathematics		

Essential Question

In what ways can a person remember procedures?

Summary

Students will identify and explain common mistakes in graphing on an x,y axis and create visual methods of remembering how to graph without making the three most common graphing mistakes. This is intended not as an introduction of graphing, but a review/helpful way of clearing up misconceptions.

Snapshot

Engage

Students will identify common mistakes when remembering how to graph on an (x,y) axis through completed examples.

Explore

Students will create anchor charts with tips to help remember how to graph correctly.

Explain

Students will individually identify how their graph solves three problems; they will share it with their group and then with the class.

Extend

Students will draw a picture, plot coordinates, swap coordinates with a partner and graph their partners drawn picture.

Evaluate

Students will display their coordinate plane

Standards

Oklahoma Academic Standards for Mathematics (Grade 6)

6.A.1.1: Plot integer- and rational-valued (limited to halves and fourths) ordered-pairs as coordinates in all four quadrants and recognize the reflective relationships among coordinates that differ only by their signs.

Attachments

- Graph Paper Extend.pdf
- Graphing Mistakes Engage—Whoopsies Graphing Edition.pptx

Materials

- ruler
- pencil
- poster paper
- crayons, markers, or colored pencils
- Graph Paper (attached; one per student)

Engage

Use **Slide 3** to show students two different images constructed on the coordinate plane (**Graphing Mistakes**, attached). The slide also shows the ordered pairs given for the image. Prompt the students to:

- Figure out which one is right and which one is wrong
- Figure out what happened to the wrong one

Don't Assume It's Obvious

Yes, one is oriented correctly. And yes, students will probably be able to determine which one is correct quickly. However, they will probably struggle with identifying the error (I mean, they're the ones making the errors...) Give students the space to at least try to figure it out, and try very hard to never tell them the reasons the others are wrong. At most just prompt students with "What is a mistake that usually happens in this class?" If the students are taking too long to figure it out: set it aside, continue with the lesson, BUT revisit the graphs later to see if the students get it later.

Explore

Once students have identified that there are mistakes that are made in graphing, inform them that they will make Anchor Charts over basic graphing and how to remember the skills and information needed to graph correctly. Tell the students that they need to think of creative ways to remember, including cute sayings or spatial reasoning/reminders.

Teacher's Note: Scaffolding

There are so many things we as teachers use to prompt students' memories (x comes before y in the alphabet, so x comes first in an ordered pair, etc.). But, if the students are still making mistakes, personal ideas of what would work obviously aren't working. Therefore, do not give examples for students. **Let them think of reminders on their own and put them on a poster.** It will mean more to them long term and they will probably remember it better.

Pass out poster paper and markers, and have students construct their poster and let them get to work.

Explain

Have each group present their anchor chart and their reasoning behind the tools they provided to remember how to graph correctly.

Keep It Fun But Also Simple

This is the students' chance to share, so kick back and enjoy. Encourage everyone to ask questions and share what details they really like.

Extend

Pass out attached Graph Paper to students. Students will draw a picture of their choice onto all four quadrants of an x,y graph on a piece of graph paper, then record the coordinates (similar to the engage example) on a separate piece of paper. Then, students will do a Commit and Toss, where they crumble their coordinates (not their picture, just the ordered pairs), and throw them across the room. The students will find a set of coordinates that aren't theirs, and graph the coordinates on a fresh plane, and then connect the dots in order to end up with their partners drawing.

Evaluate

Have students go back to the creator of the image and compare what they made to what the original student had in mind. Hang the completed coordinate pictures around the room for students to view.

If It Didn't Go Well, Anchor Them!

If students struggled to remember the correct graphing rules, refer them to the anchor charts they made. That's the purpose of anchor charts!

Resources

- K20 Center. (n.d.). Anchor charts. Strategies. https://learn.k20center.ou.edu/strategy/58
- K20 Center. (n.d.). Commit and toss. Strategies. https://learn.k20center.ou.edu/strategy/119