

Active Learning and Geometry

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What is Active Learning?

- Broadly, anything where the students are doing something more than listening and taking notes.
- Think-pair-share (Many variations)
- Presentations (active for the presenters only)

More involved Active Learning

- “Be the math”

- Make it a game

Geometry and Physical Active Learning

Geometry is well-suited to forms of active learning that involve moving around.

Isometry Groups

- To formally define isometry groups, you need to define a lot of things:
- Metric spaces, bijections, isometries, and groups.
- Active learning is a fast way to motivate things.

A demonstration

- How close are you to your neighbor?
- I'm applying a function to the room!
- How close are you to your neighbor now?
- That's an isometry!

A demonstration continued

- Let's reflect along a different line
- How close are you now?
- Now go back to your starting point

- In under 5 minutes we explained something that would take days of lecture to set up.
- Can be done for outreach or in a class
- Can be done with other geometry topics