Using Flipgrid in the Mathematics Classroom

Heidi A. Eisenreich, Ph.D., *Georgia Southern University*
Andria R. Disney, Ed.D., *Utah Valley University*

The uncertainty of teaching in the upcoming months have forced many of us to look for alternative ways to connect with our students. This past spring and over the summer we have missed "seeing" our students every day and making connections with them. We can have written interactions with students and between students, but seeing facial expressions and *hearing* someone's voice is so different and gives us insight into our students' experiences that text cannot. Flipgrid, which is a video-based application, was something we tried out this summer in our courses. We would like to share our takeaways from using Flipgrid as well as some ideas we have about how to use it in the upcoming year in your mathematics classroom. Here is a view of what your teacher dashboard might look like. You could set up your grids by class or by subjects.

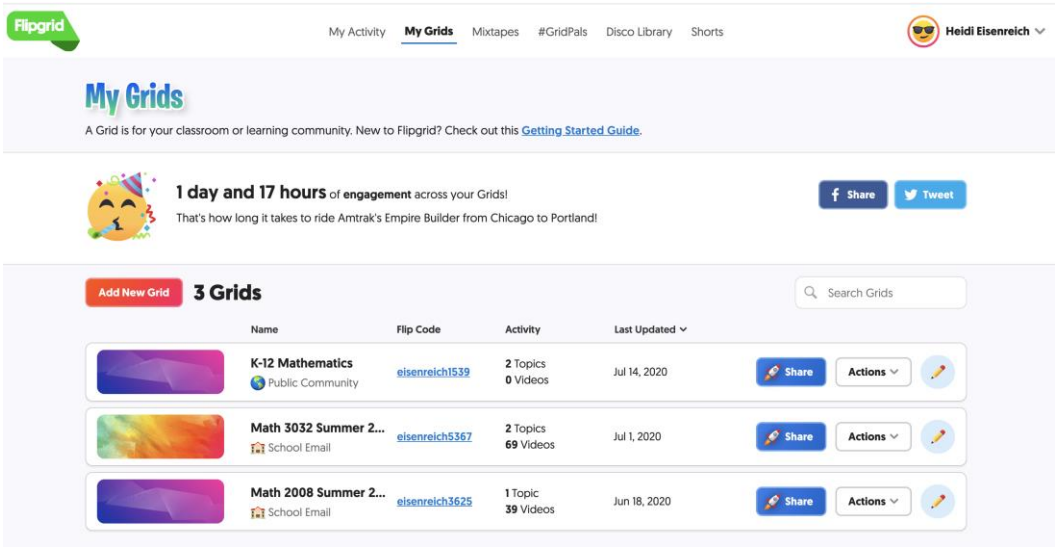

Figure 1: Overall Flipgrid "Grids"

Building Classroom Community

We know that for mathematics learning to occur, students must feel safe to share their ideas and that their contributions are valued (NCTM, 2014). Thus, building a positive learning environment where students see themselves as a community of learners is key, whether in P-12 or college settings. As mathematics teacher educators, we might have semesters when we know some or all of our students in a course, but many times it is our first interaction with them, much like the beginning of each semester/year in P-12 schools. Therefore, we wanted to come up with a creative way for our students to introduce themselves and interact with each other. In one of our courses, students were asked to introduce themselves by identifying what they want to be called (if they have a nickname), their major, where they are from, hobbies, why they want to be

a teacher, and anything else they might want to share with the class. We "moderated" the topic, which means we watched and published the videos instead of them being immediately available to the class. Once they were published, students were encouraged to watch them all so they got to "meet" everyone in the class. Then the students had to keep the conversation going by finding something they had in common, something that interested them, etc. and engage in discussion. This was a really fun way to get to know our students and for the students to get to know each other. Although we do icebreaker activities in our class at the beginning of every semester, the benefit of using Flipgrid is that you can go back and watch the video as many times as you want and whenever you want. This is especially helpful in secondary and college settings when you have multiple classes with many students because you can return to those videos and posts throughout the semester as needed.

Other "Getting to Know You" Ideas

After interacting with Flipgrid we discovered that there were many other ways we could incorporate it into our teaching to get to know our students (and get them excited for math). Depending on the grade level, you could ask students "If you were a number/fraction/decimal," what would you be and why?" Students could share their favorite shape and why they like it. They could also share a time they have used a math concept, like percentages or rates or area, in real life. This would encourage students to be more comfortable justifying answers in a low stakes setting as well as make personal connections to mathematics. Our goal in all of these activities is to build a community of learners who know and value each other, even if we are not able to be physically together in a classroom. Here is an example of what an introduction activity for a unit or concept (in this case fractions) might look like:

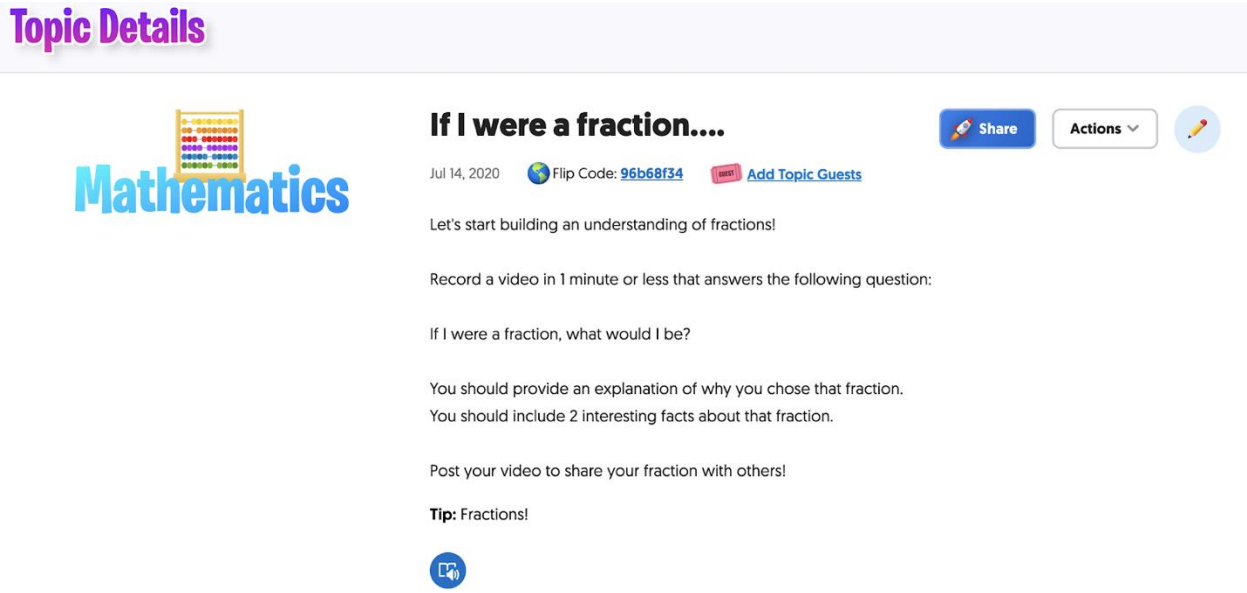

Figure 2: Example of Unit Introduction Activity

Solving Problems and Explaining

Flipgrid offers great opportunities for students to demonstrate their mathematics learning visually and verbally. Using video responses encourages active participation and interaction among students, and it provides valuable formative assessment data for teachers.

Students can use Flipgrid to record themselves solving problems using manipulatives, drawings, or computation. They can engage with physical manipulatives found in the home to discuss concepts. One idea would be for students to use a cereal box and talk about the edges, faces, and vertices as they point to each part of the rectangular prism. They could talk about the difference between surface area and lateral area by using a can of soup as an example. Students could also use traditional manipulatives, like Base Ten blocks or Algebra Tiles, to build numbers using place value or factor quadratics. Students can also display drawings of area models to show multiplication of fractions or decimals or whiteboards that show how they changed a linear equation into slope-intercept form. And, excitedly, Flipgrid is a beta testing screen recording, so students should soon be able to use virtual manipulatives and virtual whiteboards to share their work.

In addition to solving problems, students can also share their thinking in their Flipgrid video as they narrate their explanation or justification. Sometimes students struggle explaining and justifying when first learning how to do it. As math teachers, we may provide sentence frames, talk through how to do this, work in small groups, and then have a whole class discussion. Some students find it easier to talk about what they did, rather than writing about it. This can be especially true for younger students who are still learning to write, students who may have a processing or writing disability, and students who are English language learners that are still developing academic language. Using Flipgrid increases access to learning when students can verbally explain their thinking. Likewise, students can share a visual display of their solution and strategy as they reason about what they did orally. This may bridge a gap between those students who understand what they're doing mathematically but have difficulty transferring that knowledge into written work. It can also provide more accurate formative data for teachers. As an extension and to promote interaction, students can watch their classmates' Flipgrid videos and provide feedback or have dialogue on these processes.

Math in the real world

Flipgrid also allows for students to identify and interact with mathematics around them. For instance, students participate in a Flipgrid scavenger hunt, in which they take their phone around the house to find specific mathematics objects you want them to identify, and describing why they chose those objects. They can upload that video to Flipgrid. Likewise, students can use their phones to record interesting mathematics situations they find in the real world, much like Dan Meyer's launches in his three-act tasks. They can post those videos and then their classmates can select a problem of interest, solve it, and share their solutions via another Flipgrid video. Here is an example of what a scavenger hunt assignment might look like:

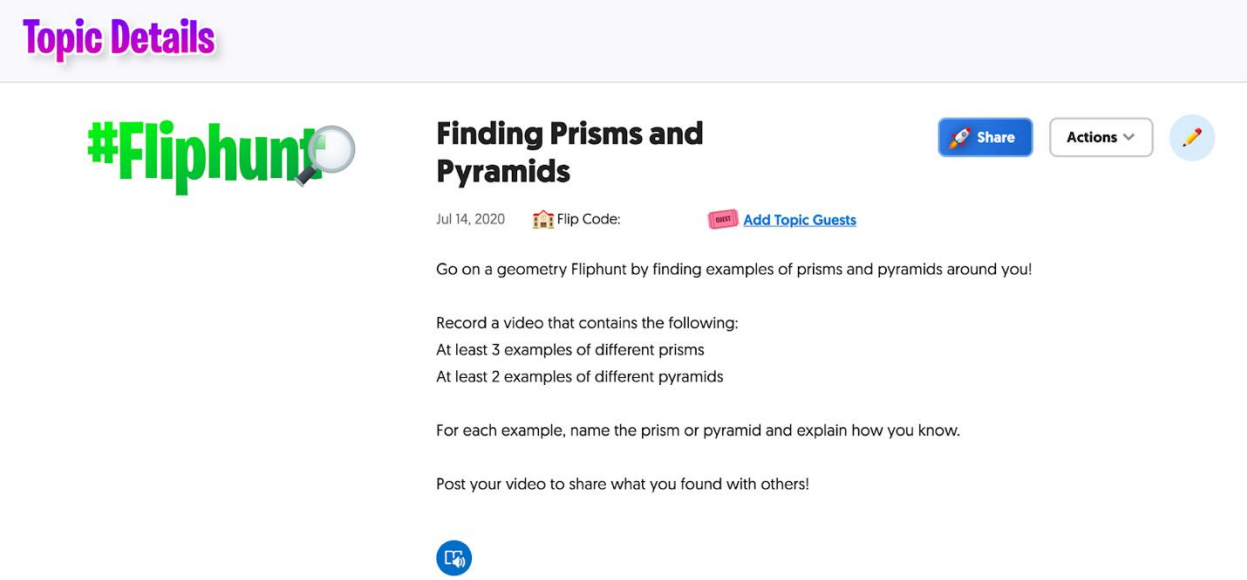

Figure 3: Example of a Scavenger Hunt Assignment

Review and Reflection

Flipgrid is also a great tool for review and reflection. Students could discuss one concept that they want to remember, or something they found interesting, or something that impacted them in some way, and, most importantly, why. They could also discuss overarching concepts in a unit. For example, if they were using non-standard units of measurement (e.g., paper clips), they could talk about needing to remember to have all the ends of the paper clips touching (no spaces between paper clips), no overlapping paper clips, and that it needs to go all the way to both endpoints of the item you are measuring. Each student could "present" on one specific topic within the unit so after all, students upload videos, you have a "class review" that they put together. Students could post a question they still have from a lesson or unit and then their classmates can respond to them. These are just a few different ways to use Flipgrid for review or reflection.

Conclusion

We hope that these ideas have sparked your interest in Flipgrid and have you thinking about how you can use it with your students to promote engagement and interaction in the mathematics classroom. Flipgrid can be a valuable tool in mathematics learning at any grade level and in face-to-face, hybrid, and online learning environments. If you are interested in learning more about Flipgrid, visit: https://info.flipgrid.com/

Here is a link that identifies 74 additional digital tools and apps teachers can use to assess students:
https://www.nwea.org/blog/2019/75-digital-tools-apps-teachers-use-to-support-classroom-formative-assessment/

References

National Council of Teachers of Mathematics [NCTM]. (2014). *Principles to actions: Ensuring mathematical success for all*. Reston, VA: Author.

Heidi A. Eisenreich, Ph.D., is an assistant professor of mathematics education at Georgia Southern University in Statesboro, GA. Before receiving her Ph.D. in Mathematics Education from the University of Central Florida, Dr. Eisenreich taught high school and college-level mathematics. Currently, she works with K-8 pre-service and in-service teachers to deepen their conceptual understanding of mathematics content.

Andria R. Disney, EdD, is an Assistant Professor of Elementary Education in the School of Education at Utah Valley University. Dr. Disney was also an Assistant Professor of Elementary Mathematics Education in the College of Education at Georgia Southern University from 2016 to 2019. Before receiving her Ed.D. from the University of Montana, she worked in public schools as an elementary teacher, a middle school math teacher, and a mathematics curriculum and instructional specialist. Dr. Disney's research interests include supporting pre-service and in-service teachers in making mathematics instructional change and using sense-making tools with their students.