# MATHSPACE

# 7 Step Guide

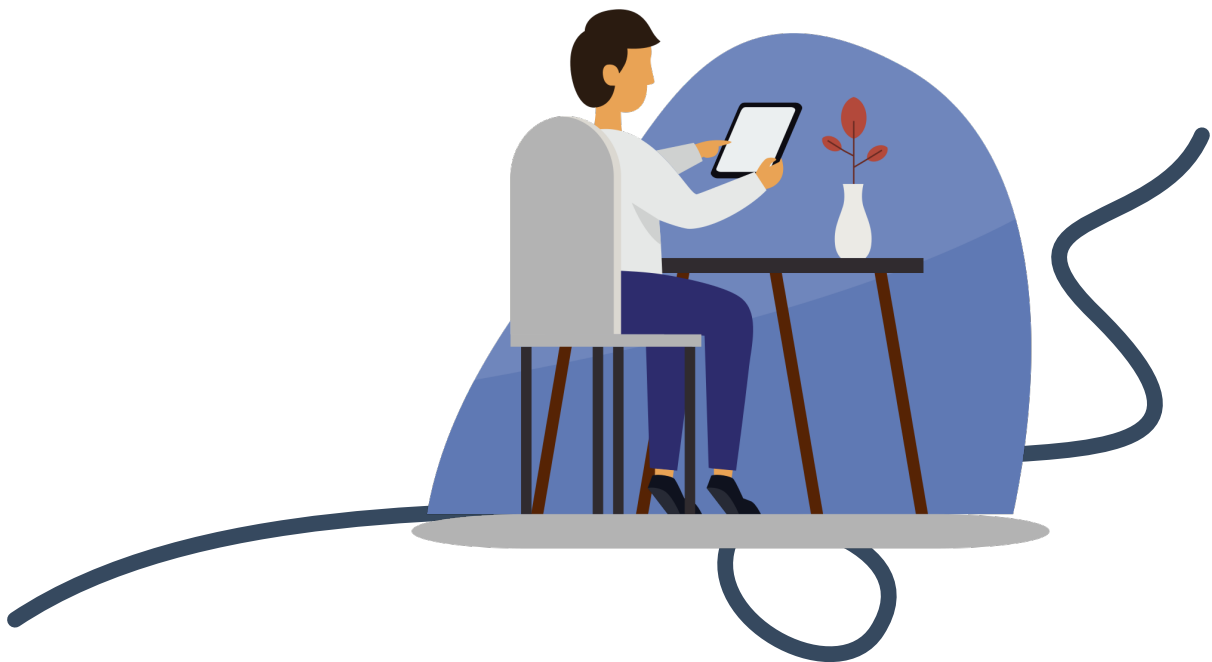# How to set-up a remote mathematics classroom

*Worried about how to get started in setting up a virtual classroom? Here's some tips, tricks and best practices bundled into seven steps to help you get started with your online mathematics classroom — no matter your location.*

# Contents

Creating a virtual learning environment may sound daunting if you're used to teaching students face to face. But many of the best online teaching practices are the same skills that teachers show every day in the classroom. With a few tweaks to your existing practices, you'll be kickstarting your online mathematics classroom in no time with Mathspace's Seven Step Guide.

# 1. Create and communicate a structured plan

Creating clear structure can help limit the disruption caused by moving from the classroom to a digital learning environment. As your students move from an environment where it's clear where they have to be, and what they should be doing, at each moment of the day, you can help them transition by providing them with a clear plan - in each lesson, each day and over multiple weeks.

It's helpful at the start of each online lesson to prepare the structure of what will happen - think of it like creating an agenda for a presentation. It can also be helpful to provide students with a daily schedule of the work to be done. This will help students to keep track of the individual assignments they have to complete as well as encourage them to pace out their work. You may even want to include time suggestions for each assignment and have students contact you for assistance if it is taking them longer to complete the work.

Over the longer term, creating a visual outline of the learning that will take place online will give everyone a reference point to anchor themselves and give students an idea about the scope of the work that is expected to be completed while they are out of school. This can include a timeline of what is being studied, a weekly or whole unit calendar, or the learning goals for each lesson or week.

Two benefits of communicating your plan are creating clear expectations, and setting an expectation of independence in your students, which (as we'll see below) are important foundations for an online classroom.

*Below is an example that the Mathspace teaching team has built a timetable around our textbook scope and sequence. You could use this as a starting point if you're looking to utilize Mathspace as your core resource:*

| Schedule for Monday, March 24 | | | |
|---|---|---|---|
| **Assignment** | **Location** | **Suggested Timeframe** | **Due Date** |
| Warm Up Task | Quizizz (Code **XLQ400**) | 10 minutes | March 19 at 8am |
| Read Textbook Lesson on Functions | Mathspace | 20 minutes | March 19 at 10am |
| Respond to Functions Discussion Board | Google Classroom | 10 minutes | March 19 at 11am |
| Practice Task | Mathspace | 30 minutes | March 19 at 12pm |
| Record Lesson Reflection | Google Classroom | 10 minutes | March 19 at 1pm |

| Topic | Curriculum Outcomes | Start date | End date | | Live Review Session |
|---|---|---|---|---|---|
| 5 Ratio and Proportion | 7.RP.A.1 7.RP.A.2 7.RP.A.3 7.G.A.1 | March 23 | March 29 | Quarter 3 Week 2 | Wed March 25 9am |
| 6 Percents | 7.RP.A.3 | March 30 | April 5 | Quarter 3 Week 3 | Wed April 1 9am |
| **Spring Break** | | April 6 | April 10 | | |
| 7 Geometry | 7.G.A.3 7.G.B.4 7.G.B.5 7.G.B.6 | April 13 | April 20 | Quarter 3 Week | Wed April 15 9am |

# 2. Set clear expectations and create online classroom norms

Without the usual routines of school, students will feel a little lost. Therefore it is important to spell out for students what to expect and what their responsibilities are for their own learning. What will their mathematics lesson look like now? How much time should they expect to spend on coursework each week? What assignments do they have to complete and when are they due? How will they access and turn in assignments?

At the same time, it is important for students to know what they can rely on their teacher for. How can students get in touch with you if they need help? What hours will you be available to correspond? How often should they expect communication from you? What help are you able to offer the students?

It's also important to establish clear norms at the outset in setting up your online classroom. We recommend involving your students in the process.

Ask them: *How do you want the classroom to feel? What behaviors will each student commit to in order to make this happen? How will we interact and communicate with each other online? How will we use different tools available to us? How will we work when we're not together?*

We find that it is useful to share these norms daily in a slide at the start of each of your lessons - think of it like having a poster on your wall that students might see each day.

# 3. Create a positive, engaging online environment

Virtual learning is likely a new experience for you and your students. On one hand, classroom management is less of an issue in online teaching. On the other hand, making sure your students are engaged becomes a whole new challenge. Some of the challenges in learning online include feeling isolated, being distracted, and loss of non-verbal/social cues and immediate feedback. As a teacher, without the visual and auditory cues from students, sometimes you will feel like you're talking to the void.

You can mitigate some of these issues by creating a warm classroom environment.

Ask yourself: *Is this online classroom a place I'd like to go to? Do I look forward to communicating with my online students? If not, how would you change the environment?*

**Some simple ideas:**

- Involve students in creating norms for your classroom, and remind them of these norms each day

- Make sure students can see your face during lessons by having the video camera on

- Greet your students as you would when they enter your classroom

- Model calm and positivity in times of adversity

- Encourage students to collaborate and support each other, even while they are physically apart

- Be open about the issues students may face, and offer information and solutions

- Don't be afraid to share how you're feeling about being separated from students, and encourage them to share their feelings as well

Online tools also offer ways to engage students during live lessons. For example, in Zoom, teachers can create live polls and share results, use Q&A tools, and have students raise their hands.
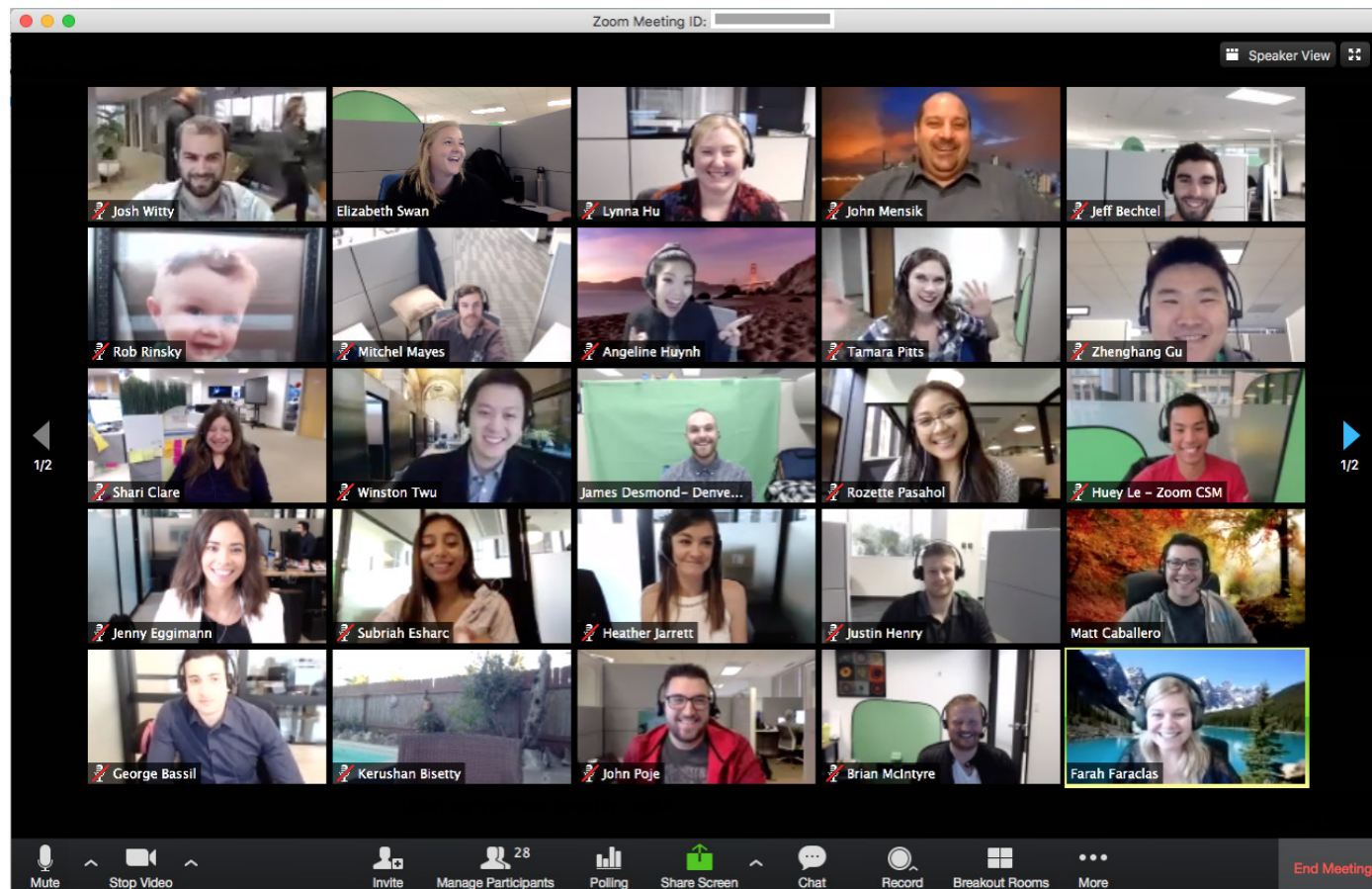
# 4. Set up students to be independent learners with the right learning tools

One of your challenges as an online teacher will be giving students independence, while keeping them accountable. We believe that, with the right approach, independence and accountability can go hand in hand.

End each lesson with a summary of to-do/action items, and post these on your Learning Management System (LMS) or other communication channel. Make it clear how and when students can get in touch with you if they are struggling or have questions, and other available support channels. Give students extension options if they want to continue to work beyond your assigned work.

Assigning tasks in an adaptive program like Mathspace also promotes independence, as it allows students to track their own progress through a student mastery dashboard. This encourages students to be aware of their own progress, and to work independently beyond the work assigned by their teacher, for extension or to review past work.

Ensure you have high quality offline learning options in case students do not have (or lose) internet access. These options for offline/low broadband alternatives include sending PDFs by email, or photos by SMS, and having students email/text photos of work done by hand.

# 5. Be Present - Whether You're There or Not

Relationships are a key ingredient in education and as the classroom teacher, you will be one of the few points of familiar, regular contact.You may not be able to physically stand in front of your class, but you can still be a presence in their lives.

Running live video conferences or sharing a recording of yourself can have a significant impact on how you connect with students.  You may want to set up live online classrooms that students can connect to with their peers and run a direct instruction lesson or create a forum for peer to peer discussion using applications like Zoom, Whereby or Google Hangouts. These are all available for free.

In addition to video calls, you may want to share information or provide instruction to your students in a video format. There are many free resources out there that allow you to record your screen such as Screencast-o-matic and Screencastify and you can use Zoom or YouTube Live to hold live sessions that are then recorded and available to students who are unable to attend the live session.

Think of different ways to be present including being active in online communities, forums, emails and other forms of communication.

# 6. Close the loop with quick, frequent data-driven feedback

[Research](#) has shown that instructor responsiveness and availability has been highlighted as a key predictor of online student satisfaction, and that lack of timely feedback or slow communication timeframes from instructors detract from student satisfaction.

Ensure that you schedule sufficient time in your daily plan to monitor student progress, identify student issues, and follow up on issues or barriers to student engagement. Programs that have clear progress monitoring and data dashboards can relieve the burden of tracking, and allow you to monitor student engagement and progress as well as proactively address signs of withdrawal or struggle.

As you track student progress and identify students who appear to be behind, make a plan on how to intervene.

*Do you need to meet with a student, or simply send a message asking if they need help? Are there any helpful videos you can send to struggling students? Should you hold a private review session with a group of students who struggled with your last assignment?*

Mathspace makes it easy to track class and student progress through:

- an activity log

- class and student insights

- a live mode where you can see what students are working on in real-time

- you can also view student work on any adaptive or custom tasks so that you can understand exactly what they are struggling with so you can take the right steps to address it.

Given the loss of social cues when teaching online, you may need to over-communicate with your students to show them that you've noticed positive

behaviors. Send students positive messages when you see that they have completed tasks or demonstrated persistence. Remember that your perceived responsiveness and availability will be a significant factor in your students' engagement.
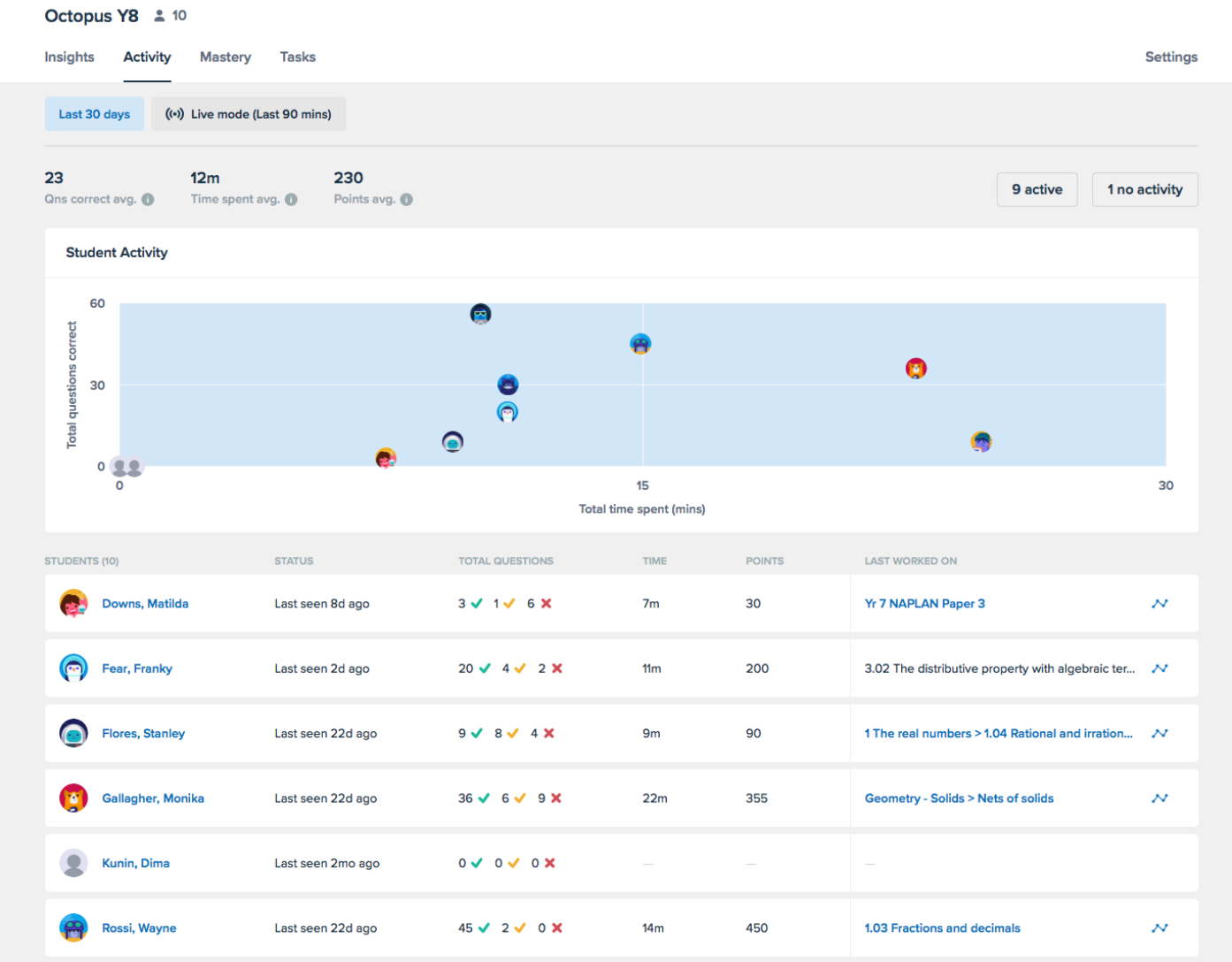
# 7. Communicate with all your stakeholders

During any time of change there is great uncertainty. The best way to mitigate uncertainty is with clear, frequent communication. Create a basic stakeholder comms plan by asking yourself: *Who are my key stakeholders? What information would they expect to hear from me? How often would they expect to hear from me, and through which channels?*

In times of change and uncertainty, a basic comms rule of thumb is: **when you think you've communicated your message enough, double it.**

Parents are key stakeholders for you to keep informed. To keep parents in the loop in an efficient manner, post schedules and messages to a central forum, and organize dedicated office hours time for any phone calls or conferences you may need to hold.

We recommend using Slack as a communication tool. You can set up separate chat channels for classes and student groups, as well as parent groups. You can also use Facebook, Twitter, Whatsapp, your LMS, or any other channel you've used.

The ultimate goal of any classroom is to encourage independent and self directed learners who love to explore their world; the online version is no different. The majority of these tips mirror advice we might give to a teacher in a traditional setting. We know that the feeling of losing control can be a difficult transition. On the positive side, consider how much closer you will be to replicating the future world your students will enter. This is a great opportunity for your students to take control of their own learning and prepare for life after school.

# Resources

There is an almost limitless supply of educational resources online, so before you spend a lot of time creating your own materials for virtual learning consider what is already out there and ready to be used.

Below we have collected some of the resources that you may find helpful when building a virtual classroom.

- **Textbooks and worksheets** – scan or take a picture and post on your schools Learning Management System

- **Mathspace** – lessons, investigations, adaptive and custom tasks

- **Quiz platforms** – Kahoot, Quizizz, Socrative, Quizlet

- **Videos** – Mathspace, WooTube, TeacherTube, YouTube, Playposit

- **Collaboration and Discussion** – Google Calendar/Meet, YouTube Live, Zoom, Slack, Google Classroom, Padlet

Many of the resources above will help to keep your students engaged in virtual learning, but be careful to not overuse any one resource. Even the most effective teaching practices can become unengaging if used too often. While it is important to provide students with routine and structure during this time (such as warm up, new learning, practice, discussion), consider varying what resources you use to fill each of those slots.

Mix in a Kahoot or Quizizz for warm ups or formative assessment to add a little fun and competition to the day. Both can be done in real time or asynchronously. For new learning consider Mathspace textbook lessons, providing instruction via Zoom or YouTube Live or a video that's already been made, or having students explore a new concept in a GeoGebra applet.

To give students independent practice you can use a combination of adaptive and custom tasks on Mathspace or assign paper/pencil problems and have students submit a picture of their work.

If you want your students to engage in more discussion you can have them respond to a discussion board prompt and reply to their classmates, break into group discussions using Google Meet, students can make an instructional video that can then be shared with the class. Just be careful that consistency doesn't turn into monotony.