

# Flip Mathematics Classroom to Enhance the Quality of Mathematics Education Among Apprentices

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**Abstract:** Mathematics is one of the most important subjects of our school curriculum and it is very essential for having a good living in society. A person needs a functional knowledge of mathematical content to make informed decisions as a citizen and plays a very important role in future courses and for having successful life. It is very interesting and develop cognitive reasoning among students but from years mathematics educators are facing major challenges to improve the performance of the students. So, today there is a dire need to use new strategies and techniques which enhance the curiosity of apprentice to understand, apply, analyse and evaluate the basic and applied mathematics.

Educators are dealing with the digital natives. To enhance their interest in mathematics, it's time to blend traditional teaching, and use of flipped classroom and information communication technology.

**Keywords:** Flip mathematics classroom.

## 1. Introduction

### A. Flipped Classroom

Flipped classroom is a “pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter”



The concept of flipped classroom was first brought up by Jonathan Bergmann and Aaron Sams, *Flip your classroom: Reach every student in every class every day* (2012), they discussed a couple of reasons why teachers should consider flipping:

- Flipping speaks the language of today's students.
- Flipping helps busy students.
- Flipping helps struggling students.
- Flipping helps students of all abilities to excel.
- Flipping allows students to pause and rewind their teacher.
- Flipping increases student-teacher interaction.
- Flipping allows teachers to know their students better.
- Flipping increases student-student interaction.
- Flipping allows for real differentiation.
- Flipping changes classroom management.
- Flipping changes, the way we talk to parents.
- Flipping educate parents.
- Flipping makes your class transparent.
- Flipping is a great technique for absent teachers.
- Flipping can lead to the flipped mastery program.

Jeff Dunn (2014) has wrote a short piece on “The 6-step guide to flipping your classroom”, which presented 6 easy steps for implementing flipped classroom.

1. Plan: Figure out which lesson in particular you want to flip. Outline the key learning outcomes and a lesson plan.
2. Record: Instead of teaching this lesson in-person, make a video. A screencast works. Make sure it contains all the key elements you'd mention in the classroom. In Bergmann and Sams' book (2012), they also pointed out that do not make a video just for the sake of making a video. Only do so when you feel these are appropriate and necessary. It all depends on the educational goal of your lesson. If making videos better facilitate your instructional goal, then go ahead.
3. Share: Send the video to your students. Make it engaging and clear. Explain that the video's content will be fully discussed in class.
4. Change: Now that your students have viewed your lesson, they're prepared to actually go more in-depth than ever before.
5. Group: An effective way to discuss the topic is to separate into groups where students are given a task to perform. Write a poem, a play, make a video, etc.
6. Regroup; Get the class back together to share the individual

group's work with everyone. Ask questions, dive deeper than ever before.

After the six steps, Review, Revise, and Repeat!

Some other strategies that can be used in in-class activities include:

- Active learning. Allow students to apply concepts in class where they can ask peers or instructors for feedback and clarification.
- Peer instruction. Students can teach each other by explaining concepts or working on small problems.
- Collaborative learning. Collaborative learning activities could increase student engagement, enhance student understanding, and promote collective intelligence.
- Problem-based learning. Class time can be spent working on problems that can last for the duration of a semester.
- Discussions or debate. Give students the opportunity to articulate their thoughts on the spot and to develop their arguments in support of their opinions.

### B. Flipped classroom and mathematics

As being teachers, you know that practice is very important. However, often the students face challenges when practising and their teacher aren't there to help. There are great resources such as edugrade, wootube, engrade, mathtech and many more are the ICT tools which help students to learn in an interesting and effective manner. The flipped, or inverted, classroom aims to flip what happens at home and school compared to the "Chalk and Talk" strategy. In a nutshell, the students will first see the new content mostly independently, often as homework, and then in class the majority of the time is spent practising, asking questions and doing activities with the teacher there to support. Probably the most common approach is to create or find video lessons which the students watch at home and take notes. What is great about having video lessons is that students can pause, rewind, and fast forward as desired so they get a lesson pace that is right for them. As they are going, they can take notes and write down questions to ask their teacher. Then in class, students are able to ask questions from the video and work through practice questions with their teacher there for support. A key component is spending time in class sitting down with students one-on-one, ensuring connections have been made and checking understanding through activities or quizzes. Teachers, parents as well as students can find resources for making your own videos or finding pre-existing videos to avoid reinventing the wheel when possible.

## 2. Conclusion

Using technology has brought the compassion back into my

classroom, giving teachers time to hear from students and to work with them one-on-one, getting to know them better as individuals. It gives the opportunity to listen to their discussions and see them take ownership for their learning. Now, it's time to allow students to use their inner intellect and strength rather than to impart instructions to them which will make them powerful, confident and help them in success. This make students to become resourceful and empowered learners. The flipped classroom will allow teachers well as students to create a supportive, positive, calm environment where learning can truly thrive. And that is the greatest thing of all!

The art of teaching is that each teacher brings their unique talent and passions and shares them with their students. So, flip your classrooms and have more empowered students.

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