

# Integrated Co-Teaching Guidance in the Mathematics Classroom



# Integrated Co-Teaching (ICT) in NYCPS

Strategically leveraging a co-teaching model can enhance all learners' access to grade-level, [shifts-aligned, mathematics instruction](#). Most students with Individualized Education Plans (IEPs) *can and should* thrive in general education math classrooms, especially when supported by Integrated Co-Teaching (ICT) models. This includes multilingual learners with IEPs, who benefit from instruction that's both linguistically supportive and culturally responsive, along with their IEP-based services.

Integrated Co-Teaching (ICT) in math brings together two educators: a general education teacher and a special education teacher. Together, they co-plan and co-deliver instruction to a mix of students—with and without IEPs—in the same classroom. The goal is to ensure that all students, regardless of their learning profiles, have access to high-quality, grade-level math instruction.

Effective math co-teaching is a true partnership. It involves:

- Shared roles and responsibilities
- Intentional use of co-teaching models
- Equity- and asset-based mindsets
- Strategic planning grounded in student data and learning variability

When done well, co-teaching is a powerful way to create inclusive math classrooms that empower all learners to grow and succeed.

# What Research Says About ICT

Research shows that ICT learning environments have positive short-term and long-term effects for *all* students<sup>1</sup>. Students receiving special education services in inclusive ICT classes benefit from raised academic and behavioral expectations, increased independence and responsibility, a strong emphasis on learning skills and organization, and exposure to peer modeling of appropriate behavior and successful learning strategies (Valle & Connor, 2019, p.204-206). According to the same research, their general education peers benefit from exposure to diverse learning techniques and flexible approaches, more contact time with teachers, a better understanding of learner diversity, and the opportunity for leadership through peer collaboration and tutoring. Similarly, collaborative teaching has proven benefits for both teachers involved. While the Special Education teacher increases knowledge in specific content areas and expands their skills in pedagogy and classroom management by working with larger groups on grade level curriculum, the General Education teacher expands their understanding of diverse learners, gains strategies to improve accessibility, and increases the time that can be spent building relationships and supporting individual students (Valle & Connor, 2019, 201-203). By combining the content skills of the secondary mathematics teacher and the strategy skills of the special educator, students with varying abilities can be successful in an inclusive learning environment (Magiera et al., 2005).

## What are the Instructional Models of ICT?

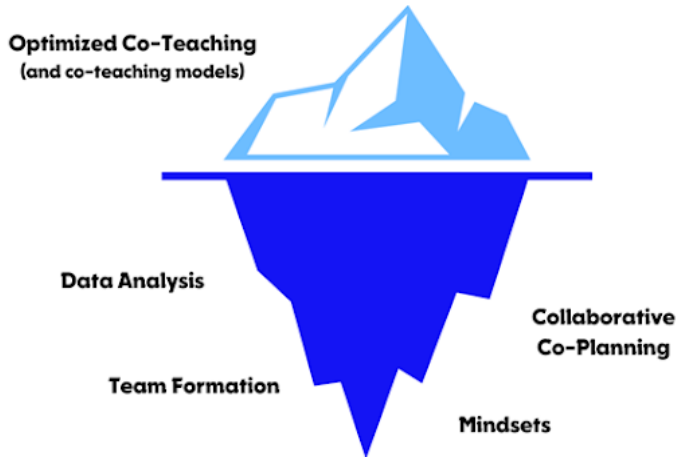
ICT is delivered using a range of different instructional models that may vary from day to day and lesson to lesson depending on a number of factors including, but not limited to, individual needs of students, individual progress toward annual or unit goals, and the particular lesson activity in which students will be engaging. Consequently, the co-teaching model selected must be intentional and strategic. Additionally, teachers need ongoing professional learning to support their understanding and execution of the different instructional models.

Co-teaching in integrated inclusive classes requires much more than having two teachers delivering instruction together. As seen in the graphic from Blue Engine, it requires **collaborative co-planning** where co-teachers internalize and intentionally plan units and lessons so that all learners are seen, valued, and accounted for in daily grade-level math instruction. It requires a **team formation** of adults who operate as an instructional team with equitable responsibility and accountability for supporting all students and whose asset-based **mindsets** demonstrate a belief that all students are capable of engaging with grade-level math content. It also requires regular co-planning time for

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<sup>1</sup> Hehir, T., Grindal, T., Freeman, B., Lamoreau, R., Borquaye, Y., & Burke, S. (2016). ["A Summary of the Evidence on Inclusive Education"](#) Abt Associates.

collaborative **data analysis** to identify student strengths and needs, inform instructional decisions, and evaluate the impact of the integrated co-teaching.



NYCPS utilizes the six models of co-teaching defined by Friend et al. (2010) and supported by Blue Engine. Of the six models, Friend et al. (2010) notes that Station Teaching, Parallel Teaching, and Alternative Teaching can be more beneficial to students than Teaming, One Teach, One Assist, and One Teach, One Observe given that smaller groupings allow for a lower student/teacher ratio and increased opportunities for student discourse and feedback. Descriptions, benefits, misconceptions, pitfalls, and effective time to use each model can be found in the tables beginning on page 4 ([The-6-Co-Teaching-Models-Reference-Guide.pdf](#)).

*Figure 1. Graphic showing the six models of co-teaching<sup>2</sup>*

<sup>2</sup> Graphic retrieved from Blue Engine. Blue Engine. <https://www.blueengine.org/>

# Factors to Consider When Deciding on an ICT Model

Choosing the right integrated co-teaching model can have an enormous impact on students' academic and social outcomes. The determination of which integrated co-teaching model is most appropriate for individual inclusive classrooms must be made based on contextual dynamics at both the student and teacher level. It is important to note that no single model of co-teaching instruction should be used exclusively, and many teachers develop their own variations or combinations of co-teaching approaches over time. Some common factors to consider are:

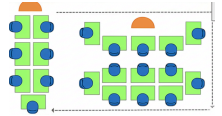
- **the needs of the students in the inclusive classroom.** First, consider if there are students who need extra support with certain skills or a challenging concept? Would students benefit from varied challenging approaches?
- **the content lesson goals.** Look at the goals for the lesson or unit. When are new concepts introduced? Do a lesson activity or exercise require more hands-on practice? Matching the model to your lesson goals helps students stay on track and get the most out of each lesson.
- **the social dynamics of the students as well as the dynamics of the teachers.** Every classroom is composed of students and teachers with unique identities, personalities, and choosing a co-teaching model that yields the most positive and productive learning environment is important. Consider the synergy of the classroom community.
- **the integration of both teachers' strengths.** Both teachers bring their own strengths, beliefs, teaching styles, and systems of learning to the classroom. Which model suits the teachers to bring their collaborative best?
- **the practical and technical facets of time, space, and logistics.** Practicalities like time and space matter tremendously. Integrated co-teaching requires teachers to collaboratively prepare, plan, setup, and delivery instruction. It is crucial to think about what is realistic and impactful for both the teachers and students.
- **the ability to remain flexible and adaptable.** It is paramount for both teachers to embrace flexibility. The chosen model may work wonderfully on some days and need adjusting on others. Teacher have to be mindful of the need to adapt to best suit the needs of the students and circumstances happening on any given day ([6 Co-Teaching Models Explained \[+ How to Choose the Right One\]](#))

The tables on the following pages demonstrate options and considerations for delivery of co-teaching using NYCPS Math Curricula. Color-coded arrows correspond to particular misconceptions and the pitfalls they may lead to if used.



## Stations

Students and lessons or activities are divided into three+ groups. Each teacher teaches one section of lesson, and the third section is based on independent practice activities. Students rotate between all stations and station order does not impede ability to achieve the lesson goal.



Benefits	Misconceptions	Pitfalls	Most Effective Use
<p>Offers opportunities for increased student -to-student discourse and participation</p> <p>Provides increased opportunity for collaborative small group work</p> <p>Positions teachers to provide more targeted individualized instruction and/or support</p> <p>Leverages the diverse strengths of both teachers</p> <p>When multiple skills require additional practice and application or when one main learning target can be broken down into three or more sub-targets</p> <p>Shorter tasks provide natural breaks and allow for students to reset their attention and focus after each rotation</p> <p>Flexibility in group sizes and composition</p>	<p>Students experience the lesson activity or skill using a different mode of engagement.</p> <p>Station groupings should be structured to match homogeneous ability groups.</p> <p>One teacher is seen as the main teacher while the other teacher is seen as a helper for smaller group instruction.</p> <p>Station teaching can be used as a form of small group push-in teaching.</p> <p>Students do not need to practice transition routines and procedures.</p> <p>Station teaching is limited to elementary grades.</p>	<p>Without specific attention/direction from a teacher and stimulating, relevant tasks, students may perceive independent station time as free time</p> <p>If flexible, heterogeneous grouping is not used when assigning students to stations, students may perceive station rotations as ability grouping</p> <p>If stations are not paced equitably, students may not get to experience all of the lesson or activities.</p> <p>Opportunities for increased levels of noise and movement that leads to students becoming distracted as students transition between stations</p>	<p>When the lesson covers discrete topics that are non-sequential or can be explored through multiple means to increase access and engagement.</p> <p>When activities can be differentiated to allow for individual practice away from teacher facilitated stations.</p> <p>When teachers have planned well and identified opportunities for facilitated practice.</p>

## Parallel

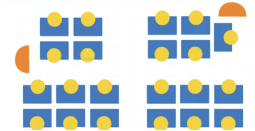
The class is divided into two groups, and each teacher delivers the same instruction to half of the class.



Benefits	Misconceptions	Pitfalls	Most Effective Use
<p>Offers opportunities for increased student -to-student discourse and participation</p> <p>Provides increased opportunity for collaborative small group work</p> <p>Positions teachers to provide more targeted individualized instruction and/or support</p> <p>Leverages the diverse strengths of both teachers</p> <p>Allows for comparing information near the end of the lesson, creating more opportunity for synthesis and retention</p>	<p>Student groupings should be structured to match homogeneous ability groups.</p> <p>One teacher is seen as the main teacher while the other teacher is seen as a helper.</p> <p>Students with IEPs should be grouped together.</p> <p>Less collaboration and planning time is required for each teacher.</p>	<p>Can create a hierarchy in the class and lead to negative math mindsets/feelings of stigmatization if students are always in the same group or don't have access to the same materials (i.e. smartboard, manipulatives)</p> <p>Lack of careful planning for how students will engage, when teachers will monitor learning, and timing of discussions can be a challenge.</p> <p>The noise level from two simultaneous discussion groups could be distracting if there is not enough classroom space and separation.</p>	<p>When a lesson is logistically easier to facilitate with fewer students (e.g. an up-close demonstration, lots of scaffolding or questioning, etc.)</p> <p>When each co-teacher benefits from practice delivering content or building relationships with specific students.</p> <p>When students will benefit from a smaller group setting and need more individualized attention, and when teachers have equally strong content knowledge.</p> <p>When students would benefit from more opportunity to share out answers, and when teachers are looking to gain more observational data from student discourse in pairs or small groups.</p> <p>When learning modalities can be chosen by students (e.g. reading or listening, digital or hands on)</p>

## Alternative

One teacher instructs the whole class, while the other works with a smaller group on a scaffolded version of the grade-level lesson\*. Each teacher's group is differentiated based on the diverse learning needs in the classroom.



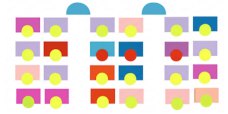
*\*Note: It may be appropriate for a small group of students to work on prior grade-level content when there is a clear connection to how that just-in-time instruction supports student access to the grade-level content.*



Benefits	Misconceptions	Pitfalls	Most Effective Use
<p>Leverages the diverse strengths of both teachers</p> <p>Positions teachers to provide more targeted individualized instruction and/or support</p> <p>Provides an opportunity for enrichment or intervention as needed.</p> <p>Allows for additional guided practice for a targeted small group while the majority of class works independently</p>	<p>Students do not need to receive grade-level assignments in both groups.</p> <p>Small group lessons or activities do not have to support the main goal of the lesson.</p> <p>One teacher is seen as the main teacher while the other teacher is seen as a helper.</p> <p>The special educator always leads the smaller group.</p> <p>Students with IEP should always be placed in the alternate group.</p>	<p>Requires more co-planning time and flexibility</p> <p>Requires high level of trust between teachers</p> <p>Requires teachers to accept that students will complete and submit different assignments/work</p> <p>Students may feel singled out.</p>	<p>When instructional data indicates that a small group of students needs extra assistance before moving on or needs deeper enrichment while the majority of the class needs reteaching.</p> <p>When student groups require different scaffolding, instruction, or support because of tiered levels of prerequisite content/skill mastery or specific shared learning needs.</p> <p>When students are easily grouped homogeneously via achievement data.</p>



## Team Teaching

Both teachers are fully involved in delivering the same lesson or activity at the same time to the whole class.



Benefits	Misconceptions	Pitfalls	Most Effective Use
<p>Allows students to see two perspectives of a lesson / topic</p> <p>Offers an opportunity for teachers to model positive collaboration</p> <p>Easier to provide multiple means of representation (i.e. visual presentation and verbal instruction)</p> <p>Easy to flow in and out of this model within the lesson</p>	<p>Either teacher can jump in and elaborate on instruction at will without planning to deliver the lesson together. </p> <p>Teachers can alternate the responsibility of planning the lesson. </p>	<p>Without careful planning and coordination, students may experience two different perspectives that do not help students make connections and make sense of the math.</p> <p>Requires high level of trust between teachers in relation to content and instructional practices</p>	<p>When both co-teachers have a high level of comfort with the content and can work together efficiently to leverage one another's strengths for whole-class instruction.</p> <p>When students will benefit from two viewpoints, two strategies, or different representations to learn the content.</p>

## One Teach, One Assist

One teacher teaches the lesson, while the second teacher circulates to help students as needed or manage behaviors.







Benefits	Misconceptions	Pitfalls	Most Effective Use
<p>Positions students to receive individualized additional assistance</p> <p>Allows teachers to capture specific observational student data</p> <p>Roles can be interchangeable</p> <p>Helps to refocus students who are off task during whole group instruction</p>	<p>Students with IEPs should be the only students receiving assistance.</p> <p>The general education teacher should always be the lead teacher responsible for delivering instruction.</p> <p>Knowing which students need additional support is the responsibility of the assisting teacher only.</p> <p>The assisting teacher has less responsibility and accountability for student outcomes.</p>	<p>One teacher is seen as the main teacher while the other teacher is seen as a helper.</p> <p>The strengths of one of the certified educators in the classroom is underutilized.</p> <p>The general education teacher interacts less with the students with IEPs.</p> <p>Resentment and feelings of inequity between the co-teachers may develop based on responsibilities and roles in instructional delivery.</p>	<p>When new co-teaching partnerships are in the beginning stages of development and are not yet fully adapted to norms for co-teaching, content facilitation, and/or implementing classroom procedures.</p> <p>When there are time constraints and one teacher has stronger expertise in the subject matter, and some students will need lots of individual guidance</p> <p>During short, transition activities such as a Do Now/Warm Up or Summary/Lesson synthesis</p> <p><b><i>Over-reliance on this model is neither efficient nor effective in the long run!</i></b></p>

## One Teach, One Observe

One teacher facilitates the lesson, while the other teacher collects specific and detailed data through observations. These preplanned and purposeful observations may include academic, behaviors, or social skills.



Benefits	Misconceptions	Pitfalls	Most Effective Use
<p>Allows teachers to capture specific observational student data, some of which can be used immediately to support in-the-moment student groupings</p> <p>Roles can be interchangeable</p>	<p>The observing teacher manages behavior. </p> <p>The general education teacher should always be the lead teacher. </p> <p>The observing teacher has less responsibility and accountability for student outcomes. </p> <p>Collecting data to determine which students need additional support is the responsibility of the observing teacher only. </p>	<p>One teacher is seen as the main teacher and the go-to for learning while the other teacher is seen as a helper/disciplinarian.</p> <p>The strengths of one of the certified educators in the classroom is underutilized.</p> <p>Resentment and feelings of inequity between the co-teachers may develop based on responsibilities and roles in instructional delivery.</p>	<p>When there are limited periods of time when something specific needs to be observed, and when one teacher has a stronger content knowledge of the particular skill being taught</p> <p>When in-class observation with the opportunity to provide quick, focused support is required for a process or procedure taught in the lesson.</p> <p>When co-teachers wish to monitor without intervening to gather data about which tasks specific students struggle with at the start of the year.</p>

# How Can Co-Teaching Be Used In Our Curriculum?

Examples are linked below to demonstrate how educators using high-quality instructional materials (HQIM) can make different decisions about which co-teaching models best align with unique HQIM structures and activities. Educators may use the links below to see glimpses of what each model would look like within an actual curriculum-specific lesson. If any of these co-teaching models are new to a co-teaching pair, it is recommended that teachers focus on one or two models at a time as co-teaching pairs learn to incorporate new models into their daily instruction.

Detailed in these resources are examples of opportunities to use the various models of co-teaching instruction that exist within the HQIM. Each activity of the lesson denotes the models of co-teaching that best align with the structure of the activity as it is designed within the curriculum along with factors to consider for that activity.

- [Illustrative Math - Co-Teaching Overview \(Grade 7, Unit 6, Lesson 11\)](#)
- [iReady Co-Teaching Overview \(Grade 6, Unit 3, Lesson 12, Session 2\)](#)
- [Amplify Desmos - Co-Teaching Overview \(Grade 6, Unit 6, Lesson 2\)](#)

# Additional Information and Resources

[Understood.org](https://understood.org)

[Special Education Continuum Of Services](#)

[Special Education](#)

[Continuum of Special Education Services | New York State Education Department](#)

[OSE Educational Partnership](#)

[Advancing Mathematical Language and Access for Multilingual Learners | IL Classroom](#)

## References

Hehir, T., Grindal, T., Freeman, B., Lamoreau, R., Borquaye, Y., & Burke, S. (2016). A summary of the evidence on inclusive education. *Abt Associates*.

Magiera, K., Smith, C., Zigmond, N., & Gebauer, K. (2005). Benefits of Co-Teaching in Secondary Mathematics Classes. *TEACHING Exceptional Children*, 37(3), 20-24. <https://doi.org/10.1177/004005990503700303> (Original work published 2005)

Valle, J. W., & Connor, D. J. (2019). *Rethinking disability: A disability studies approach to inclusive practices*. Routledge.