



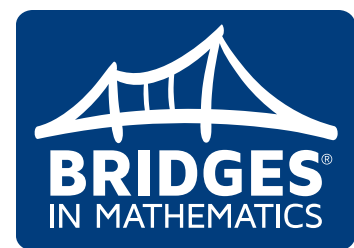
Differentiating Instruction in Your Classroom

In a differentiated classroom, the teacher tailors instruction and learning opportunities to ensure all students are challenged and fulfilled. Students' readiness, learning profiles, and interests shape:

- » Content (what is being taught)
- » Process (how it is being taught)
- » Product (how the content is being assessed)
- » Learning environment (how the classroom works and feels)

Bridges offers a variety of strategies to differentiate your instruction to meet the needs and interests of all learners in your classroom:

- » Using flexible student groupings
- » Identifying students' interests, strengths, and needs as the basis for planning
- » Providing multiple access points to each activity
- » Adopting a variety of questioning techniques
- » Employing language, models & symbolic notation to make meaning



Differentiation is an organized yet flexible way of proactively adjusting teaching and learning to meet students where they are and help them achieve maximum growth as learners.

» Tomlinson, 1999

Using flexible student groupings

Just as your students have different learning styles, intelligence strengths, preferred tools, and ways to express themselves, they also have preferences about social interaction. All of these preferences can powerfully affect learning. Many students enjoy games and collaborative investigations. Some relish whole-group debates and thrive on the lively exchange that emerges in classroom discussions. Others prefer solitary work and the more focused conversations they can have one-on-one with a classmate or an adult.

To accommodate the variety of interpersonal styles in a single classroom and to ensure instruction is appropriate for the topic at hand, the Bridges structure balances whole class, small group, partner, and independent activities.

The curriculum uses whole-group instruction to present information that everyone needs to know or to share strategies that will be valuable to all. Working together as the teacher guides the group allows students to contribute and evaluate diverse ideas in a validating environment. And when classmates share exceptional insights or problem-solving approaches, everyone benefits. Here's where your carefully planned questions can extend students' thinking and raise the bar on everyone's work. In this regard, whole-group work in math is analogous to readaloud time in language arts, when the teacher reads material slightly more difficult than what students are capable of reading independently.

The Bridges program also builds in plenty of small group and partner activities. These activities support more active engagement and interaction, ensuring that all students have the chance to discuss their thinking and challenge one another. Individual work is also important. It reveals concrete evidence of what each student understands, and it gives more introverted students the time and space to make their own discoveries and come to their own conclusions.

» Students' preferences can be idiosyncratic and fluid—you might find that your boisterous classroom socializer settles into a pattern of focused work given the right degree of challenge. Or that once a reticent student gains confidence with a particular activity or subject area, she joins in with great enthusiasm. When teachers understand how individuals learn, they can respond flexibly and appropriately.

Identifying students' interests, strengths, and needs as the basis for planning

For the observant teacher, Work Place time can inform instructional planning in more than one way. First, Work Places allow your students to make choices about their own learning—a natural, empowering route to differentiation. Given the option, students self-select appropriately across a variety of factors including classroom expectations, their own interests, and their strengths and weaknesses.

As you join individuals and small groups of students in Work Places, you'll be available to offer on-the-spot support and challenge. You'll gain insight into your students' preferences, learning styles, strengths, and areas of need. These interactions—ongoing, diagnostic, and dynamic—exemplify good classroom-based assessment. Draw upon these experiences as a rich source of information to plan classroom activities and individual learning goals. Understanding what your students know and how they learn is the foundation of effective differentiation.

Providing multiple access points to each activity

Bridges challenges students of varying abilities by providing multiple ways to access each activity. For example, a Work Place might use a probability game as the context for mastering

and practicing basic subtraction facts. One student might focus primarily on mastering his subtraction facts, while another student who has mastered her facts will get extra practice with those facts while also gaining valuable experiences with probability concepts.

You'll find Support and Challenge suggestions identified in Teachers Guides and in each Work Place Guide. Many of the guides also offer adaptations for ELL students. At times, Teachers Guides also offer engaging ideas for extending particular mathematical investigations beyond the session in which they are introduced—these can present great opportunities for capable and motivated students to draw connections and immerse more deeply in their work.

Unit 8 Module 2 | Session 3

Reassure students that it's fine to erase their prediction and write in the actual answer if the two don't match. This will make it a little easier for them to take the risk of making a prediction in the first place.

SUPPORT There are 8 cards in the second set of Change Cards. Keep them in order throughout this activity, starting with the card that shows the number 5 on the front, then the card that shows the number 6 on the front, and so on.

CHALLENGE Mix the cards so they're out of order. This will make it more difficult to predict the outcome each time a card is inserted, making generalizations about the rule for this set of cards a little more challenging.

10 Work with the students to generate the rule for this set of cards—Subtract 3. Then have them record the rule on their boards, next to the T-chart.


11 Have students erase their boards, draw a new T-chart, and repeat steps 8–10. This time, however, insert the back of each card into the top slot of the Change Box.

Students will discover that the new rule is Add 3.

CHALLENGE Press students to explain why the rule is Add 3 for this set of cards. In other words, if the rule is Subtract 3 when the cards are inserted with the white side and the arrow showing, why is it Add 3 when the cards are inserted the other way?

12 Close this part of the session by saying a few numbers and having students respond with the number for each that fits the rule $- 3$ and then a few that fit the rule $+ 3$.

Let students know that you will be adding the Change Box activity to Work Places next session.

 **Work Places**

13 Invite students to spend the rest of the session at Work Places.

- Hand out their Work Place folders and have them consider where they will begin today.
- Ask whether anyone needs help at a particular activity.

14 Close the session.

- Give students a moment to mark their Work Place Logs to indicate which games or activities they completed today.
- Have students put away the Work Place materials and hand in their Work Place folders.

Extensions

- Have students play a partner game in which one player thinks of a rule ($+ 5$, $- 2$, etc.), writes it on a piece of paper, and puts it in their pocket. The other player suggests various numbers, to which the first player applies the rule. They record the input and output numbers. After the guesser determines the rule, they switch roles.
- Consider making a life-size Change Box for your students to use during Work Places. Find a cardboard box large enough for a student to sit inside when it's inverted. Cut a slot near the top of one side, and a second slot near the bottom of the same side. There's no need to make a slide. Play as above with one student sitting inside the box and giving the output number either orally or on paper. (If this activity is very popular in your classroom, some of the students might enjoy decorating the outside of the life-size Change Box.)

Adopting a variety of questioning techniques

Asking students questions and inviting them to ask questions of their own can help you discover and address their individual strengths and needs. Bridges tiers many questions and problems according to level of challenge, generally progressing from well-rooted, shared understandings toward higher-level work. This allows all students to contribute to the discussion as learning is constructed.

Follow-up questions can be instrumental in helping students identify missteps, clarify their mental processes, make connections, and expand their understanding. When you ask meaningful questions, you help unlock your students' thinking: "What do you notice about ... ? How did you solve ... ? Why do you think ... ? What is your reason for ... ? Can you come up with a rule for ... ?" Look for specific examples of questions in sidebars in the Number Corner Teachers Guides and throughout sample dialog in Number Corner and

Bridges sessions. Encourage students to respond in a variety of ways—orally, in writing, sharing with peers, and demonstrating for the class. As they grow in confidence, your students will become comfortable expressing what they know through a range of approaches.

Employing language, models & symbolic notation to make meaning

In a Bridges classroom, students discover new ideas expressed in myriad ways: written and spoken language, visual models, and symbolic notation. They also use a wide variety of manipulatives, all offering stimulating visual and kinesthetic input to illustrate concepts and solve problems. They're encouraged to solve problems and demonstrate what they know and can do using any combination of pictures, words, and symbolic notation, including numbers and operational symbols. This variety of modes gives students many ways to make sense of new material. It also allows them to express their ideas in the ways that reflect their intelligence strengths. As their teacher, you support their growth by understanding them, meeting them where they are, and encouraging the wonderfully diverse paths that lead to progress.

REFERENCES

- » Dacey, Linda, and Jayne Bamford Lynch. *Math for All: Differentiating Instruction*. Sausalito, CA: Math Solutions Publications, 2007.
This research-based guide helps teachers understand how decisions to differentiate math instruction are made and how to use pre-assessment data to inform their instruction.
- » Sheffield, Linda Jensen. *Developing Mathematically Promising Students*. Reston, VA: National Council of Teachers of Mathematics, 1998.
The authors emphasize the importance of developing the strengths of mathematically promising students through effective learning environments and teaching strategies. Included are international approaches to supporting mathematically promising students.
- » Sullivan, Peter and Pat Lilburn. *Good Questions for Math Teaching: Why Ask Them and What to Ask, K-6*. Sausalito, CA: Math Solutions Publications, 2002.
A discussion of questions to provoke good thinking at a variety of ability levels across math topics.
- » Tomlinson, Carol Ann. *The Differentiated Classroom: Responding to the Needs of All Learners*. Alexandria, VA: Association for Supervision and Curriculum Development, 1999.
A widely praised work that draws from research on learning, education, and change for the theoretical basis of differentiated instruction. The author defines a differentiated classroom and the elements of differentiation and describes the learning environments, instructional techniques, and standards-based assessment approaches that promote learning. Her premise is that most effective teachers modify some of their instruction for students some of the time. This work challenges educators to use assessment data thoughtfully to modify the content, process, and products to best meet the learning profiles, readiness, and interests of all students.
- » Perrone, Vito. *A Letter to Teachers: Reflections on Schooling and the Art of Teaching*. San Francisco, CA: Jossey-Bass, 1991.
This reflection on the art of teaching will inspire you to use knowledge of the individuals in your classroom as the basis of differentiation.



If teachers don't believe firmly that all children can learn and all children have important interests, intentions, and strengths that need to be seen as starting points for ongoing learning, they are failing children, their families, and their communities. And when children are seen as failures or deemed not capable of full participation in the best that schools provide, their educational possibilities are stunted.

Vito Perrone, 1991
