how to help ell students in math

How to Help ELL Students in Math: Strategies for Success

how to help ell students in math is a question many educators and parents find themselves asking. English Language Learners (ELL) face unique challenges in mathematics classrooms, not because math concepts are inherently difficult, but often due to language barriers that hinder understanding instructions, word problems, and mathematical vocabulary. Supporting ELL students in math requires intentional strategies that bridge language learning with math instruction, making concepts accessible and engaging. Let’s explore effective ways to help ELL students thrive in math while building both their language and analytical skills.

Understanding the Unique Challenges ELL Students Face in Math

Before diving into specific strategies, it’s essential to recognize the hurdles ELL students encounter. Math might seem like a universal language, but the reality is that many math problems rely heavily on language comprehension. Complex word problems, instructions filled with academic vocabulary, and even classroom discussions can be obstacles.

ELL students may struggle with:

- Decoding math-related terminology in English
- Understanding multi-step word problems
- Expressing mathematical reasoning verbally or in writing
- Keeping pace with peers in fast-moving lessons
- Feeling confident enough to participate actively

Recognizing these challenges helps educators tailor their teaching approaches and create an inclusive math environment.

Effective Teaching Strategies for How to Help ELL Students in Math

1. Use Visuals and Manipulatives

Visual aids are incredibly powerful tools for making math concepts clear. Charts, graphs, diagrams, and physical manipulatives like blocks or counters allow students to “see” math in action, which reduces language dependency. For example, when teaching fractions, using pie charts or fraction bars helps ELL students grasp the concept without relying solely on English explanations.

Incorporating visuals supports comprehension and retention, giving students multiple ways to

process information.

2. Simplify Language Without Diluting Content

One common pitfall is oversimplifying math content for ELL students. Instead, focus on simplifying the language used to explain concepts. Break down instructions into smaller, manageable steps, and avoid idiomatic expressions or overly complex sentence structures. Use clear, concise language, and repeat key vocabulary frequently.

For instance, instead of saying, “Calculate the sum of the two numbers,” say, “Add the two numbers together.” This approach makes instructions less intimidating while maintaining academic rigor.

3. Build Math Vocabulary Explicitly

Language is a gateway to understanding math. ELL students benefit greatly from explicit instruction of math vocabulary. Introducing terms like “difference,” “product,” “quotient,” or “estimate” with definitions, examples, and repeated practice helps students internalize these concepts.

Creating word walls, flashcards, or vocabulary journals can reinforce learning. Encourage students to use new terms when explaining their reasoning, which boosts both language and math skills.

4. Incorporate Collaborative Learning

Group work and peer collaboration foster a supportive environment where ELL students can practice language and math simultaneously. Working with classmates provides opportunities to discuss problem-solving strategies, ask questions, and hear different perspectives.

Pairing ELL students with peers who are patient and empathetic can build confidence. Teachers can assign roles within groups to ensure participation, such as “explainer,” “recorder,” or “checker,” promoting active engagement.

5. Use Real-Life Contexts and Culturally Relevant Examples

Math becomes more meaningful when connected to students’ everyday experiences. Incorporating real-world scenarios like shopping, cooking, or planning a trip makes abstract concepts tangible. For ELL students, using culturally relevant examples can also validate their backgrounds and make learning more relatable.

For example, when teaching measurement, referencing ingredients in common dishes from students’ cultures can spark interest and comprehension.

Leveraging Technology and Resources to Support ELL Learners

Technology offers many tools designed to assist ELL students in navigating math challenges.

1. Interactive Math Software and Apps

Programs tailored for ELL students often combine visual, auditory, and interactive components to reinforce math concepts. Apps like DreamBox, Khan Academy (with subtitles and multiple language options), or GeoGebra provide adaptable learning experiences where students can progress at their own pace.

These resources often include immediate feedback, which helps students correct misconceptions and build confidence.

2. Bilingual Dictionaries and Translation Tools

While the goal is to strengthen English proficiency, bilingual dictionaries or translation apps can serve as scaffolds. They enable students to check unfamiliar terms, ensuring comprehension without constant frustration.

Teachers can encourage thoughtful use of these tools during homework or independent practice to promote autonomy.

Assessment and Feedback: Tailoring to ELL Needs

How teachers assess ELL students in math plays a crucial role in their learning journey. Traditional timed tests or assessments heavily reliant on written English may not accurately reflect math understanding.

Consider alternative assessment methods such as:

- Oral explanations of problem-solving steps
- Visual representations or drawings illustrating concepts
- Projects or presentations that incorporate math reasoning
- Use of sentence frames to aid structured written responses

Providing constructive, specific feedback that highlights growth and areas for improvement motivates ELL students and guides their learning paths.

Creating an Inclusive Classroom Atmosphere

Beyond instructional methods, the classroom environment sets the tone for ELL students' success. Encouraging a culture of patience, respect, and curiosity helps students feel safe to take risks and make mistakes.

Teachers can celebrate linguistic diversity by allowing students to share math concepts in their native language or through storytelling. This inclusion not only supports language development but enriches the entire class's understanding.

Helping ELL students excel in math is an ongoing process that blends language support with strong math pedagogy. By employing visual tools, simplifying language, building vocabulary, fostering collaboration, and leveraging technology, educators can create meaningful learning experiences tailored to ELL learners' unique needs. The ultimate goal is to empower these students to approach math with confidence and curiosity, unlocking their full potential both linguistically and mathematically.

Frequently Asked Questions

What are effective strategies to support ELL students in learning math?

Effective strategies include using visual aids, incorporating hands-on activities, simplifying language without diluting content, and connecting math concepts to real-life situations to enhance comprehension.

How can teachers modify math instruction for ELL students?

Teachers can modify instruction by providing clear, step-by-step explanations, using bilingual resources when possible, allowing extra time for processing, and encouraging peer collaboration.

Why is vocabulary instruction important for ELL students in math?

Math vocabulary is critical because many ELL students struggle with language-specific terms that are essential for understanding instructions and problem-solving, so explicit teaching of math terms improves comprehension.

What role do visuals play in helping ELL students understand math concepts?

Visuals like charts, graphs, drawings, and manipulatives help ELL students grasp abstract math concepts by providing concrete representations, making it easier to understand and retain

information.

How can technology assist ELL students in math learning?

Technology tools such as interactive math games, apps with multilingual support, and online tutorials can provide personalized practice and reinforce math concepts in an engaging way for ELL students.

How can collaboration among peers benefit ELL students in math?

Collaborative learning allows ELL students to practice language skills, clarify math concepts through discussion, and learn from peers' explanations in a supportive environment.

What are some ways to assess math understanding for ELL students fairly?

Using formative assessments with visual supports, allowing oral responses, providing extra time, and assessing conceptual understanding rather than just language proficiency can ensure fair evaluation.

How can parents support ELL students' math learning at home?

Parents can support by engaging in math-related activities, using everyday situations to practice math, encouraging use of both their home language and English, and communicating regularly with teachers.

What is the importance of scaffolding in teaching math to ELL students?

Scaffolding provides structured support by breaking down complex tasks into manageable steps, gradually removing assistance as students gain independence and confidence in math.

How can cultural relevance enhance math instruction for ELL students?

Incorporating culturally relevant examples and contexts makes math more relatable and engaging for ELL students, helping them connect new concepts to their own experiences.

Additional Resources

How to Help ELL Students in Math: Strategies for Effective Learning

how to help ell students in math is a question that educators, administrators, and policymakers increasingly encounter as classrooms become more linguistically diverse. English Language

Learners (ELLs) often face unique challenges in mastering mathematical concepts, not only due to the language barrier but also because of cultural differences and varied educational backgrounds. Math, traditionally viewed as a universal language, paradoxically demands specific linguistic and cognitive skills that can hinder ELL students if not properly addressed. Understanding how to support these learners effectively requires a nuanced approach that incorporates language development alongside mathematical instruction.

The Intersection of Language and Mathematics Learning

Mathematics might seem language-neutral, but it relies heavily on vocabulary, word problems, and symbolic language that can be challenging for ELL students. Research shows that ELLs often lag behind their native English-speaking peers in math achievement, partly due to difficulties in comprehending instructions and expressing mathematical reasoning in English. According to a 2019 report by the National Center for Education Statistics, ELL students scored approximately 30 points lower on average in math assessments than non-ELL students in the United States.

Language proficiency is closely tied to content comprehension, especially in subjects like math where understanding problem statements and mathematical discourse is critical. Therefore, teaching math to ELLs involves more than just simplifying numbers; it requires integrating language acquisition strategies within math instruction.

Challenges Faced by ELL Students in Mathematics

Several factors contribute to the struggles ELL students encounter:

- **Vocabulary Complexity:** Math contains specialized vocabulary such as “denominator,” “quotient,” or “angle,” which may be unfamiliar to learners still acquiring basic English.
- **Word Problems:** These require reading comprehension skills that combine language and math, making it difficult for ELLs to decode and solve problems effectively.
- **Cultural Differences:** Variations in prior educational experiences and cultural approaches to learning can affect engagement and understanding.
- **Limited Academic Language Proficiency:** ELLs might know everyday English but struggle with academic language necessary for math instruction.

Recognizing these challenges is the first step toward implementing targeted strategies to help ELL students thrive in math classrooms.

Effective Strategies for Supporting ELL Students in Math

Supporting ELL learners requires deliberate instructional design that addresses both content and language development. Here are several research-backed approaches:

1. Integrate Language Objectives with Math Standards

One of the most effective ways to help ELL students in math is by explicitly incorporating language goals into math lessons. For example, lessons should not only focus on solving equations but also on using correct mathematical terminology and constructing explanations. This dual focus helps students build the academic language skills necessary for success.

Teachers can create lesson plans that highlight key vocabulary, sentence structures, and discourse patterns alongside mathematical concepts. Using sentence frames like “The sum of __ and __ is __” or “To solve this equation, first __” helps students practice both math and language simultaneously.

2. Use Visuals and Manipulatives

Visual supports are invaluable for ELL learners. Graphs, charts, diagrams, and physical manipulatives like blocks or fraction tiles make abstract concepts tangible and reduce reliance on language alone. Visual aids serve as universal tools that bridge language gaps and facilitate comprehension.

For instance, when teaching fractions, using pie charts or fraction bars allows students to see the part-whole relationship despite limited English proficiency. Additionally, incorporating gestures and demonstrations during explanations reinforces understanding.

3. Scaffold Instruction

Scaffolding entails breaking down complex tasks into manageable steps and providing support at each phase. This approach is especially crucial for ELL students who may be overwhelmed by multi-step math problems or unfamiliar terminology.

Teachers can scaffold by:

- Pre-teaching vocabulary and concepts
- Modeling problem-solving processes aloud
- Providing guided practice with feedback
- Gradually releasing responsibility to students

Such scaffolds reduce cognitive load and build confidence, enabling ELL learners to engage more deeply with math content.

4. Encourage Collaborative Learning

Peer interaction offers ELL students opportunities to practice language and math skills in authentic contexts. Group work and partner activities can foster discussion, explanation, and negotiation of mathematical ideas, which reinforce both comprehension and language use.

Research indicates that cooperative learning environments benefit ELLs by providing models of academic language and reducing anxiety. Teachers should structure groups thoughtfully, pairing ELLs with supportive peers and assigning clear tasks that require communication.

5. Differentiate Instruction Based on Language Proficiency

ELL students are not a homogenous group; their English proficiency levels vary widely. Differentiating instruction ensures that tasks are accessible and challenging according to individual needs.

For beginners, teachers might simplify language, use more visuals, and focus on foundational concepts. For more advanced ELLs, instruction can involve higher-order thinking and more complex language tasks.

Technology tools, such as math software with language support features, can assist in tailoring learning experiences.

Role of Educators and Schools in Enhancing Math Learning for ELLs

The responsibility of helping ELL students in math extends beyond classroom teachers. School-wide policies and teacher training play critical roles in creating supportive learning environments.

Professional Development for Teachers

Many math teachers lack specialized training in ELL instruction. Providing professional development focused on strategies for integrating language and content instruction equips educators with the skills to meet diverse learners' needs. Topics might include cultural competence, language acquisition theories, and practical classroom techniques.

Family and Community Engagement

Involving families and communities in students' learning can reinforce math skills outside school. Workshops, bilingual resources, and communication channels help families support their children, especially when parents may also face language barriers.

Assessment Practices

Traditional math assessments often disadvantage ELL students due to language-heavy questions. Implementing alternative assessment methods, such as performance tasks, portfolios, or oral explanations, can provide a more accurate picture of students' mathematical understanding.

Balancing Language Development with Mathematical Rigor

An ongoing challenge is maintaining high academic standards while accommodating language needs. Simplifying language should never mean diluting content. Instead, the goal is to make math accessible without lowering expectations.

This balance requires thoughtful curriculum design and a commitment to equity. By fostering both language proficiency and mathematical reasoning, educators can help ELLs develop skills crucial for academic and career success.

Supporting ELL students in math is a complex but essential endeavor that demands collaboration, creativity, and evidence-based practices. As classrooms continue to diversify, refining these approaches will remain a priority in education systems worldwide.

How To Help Ell Students In Math

how to help ell students in math: *Teaching Mathematics to English Language Learners* Gladis Kersaint, Denisse R. Thompson, Mariana Petkova, 2014-06-05 Today's mathematics classrooms increasingly include students for whom English is a second language. Teaching Mathematics to English Language Learners provides readers a comprehensive understanding of both the challenges that face English language learners (ELLs) and ways in which educators might address them in the secondary mathematics classroom. Framed by a research perspective, Teaching Mathematics to English Language Learners presents practical instructional strategies for engaging

learners that can be incorporated as a regular part of instruction. The authors offer context-specific strategies for everything from facilitating classroom discussions with all students, to reading and interpreting math textbooks, to tackling word problems. A fully annotated list of math web and print resources completes the volume, making this a valuable reference to help mathematics teachers meet the challenges of including all learners in effective instruction. Features and updates to this new edition include: An updated and streamlined Part 1 provides an essential overview of ELL theory in a mathematics specific context. Additional practical examples of mathematics problems and exercises make turning theory into practice easy when teaching ELLs New pedagogical elements in Part 3 include tips on harnessing new technologies, discussion questions and reflection points. New coverage of the Common Core State Standards, as well as updates to the web and print resources in Part 4.

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how to help ell students in math: Teaching Mathematics to English Language Learners Luciana C. de Oliveira, Marta Civil, 2020-10-09 This edited book is about preparing pre-service and in-service teachers to teach secondary-level mathematics to English Language Learners (ELLs) in twenty-first century classrooms. Chapter topics are grounded in both research and practice, addressing a range of timely topics including the current state of ELL education in the secondary mathematics classroom, approaches to leveraging the talents and strengths of bilingual students in heterogeneous classrooms, best practices in teaching mathematics to multilingual students, and ways to infuse the secondary mathematics teacher preparation curriculum with ELL pedagogy. This book will appeal to all teachers of ELLs, teacher educators and researchers of language acquisition more broadly. This volume is part of a set of four edited books focused on teaching the key content areas to English language learners. The other books in the set focus on teaching History and Social Studies, English Language Arts, and Science to ELLs.

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classroom instruction for teachers of mathematics. The tips and suggestions are based on research in practices and strategies that address the affective, linguistic, and cognitive needs of English language learners. Although this resource centers on teaching English language learners, many of the tips and suggestions benefit all students. Making Math Accessible for English Language Learners follows five case studies of composite student profiles throughout the book with opportunities for reflection to increase personal awareness of both the teacher's role and students' needs in the mathematics classroom, tasks to provide interaction with the content of the book, and hot tips for ideas applicable to real-world classroom situations.

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how to help ell students in math: Teaching Learners Who Struggle with Mathematics Helene J. Sherman, Lloyd I. Richardson, George J. Yard, 2019-03-07 Highly regarded by instructors in past editions for its sequencing of topics and extensive set of exercises, the latest edition of Abstract Algebra retains its concrete approach with its gentle introduction to basic background material and its gradual increase in the level of sophistication as the student progresses through the book. Abstract concepts are introduced only after a careful study of important examples. Beachy and Blair's clear narrative presentation responds to the needs of inexperienced students who stumble over proof writing, who understand definitions and theorems but cannot do the problems, and who want more examples that tie into their previous experience. The authors introduce chapters by indicating why the material is important and, at the same time, relating the new material to things from the student's background and linking the subject matter of the chapter to the broader picture. Building proficiency in learning mathematics by tailoring instruction to students' specific misconceptions and learning needs is the backbone of this indispensable text, written for K–8 pre- and inservice teachers, as well tutors. An important theme is that long-term retention is based on a strong conceptual foundation of numeracy and on a well-designed learning environment. Each chapter deals with a different mathematics topic, including whole numbers, fractions, decimals, as well as time and money. Chapters also include examples of error patterns and specific, well-defined strategies and activities for diagnosis, prescription, and remediation. New to this edition is a chapter devoted to English language learners. The complexities of language barriers are delineated along with reasons that students struggle with learning English and mathematics at the same time. An audio file of common mathematics terms translated from English into most-often spoken languages by ELLs can be accessed at www.youareamathperson.com. Outstanding features: • Response to Intervention (RTI) model underpins discussions of differentiating instruction. • Mathematics content reflects components of the Common Core State Standards Initiative for Mathematics and the National Council of Teachers of Mathematics' Principles and Standards for School Mathematics. •

Case studies and student examples promote a sound understanding of learners' varied cognitive, behavioral, and physical needs. • Discussion questions challenge readers to think more deeply about the application and utility of concepts related to the error patterns. • Step-by-step directions for interactive instructional classroom games and activities are provided to extend and enrich teaching and learning.

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how to help ell students in math: The Routledge Handbook of Language Testing Glenn Fulcher, Luke Harding, 2021-12-15 This second edition of The Routledge Handbook of Language Testing provides an updated and comprehensive account of the area of language testing and assessment. The volume brings together 35 authoritative articles, divided into ten sections, written by 51 leading specialists from around the world. There are five entirely new chapters covering the four skills: reading, writing, listening, and speaking, as well as a new entry on corpus linguistics and language testing. The remaining 30 chapters have been revised, often extensively, or entirely rewritten with new authorship teams at the helm, reflecting new generations of expertise in the field. With a dedicated section on technology in language testing, reflecting current trends in the field, the Handbook also includes an extended epilogue written by Harding and Fulcher, contemplating what has changed between the first and second editions and charting a trajectory for the field of language testing and assessment. Providing a basis for discussion, project work, and the design of both language tests themselves and related validation research, this Handbook represents an invaluable resource for students, researchers, and practitioners working in language testing and assessment and the wider field of language education.

how to help ell students in math: *The ELL Teacher's Toolbox 2.0* Larry Ferlazzo, Katie Hull Sypnieski, 2025-01-24 Set your English language learners up for success with this effective resource The ELL Teacher's Toolbox 2.0 is a valuable, updated resource that teachers of English Language Learners (ELLs) can use to improve student outcomes. With hundreds of innovative strategies and activities to bring to your classroom, this book can be used with learners of all levels and in any instructional setting. This revised edition provides the latest enhancements to the instructional tools—along with 16 new chapters that you can add to your teaching repertoire. New content includes coverage of artificial intelligence, online learning environments, and differentiated instruction. Graphics and visuals make it easy to understand and adapt the content to your unique teaching situation. Written by proven authors in the field, the book is divided into two main sections: Reading/Writing and Speaking/Listening. Each of those sections includes "Top Ten" favorites and between 40 and 70 strategies that can be used as part of multiple lessons and across content areas. Contains 60% new strategies Features ready-to-use lesson plans Includes reproducible handouts Offers technology integration ideas For the growing number of ELLs in public schools, effective ELL instruction can mean the difference between long-term academic success and continued struggling. In this book, you'll find countless practical ideas to add to your teaching arsenal—or for training and coaching ELL teachers—so you can support your students on their journey.

how to help ell students in math: Multicultural Curriculum Transformation in Science, Technology, Engineering, and Mathematics Christine Clark, Amanda VandeHei-Carter, Kenneth J. Fasching-Varner, Zaid M. Haddad, 2018-07-27 This volume focuses on multicultural curriculum transformation in Science, Technology, Engineering, and Mathematics or STEM subject areas

broadly, while also focusing on sub-content areas (e.g., earth science, digital technologies) in greater detail. The discussion of each sub-content area outlines critical considerations for multicultural curriculum transformation for the sub-content areas by grade level (early childhood and elementary school education, middle and/or junior high school education, and high school education) and then by organizing tool parameters: standards (both in a generalized fashion, and specific to Common Core State Standards, among other standards), educational context, relationships with and among students and their families, civic engagement, considerations pertaining to educational "ability" broadly considered (for example, for gifted and talented education, bilingual gifted and talented education, "regular" education, bilingual "regular" education, special education, bilingual special education), as well as relative to specific content and corresponding pedagogical considerations, including evaluation of student learning and teaching effectiveness. In this way, the volume provides a conceptual framework andconcrete examples for how to go about multiculturally-transforming curriculum in STEM curricula. The volume is designed to speak with PK-12 teachers as colleagues in the multicultural curriculum transformation work at focus in each subject area and at varied grade levels. Readers are exposed to "things to think about," but also given curricular examples to work with or from in going about the actual, concrete work of curriculum change. It bridges the gaps between preparing PK-12 teachers to be able to 1) independently multiculturally adapt existing curriculum, and, 2) create new multicultural curriculum differentiated for their content areas and grade levels, while also, 3) providing ample examples of what such adapted and new differentiated curricula looks like. In so doing, this volume also bridges the gaps between the theory and practice of multicultural curriculum transformation in higher and PK-12 educational contexts.

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how to help ell students in math: Second Handbook of Research on Mathematics Teaching and Learning Frank K. Lester, 2007-02-01 The audience remains much the same as for the 1992 Handbook, namely, mathematics education researchers and other scholars conducting work in mathematics education. This group includes college and university faculty, graduate students, investigators in research and development centers, and staff members at federal, state, and local agencies that conduct and use research within the discipline of mathematics. The intent of the authors of this volume is to provide useful perspectives as well as pertinent information for conducting investigations that are informed by previous work. The Handbook should also be a useful textbook for graduate research seminars. In addition to the audience mentioned above, the present Handbook contains chapters that should be relevant to four other groups: teacher educators, curriculum developers, state and national policy makers, and test developers and others involved with assessment. Taken as a whole, the chapters reflects the mathematics education research community's willingness to accept the challenge of helping the public understand what mathematics education research is all about and what the relevance of their research fi ndings might be for those outside their immediate community.

how to help ell students in math: *Teaching the Content Areas to English Language Learners in Secondary Schools* Luciana C. de Oliveira, Kathryn M. Obenchain, Rachael H. Kenney, Alandeom W. Oliveira, 2019-01-17 This practitioner-based book provides different approaches for reaching an increasing population in today’s schools - English language learners (ELLs). The recent development and adoption of the Common Core State Standards for English Language Arts and Literacy in History/Social Studies, Science, and Technical Subjects (CCSS-ELA/Literacy), the Common Core State Standards for Mathematics, the C3 Framework, and the Next Generation Science Standards (NGSS) highlight the role that teachers have in developing discipline-specific competencies. This requires new and innovative approaches for teaching the content areas to all students. The book begins with an introduction that contextualizes the chapters in which the editors highlight transdisciplinary theories and approaches that cut across content areas. In addition, the editors include a table that provides a matrix of how strategies and theories map across the chapters. The four sections of the book represent the following contentareas: English language arts, mathematics, science, and social studies. This book offers practical guidance that is grounded in relevant theory and research and offers teachers suggestions on how to use the approaches described.

how to help ell students in math: Teaching and Learning High School Mathematics Charlene E. Beckmann, Denisse R. Thompson, Rheta N. Rubenstein, 2009-11-02 Too many high school students, faced with mathematics in courses at the level of algebra and beyond, find themselves struggling with abstract concepts and unwilling to pursue further study of mathematics. When students curtail their course taking in mathematics, they may be impacting their college and career options. Thus, high school mathematics teachers have the responsibility to help students recognize the value and importance of mathematics while also designing instruction that makes mathematics accessible to all students. Ball and Bass (2000), as well as other mathematics educators, have recognized that mathematics teachers not only need to know mathematics content and mathematics pedagogy (i.e., teaching strategies) but they also need to know how these ideas are integrated. This mathematical knowledge for teaching is the knowledge that teachers of mathematics need and it differs from the knowledge that research or applied mathematicians must know. This text is designed to provide teachers with insights into this mathematical knowledge for teaching. Teaching and Learning High School Mathematics is likely different from many other texts that you have used. It integrates both content and pedagogy to help you develop and build your own understanding of teaching. The text is designed to help you develop “deep conceptual understanding of fundamental mathematics” (Ma 1999) so that you are able to approach mathematics from multiple perspectives with many tools. Such flexibility in teaching is essential if teachers are to help all students become mathematically proficient. Throughout this book, you are encouraged to work in cooperative teams. This strategy is designed to help you develop a mathematics learning community and build a professional network that will be a valuable resource during your professional career.

Hopefully, you will experience the benefits of engaging in rich mathematical discussions with peers and consider how to encourage such learning environments in your own classrooms. Lesson planning is another element pervasive throughout this text. To help teachers plan for effective student-centered lessons, the Question Response Support (QRS) Guide is introduced in Lesson 1.1 and used throughout the remainder of the lessons. The QRS Guide is a tool on which teachers may record tasks or questions (Q) for students, expected and observed student responses (R), and teacher support (S) in the form of additional "just enough" questions to support students in their progress on the task. In each unit, teachers expand their repertoire of teaching and learning elements and strategies and incorporate these elements as they plan additional lesson segments. In Unit 4 lesson planning is formally introduced as teachers put together elements from previous units into complete, cohesive lesson plans.

how to help ell students in math: Teaching and Learning Secondary School Mathematics Ann Kajander, Jennifer Holm, Egan J Chernoff, 2018-10-24 This volume brings together recent research and commentary in secondary school mathematics from a breadth of contemporary Canadian and International researchers and educators. It is both representative of mathematics education generally, as well as unique to the particular geography and culture of Canada. The chapters address topics of broad applicability such as technology in learning mathematics, recent interest in social justice contexts in the learning of mathematics, as well as Indigenous education. The voices of classroom practitioners, the group ultimately responsible for implementing this new vision of mathematics teaching and learning, are not forgotten. Each section includes a chapter written by a classroom teacher, making this volume unique in its approach. We have much to learn from one another, and this volume takes the stance that the development of a united vision, supported by both research and professional dialog, provides the first step.

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