

During a Beginning Adult Basic Education (ABE) Math class, you should observe the teacher integrating the corresponding level CCR Standards and students engaging in a variety of the following standards and practices:

Number Sense (whole numbers, *NBT) (benchmark fractions, *NF)	Operation Sense (whole numbers, *OA)
Developing an understanding of whole number relationships, three-digit place value, and strategies for addition and subtraction.	Beginning to develop the concept of an equation, a variable, and the meaning of the equal sign in the context of addition and subtraction.
Understanding and exploring strategies for multiplication and division, within 100, including area models.	Understanding properties of multiplication and the relationship between multiplication and division.
Understanding the size of a fraction and comparing fractions using visuals and number lines with benchmark fractions (halves, quarters, eighths, and thirds).	Note: <i>no operations with fractions at this level.</i>
Concrete and Visual Representations (as tools for teaching number and operation sense *G and *MD)	
Developing an understanding of linear measurement (length) and using standard units of measure.	Finding an unknown side length.
Recognizing perimeter as an attribute of plane figures and distinguishing between linear and area measures.	Relating addition and subtraction to length; relating multiplication (2-digit and 3-digit) and division to area and place value.

*NBT = Number and Operations: Base 10; NF = Number and Operations: Fractions; OA = Operations and Algebraic Thinking; G = Geometry; MD = Measurement and Data

You should also observe all students engaging in **mathematical practices**, such as:

- Participating and persevering in solving problems that require deep thinking (DOK), have multiple ways they can be solved or multiple correct solutions, and/or are real-world (messy, require research and decision-making).
- Using mathematical language to talk about each other's thinking and revise their own thinking based on new information.

Practices

The examples below feature several Indicators from the [ABE Professional Standards](#). These Indicators are just a sampling from the full set of the ABE Professional Standards and were chosen because they create a sequence: the teacher plans a lesson that sets clear and high expectations, the teacher then delivers high quality instruction, and finally the teacher uses a variety of assessments to see if students understand the material or if re-teaching is necessary. These examples highlight teacher and student behaviors aligned to the three Indicators that you can expect to see in a rigorous beginning ABE Math class. [Click this link](#) to see how these standards look in action before visiting a class.

PLANNING (Indicators P1.1, P1.2, C1.1)	The teacher plans and implements CCRSAE-aligned, academically rigorous, differentiated lessons that include clear content and language objectives, set high expectations for all learners, cultivate a safe classroom environment, encourage productive struggle, and motivate all students to succeed.
Virtual/Hands-On Tools: a problem/routine to engage students with upon arrival; thinking tools (square inch tiles) and materials (graph paper or strips of colored paper) accessible to students; options for students to process new information (e.g., drawings, visual models).	
What is the teacher doing?	What are adult learners doing?
• Providing opportunities to look for generalizations among mathematical representations • Creating or selecting culturally responsive lessons that engage and sustain student attention • Establishing classroom routines that support students to communicate their thinking • Helping students view mistakes as legitimate steps in the learning process and embracing mistakes so everyone sees mistakes as a learning opportunity	• Noticing patterns in the number system and in geometric concepts, as well as how they relate • Persistently applying mathematical strategies and concepts when engaging with meaningful real-world problems • Explaining their thinking using everyday and mathematical language to express their ideas • Working diligently and offering solutions without fear of ridicule. Acknowledging that mistakes grow the brain
INSTRUCTION (Indicators P1.3, P1.4)	The teacher delivers high quality, culturally responsive instruction that meets the diverse needs of all students and engages them with meaningful topics and tasks that develop students' critical thinking and problem-solving skills.
Virtual/ Hands-On Tools: number lines, 1" square tiles, grid paper, sticky notes, area models, bar models, pattern blocks, base 10 blocks.	
What is the teacher doing?	What are adult learners doing?
• Selecting meaningful problems that provide students with opportunities to apply their learning and solve problems in collaboration with their peers • Highlighting commonalities, differences, and patterns in students' ideas • Providing the time needed to work on, discuss, and solve complex problems. Guiding students who are stuck by posing purposeful questions rather than showing how to proceed or taking away the challenge of the task	• Working cooperatively on a shared activity—developing an understanding of why something works or applying knowledge and skills to solve problems • Explaining how multiple representations of numbers, operations, and shapes relate to one another • Collaborating with peers on a complex problem provided by teacher and when stuck uses the guiding questions and peers to move forward
ASSESSMENT (Indicators P2.1, P2.2, P2.3)	The teacher uses a variety of formative and summative assessments to measure student learning and understanding, evaluate the effectiveness of instruction, develop differentiated and advanced learning experiences, and inform future instruction.
Virtual/ Hands-On Tools: exit tickets, math journals or logs, My Favorite No, checklists for teacher observation of objectives being demonstrated or evidence of learning.	
What is the teacher doing?	What are adult learners doing?
• Prompting students' reasoning; listening to responses to gauge their understanding • Conducting frequent checks for understanding and adjusting instruction accordingly	• Demonstrating their thinking by drawing, using manipulatives, discussing and sharing their work • Revising their thinking based on their engagement with peers, the teacher, or the math