

Effective Numeracy Instruction for Out-of-School Youth

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Individuals age 16 and older with low numeracy skills

- Are less likely to be in the labor force
- Are less likely to be employed full time
- Are less likely to work in professional and related occupations, and management, business, and financial occupations
- Earn lower wages or salaries
- Are less likely to receive job training
- Are less likely to complete a postsecondary certificate or degree
- Are more likely to receive public assistance
- Receive public assistance for a longer period

What is Numeracy?

Numeracy is the use of math to perform tasks such as

- Identifying the math information and relationships needed to solve a problem
- Performing the necessary math operations to solve the problem
- Reviewing and interpreting results, including reflecting on the math used
- Communicating results using appropriate language, symbols, and notation such as
 - **Language:** *I multiplied the height of the wall by the length to get the area so I'd know how much paint to buy.*
 - **Symbols:** *So, $8 \times 8 = 64$ square feet.*
 - **Notation:** *Or, since both the height and the length are 8 feet, I can say $8^2 = 64$ square feet.*

Numeracy skills are used in real-world contexts.

- **Everyday life:** Personal and consumer finance, cooking, family and personal health care, time, travel, home care and repair, and personal interests and hobbies
- **The workplace:** Money handling, inventory, measuring, mixing, calibrating instruments, automation, computers, and adapting to new equipment and work requirements
- **Community and citizenship:** Understanding graphs, polls, charts, statistics, and numerical information used to describe issues of general concern to society
- **Education:** Math skills needed to pursue further learning or to understand other subjects

Principles for Effective Numeracy Instruction

In kindergarten-12th grade (K-12) classrooms, math is often taught from a textbook or workbook and relies on lots of lecture and repetitive practice emphasizing calculations and procedures. Formal rules, which are often quite abstract, may be learned by rote with little explanation or exploration of real world uses for the math knowledge being studied.

By definition, however, Workforce Investment Act (WIA) out-of-school youth are not enrolled in secondary education, so they are not receiving math instruction in high school classes. In addition, out-of-school youth often consider themselves adults and have adult responsibilities for work and family. They are more likely to benefit from instruction designed for adults, rather than instruction designed for students in K-12 classrooms.

In effective numeracy instruction for adults, learning is regarded as an active and social process in which learners develop an understanding of math they can apply to new tasks and situations. That approach to learning is based on these principles.

- Learners' existing math knowledge and practices are respected.
- The most important outcome is successful learning.
- Math is enjoyable.
- Understanding is more than rote memorization; when learners understand math, they select and use math procedures and calculations competently to solve problems and perform tasks in real life.
- The instructor is a learning coach as well as a source of knowledge.

Practices for Effective Numeracy Instruction

Those principles are reflected in effective instructional practices like

- Drawing on learners' experiences, backgrounds, interests, and needs
- Using familiar, relevant language when expressing math concepts
- Placing math in contexts that learners know and understand
- Encouraging learners to work together to solve problems and learn from each other
- Using practical, hands-on materials
- Using real problems from daily adult life as examples
- Addressing math anxiety
- Providing computerized, individualized instruction accompanied by teacher assistance

Other Features of Effective Numeracy Instruction

Effective numeracy instruction typically has other features that meet the needs of WIA out-of-school youth.

- Strict rules and expectations for behavior
- Enforcement of rules and expectations
- Small classes
- Links with community colleges to facilitate transitions to higher education
- Partnerships with employers to provide exposure to the needs and expectations of business
- Full-time teachers who are given opportunities for regular professional development
- On-site personal and career counseling
- Concurrent occupational skill training
- Health care services on site and referrals when necessary
- Pre-employment training, especially using computers
- Use of assessment to place youth in classes at an appropriate level

In addition, many adult numeracy programs specifically address the needs of WIA out-of-school youth in a variety of ways.

- Adult learners can act as mentors for out-of-school youth to help youth stay focused and motivated.
- Adult learners can act as peer tutors for youth.
- If youth and adult learners have different learning needs, separate classes can be provided for out-of-school youth.
- On-site case managers address absenteeism and coordinate services to youth.
- Teachers have experience in working with youth with specific barriers, such as youth offenders or youth with learning disabilities.

Who Provides Numeracy Instruction?

Numeracy instruction might be provided as tutoring or in basic skills improvement or General Educational Development (GED) classes by

- WIA youth services providers
- Adult Basic Education (ABE) and Adult Basic and Literacy Education (ABLE) partner programs
- Community partners

In addition, community colleges provide remedial or developmental math classes for their students who are basic skills deficient.

Local WIA youth programs are designed to help youth make a successful transition to further education and employment in occupations that lead to self-sufficiency. To make that transition, youth need math skills. Local programs work conscientiously to help youth gain the math skills they need.

Under Common Measures, local areas are accountable for the Literacy and Numeracy Gains of out-of-school youth who are basic skills deficient. Out-of-school youth include all youth participants except youth enrolled in secondary school and youth enrolled in postsecondary education who are *not* basic skills deficient (TEGL 17-05).

A youth is basic skills deficient if he or she has English reading, writing, or computing skills at or below grade level 8.9 on a generally accepted standardized test or a comparable score on a criterion referenced test (WIA §101(4); Workforce411, *Workforce Development Glossary*).

What Should WIA Youth Programs Do?

Local youth councils or administrative entities should

- Issue requests for proposals and contracts that require service providers to demonstrate principles, practices, and other features of effective numeracy instruction
- Monitor performance of service providers under current contracts to ensure appropriate outcomes from numeracy instruction
- Facilitate communication and coordination among case managers, WIA service providers, partners, and community partners to ensure effective numeracy instruction

Case managers should

- Play a lead role in communication and coordination of numeracy instruction with other WIA youth services, partner programs, and community partner programs
- Reinforce the relevance of math skills to youth receiving numeracy instruction by providing
 - o Career awareness
 - o Career exploration
 - o Career counseling
 - o Mentoring
- Prepare youth for basic skills improvement or GED classes with tutoring if necessary
- Plan and provide supportive services as necessary to enable youth to participate in numeracy instruction
- Monitor the attendance and progress of youth of youth participants receiving numeracy instruction to identify problems as they occur
- Help youth solve problems they are experiencing

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