HOW TO DELIVER EFFECTIVE INSTRUCTION THROUGH TECHNOLOGY INTEGRATION

Presenter: Michael Matos
Director of Adult Education Programs and Data
Albany Park Community Center
2017 Forum for Excellence Conference
Wednesday, September 20, 2017 — 8:30 AM – 9:30 AM
Agenda

- Digital Literacy Standards
- Integrating Technology in WIOA
- Literacy + Technology Learning Community
- Digital Literacy Software and Websites
- Interactive Lesson Examples
- Subject websites
- Professional Development
Basic Computer Digital Literacy Standards

"Develop a commonly accepted set of digital literacy standards that will facilitate empowerment of adults needing technology skills for daily living, employment preparation, and/or transition to higher education."
Why teach Digital Literacy and Distance Learning?

Technology pervades the workplace, post-secondary institutions, and all aspects of daily life. To be literate in this changing world requires digital literacy skills. CCLC has prioritized enhancing, expanding, and increasing distance learning and digital literacy in response to changing needs.
Why is Digital Literacy important?

Knowing how to use computers is important in everyday life. Whether applying for jobs online, reading the news, banking and paying bills, searching for information, or communicating with others, digital literacy is increasingly part of basic literacy.

- Evolving definition of literacy includes digital literacy banking, paying bills, communicating with schools, friends, social networking, etc.
Why is Digital Literacy important?

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Adult Basic Education: In transition

- As the economy and society changes, ABE evolves:
  - Emphasis on preparing for transition to employment or higher education
  - Collaboration with an array of institutions and organizations
  - Involvement with public policy

- One common theme: Digital literacy
Technology related to prior employment and in the workforce

- Job search is done online

- Entry level job applications are online

- Workforce centers, libraries, and other community based organizations report high demand for assistance with resume writing, online job search database tools, and career development

- New technology demands in the workplace are everywhere
Where do we need to be?

NEW Paradigm! From supported use to independent use

- Get adults beyond basic skills threshold so they can use technology to learn and get jobs
- Learners need to INDEPENDENTLY use computers for learning to prepare for post-secondary coursework
- Workers need to have mastered basic skills threshold for most jobs
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ICCB Technology Skills Checklist for Students

http://www.iccb.state.il.us/pdf/adulted/Technology_Skills_Checklist_for_Students.pdf

Technology Standards for All Illinois Teachers

http://www.isbe.net/profprep/CASCDvr/pdfs/24120_coretechnology.pdf

Illinois ABE/ASE Content Standards Math Glossary


Illinois ABE/ASE Language Arts Content Standards

The Wonderful World of GED® Testing Technology


Instructor Guide: Computer Skills for the 2014 GED® Test


Teknimedia Computer Skills for the 2014 GED® Test Table of Contents

http://www.teknimedia.com/Docs/TOC/CBT100.pdf
INTEGRATING TECHNOLOGY IN WIOA

The Workforce Innovation and Opportunity Act (WIOA) supports the use of technology for the improvement of teaching, learning, professional development, productivity, and system efficiencies. This fact sheet highlights the places in Title II, Adult Education and Family Literacy Act, in which technology plays a supporting role in creating a high-performing system.

https://www2.ed.gov/about/offices/list/ovae/pi/AdultEd/integrating-technology.pdf
LITERACY + TECHNOLOGY
LEARNING COMMUNITY
TEACHING DIGITAL LITERACY

Key components of digital literacy lessons: mousing, keyboarding, using the internet, and manipulating documents and drives
CORE SKILLS

- Parts Identification
- Keyboard Skills
- Computer Navigation
- Mousing Skills
- Demonstrate Customizing Skills
PARTS IDENTIFICATION

Distinguish between desktop and laptop computers.

Identify specific computer hardware: a system unit, monitor, printer, keyboard, mouse or touchpad, USB port

Identify storage media: USB/Flash drives (external) and hard drive (external and internal)

Identify icons on desktop (Internet Browser, Control Panel, Recycle Bin, Skype)
# KEYBOARD SKILLS

**Practice finger placement and Home Keys**

Demonstrate knowledge of function and placement of keys on keyboard: Enter, Shift, Control, Backspace, Delete, Arrow Keys, Tab, Caps Lock, Number Lock.

**Practice number keys**

**Building speed and accuracy**
MOUSING SKILLS

Identify types of mice: mouse and touchpad

Identify mouse pointer shapes and match them to the correct context of use: typing arrow (text), arrow (basic clicking), hand pointer (clickable links)

Demonstrate appropriate use and ability to right-click and left-click

Double click and right click

Drag and drop

Use mouse to select check boxes, use drop-down menus and scroll
COMPUTER NAVIGATION

- Turn computer and monitor on and off
- Log on to computer
- Adjust volume and mute audio
- Plug in headphones correctly and use when appropriate
- Save, name, and locate and open documents and other media
**DEMONSTRATE CUSTOMIZING SKILLS**

<table>
<thead>
<tr>
<th>Demonstrate the ability to use the recycle bin correctly for trashing and retrieving items</th>
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<tbody>
<tr>
<td>Demonstrate understanding that it is possible to customize a computer for increased accessibility</td>
</tr>
<tr>
<td>Demonstrate understanding that mice can be customized for left-handed people and that the speed of clicking can also be customized</td>
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<tr>
<td>Demonstrate understanding that screen resolution can be changed</td>
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</table>
Curriculum design, lesson planning and instruction

the Five Basics

I. Needs assessments and participation of the learners in planning what is to be learned.

II. Well-planned and detailed instructions for all activities.

III. Careful attention to sequence of content and reinforcement; from simple to complex

IV. Learning by doing: understanding of new knowledge is enhanced when they apply it, practice their newly acquired skills and attitudes, and then reflect on what they have just done.

V. Teamwork: using small groups for encouragement. Individual: building accountability showing how they know they know.
These are computer skills students should know and be able to do independently at various levels (basic, intermediate, proficient) with specific types of software applications to enable them to access, manage, integrate, evaluate, create and communicate information. These skills should not be taught in isolation but should be applied when meeting learning outcomes in the content areas.

- Basic – Foundational computer literacy skills
- Intermediate – Computer literacy and competency beyond the foundational level
- Proficient – Computer literacy and competency beyond the intermediate level applied in educational and work settings.
DIGITAL LITERACY
SOFTWARE AND WEBSITES
Tidy the Classroom

- Single click
- Double click
- Drag & Drop

Start Activity

SOME FREE ONLINE TYPING, MOUSING, & OTHER COMPUTING SKILLS TOOLS
The Northstar Digital Literacy Project defines basic skills needed to perform tasks on computers and online. The ability of adults to perform these tasks can be assessed through online, self-guided modules. Included are basic computer digital literacy standards and modules in ten main areas: Basic Computer Use, Internet, Windows Operating System, Mac OS, Email, Microsoft Word, Social Media, Microsoft Excel, Microsoft PowerPoint, and Information Literacy.
The Standards

Below are the Northstar standards for each module. You can optionally view a PDF of these standards.

- Basic Computer Skills
- World Wide Web
- Windows
- Mac OS X
- Email
- Word
- Social Media
- Excel
Northstar Digital/Core Computer Literacy Standards

- Focus on other Digital Literacy Competencies
- Evaluation of online information sources
- Searching techniques
- Internet safety, privacy, and online identity
- Responsible use of information
- Accessing, creating and sharing online information
- Using mobile devices to access information and learning
The Northstar Digital Literacy/Core Computer Literacy Standards are designed to help low-skilled adults perform a variety of daily tasks on the computer and online. The primary focus is to help people gain basic digital literacy skills needed to search for, obtain, and succeed in entry-level jobs. They will also help people communicate with their children’s schools, connect to community resources, etc. Once adults master the skills, they can receive a Certificate of Basic Digital Literacy Skills, which can be used with employers when applying for work.
FOR EMPLOYERS

Employers can be confident that jobseekers with Certificates have demonstrated competence in basic digital literacy skills listed. The standards include basic computer competency benchmarks needed for many jobs. Online assessment modules were designed by professional educators to measure mastery of the benchmarks in a comprehensive manner. They were extensively piloted at a number of sites to ensure reliability.

The assessments do not rely on independent, potentially subjective judgment of user ability. Instead, they assess user knowledge in an objective manner, relying on carefully designed questions requiring users to demonstrate the skills assessed according to predefined and validated values.
JUMP IN AND LAUNCH A MODULE

Note: A browser other than Microsoft Internet Explorer is recommended for full functionality. View alternatives.
WHAT CURRICULA ALIGN WITH NORTHSTAR?

Northstar is an assessment tool, not a curriculum. However, there are several curricula developed by others that align to the Northstar benchmarks.

These include:

The St. Paul Public Library created a Learning Guide that includes online resources for most benchmarks.

The Library also created four curricula to teach some of the Northstar modules:

- Beginning Computer
- Beginning Email
- Beginning Internet
- Microsoft Word
Northstar Learning Guide: Home
This guide contains instructional materials designed to help learners build the basic computer skills defined by the Northstar Digital Literacy Assessments.
Intimidated by computers? New to email and the Internet? Curious about operating systems and online safety? We’ve got the information you need to better understand computers and how they work in our Technology Basics series. Learn more about using web browsers, navigating Windows 10 and OS X, and staying safe online here. You’ll be tech savvy in no time!
Use a computer to do almost anything!
Choose a course below to start learning or search courses.

Chicago DigitalLearn
https://chipublib.digitallearn.org/
Computer tutorials based on pictures, not words. Each In Pictures tutorial employs hundreds of screenshots that show exactly what to do. The screenshots have color accents. This helps you focus on what's important. All In Pictures tutorials are free!

In Pictures tutorial

http://inpics.net/
An Introductory Computer Course for Beginning English Learners

• build basic word processing skills
• navigate the Internet and use email
• master useful vocabulary related to everyday topics, including housing, clothing, and shopping while building a core of computer-specific vocabulary
• acquire important life skills through practical, hands-on activities related to the classroom, jobs, health, and the community
• gain independence and confidence in using a computer

One major aspect of DigitalLearn Community Forum is the ability for tutors, trainers, and all people that are helping support digital literacy learners to engage with one another. This online community of practice, relaunched in February of 2016 is intended to be a place where tools and resources (like handouts, course materials, other links, etc.), ideas and inspirations (info on how you are addressing digital literacy barriers, etc.), and question and feedback (where are you blocked?) can be shared among a community of practice in the digital literacy space.

DigitalLearn.org Community Forum

http://community.digitallearn.org/
INTERACTIVE LESSON EXAMPLES
Fractions and Rhythm
GED Study Guide: Fractions: Adding, Subtracting, Multiplying & Dividing
Engage NY Math Studio Talk: Common Core Instruction for 4.NF
Fractions by shodor.org
BBC Bite Size Math Factors and multiples

Read Works read and questions “The New Colossus”: Emma Lazarus and the Immigrant Experience
Writing Prompts Tumblr.com
azargrammar.com – comparisons
Read Write Think Essay Template online
Youtube - How to Write a Good Essay

Social Studies - The Jamestown Online Adventure
Social Studies - Analyzing Political Cartoons
GED Science Passages and Questions
YouTube Video - Introduction to Electricity

Mathematics
L.A. Reading/Writing
Science/Social Studies
LESSON AND ACTIVITY IDEAS for teaching math, reading, and writing using technology.
Exercise examples

Group I (Math, Reading, and Writing, with Foundational computer literacy skills)

Students’ Basic Skills and Literacy Levels: 4.8 TABE Math, 5.5 TABE Reading, 4.0 TABE Writing

Basic – Foundational computer literacy skills

Course Title: ABE Low Intermediate Basic Education

Learning Goals for the Course: Post Test and Level gain

Key Learning Objectives for the Lesson: Math-To develop a better understanding of basic Number Sense: Rounding, Fractions, Decimals, Proportions, Conversions; Reading/Writing-To develop a better understanding of Homonyms, responding in writing to solve problems read

Measures (How well did the students learn the lessons): Students will complete activities, navigate to record and save correctly, while participating in group/class discussions and reviews

Role of the Instructor: class facilitator, one-to-one help, classroom management and resource, and reviewer, teach and reteach

Learning activities in the classroom: Online and document interaction

Learning activities outside the classroom: Worksheets that continue the topics covered in class and could be accessed by computer or hardcopy.
Group II (Math, Reading, and Writing, with Foundational computer literacy skills)

Students’ Basic Skills and Literacy Levels: 6.8 TABE Math, 7.5 TABE Reading, 6.5 TABE Writing

Basic – Foundational computer literacy skills

Course Title: ABE High Intermediate Basic Education

Learning Goals for the Course: Post Test and Level gain

Key Learning Objectives for the Lesson: Math-To develop a better understanding of Algebra and Geometry concepts and operations: Shapes, Angles, Formulas, and solving for variables; Reading/Writing-To develop a better understanding of in subject area Science/Social Studies, responding in writing to solve problems read

Measures (How well did the students learn the lessons): Students will complete activities, navigate to record and save correctly, while participating in group/class discussions and reviews

Role of the Instructor: class facilitator, one-to-one help, classroom management and resource, and reviewer, teach and reteach

Learning activities in the classroom: Online and document interaction

Learning activities outside the classroom: Worksheets that continue the topics covered in class and could be accessed by computer or hardcopy.
# Subject Link Ideas

<table>
<thead>
<tr>
<th>Math</th>
<th>Science/Social Studies</th>
<th>Reading/Writing</th>
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<tbody>
<tr>
<td>• <strong>Shodor is transforming learning through computational thinking:</strong> <a href="http://www.shodor.org/interactivate/">http://www.shodor.org/interactivate/</a> • Mental mathematics is a component of the Common Core Mathematical Practices and XP Math Games makes it easy to support it. XP Math allows teachers to differentiate instruction by process and content by providing tools to collect and analyze student data at every stage of their learning. <a href="http://www.xpmath.com/">http://www.xpmath.com/</a></td>
<td>• <strong>Social Studies - The Jamestown Online Adventure:</strong> <a href="http://www.historyglobe.com/flash.html">http://www.historyglobe.com/flash.html</a></td>
<td>• <strong>Unique writing prompts that engage students</strong> <a href="http://writingprompts.tumblr.com/">http://writingprompts.tumblr.com/</a> • <strong>Azar Grammar and more…</strong> <a href="http://www.azargrammar.com/materials">http://www.azargrammar.com/materials</a> • <strong>Read Write Think - Lessons, interactives, calendar activities, and more, right at your fingertips.</strong> <a href="http://www.readwritethink.org/files/resources/interactives">http://www.readwritethink.org/files/resources/interactives</a></td>
</tr>
</tbody>
</table>
• **AAA Math**
AAA Math features a comprehensive set of interactive arithmetic lessons.
http://www.aaamath.com/

• **Compare Fractions**
Compare Fractions - With Lines or Compare Fractions, or With Circles will give instruction and practice in comparing fractions. The concept of least common denominator is introduced.
http://www.visualfractions.com/

• **Dave's ESL Cafe Idea Cookbook Math**
Math - Ideas on how to teach math to your ESL/EFL students
http://www.eslcafe.com/idea/?Math

• **iXL Math**
These skills are organized by grade, and you can move your mouse over any skill name to view a sample question. To start practicing, just click on any link. IXL will track your score, and the questions will automatically increase in difficulty as you improve!
https://www.ixl.com/math/

• **Khan Academy**
Math and more…..
https://www.khanacademy.org/math
We wanted to give them some news for their level of English.
http://www.newsinlevels.com/

**Flash Fluency - Low Tide**

The Low Tide is intended for Grade 1, but can be used at any grade needed, with a total of 150 sight words from various word lists, mainly Dolsch and Fry.
http://pepnonprofit.org/flash-fluency.html

**Folk tales and other stories**

Literature: More than 25 folktales from all over the world.
http://www.peacecorps.gov/wws/stories/

**Graphic Organizers for Reading Comprehension | Scholastic.com**

Graphic Organizers for Reading Comprehension-Students can use these learning tools to see how ideas fit together, and you can use them to identify the strengths and weaknesses.

**The Moonlit Road - Southern Ghost Stories, Folktales and Storytelling**

Ghost stories - text and audio. 5th grade reading level - Welcome to The Moonlit Road.com, we tell ghost stories, folktales, myths and legends from the backroads of the American South.
http://themoonlitroad.com/
SUBJECT WEBSITES IDEAS-SCIENCE

- **Free AIMS Activities and Lesson Plans**
  Explore the AIMS approach to teaching math and science. Select your grade span then an activity to download it. K-2 Math and Science 3-5 Math and Science 6-9 Math/Science
  [https://www.teacherspayteachers.com/Store/Aims-Education-Foundation](https://www.teacherspayteachers.com/Store/Aims-Education-Foundation)

- **Living on Earth: Sound Journalism for the Whole Planet**
  Science: Environmental podcasts from Public Radio International.
  [http://loe.org/](http://loe.org/)

- **Reading Comprehension Science Passages**
  Reading Comprehension Science Passages - Seems like a nice place to get some good general reading comprehension texts that outline basic GED content areas in Science.
  [http://education.jlab.org/reading/index.html](http://education.jlab.org/reading/index.html)

- **Science Experiments, Videos, and Science Fair Ideas at ...**
  "Science Bob" Pflugfelder has been a fan of science since he was just six years old. Over the years, he has been exploring the scientific world with thousands of students. He also encourages parents and teachers to practice "Random Acts of Science" by providing instructions and videos for interactive science experiments on his web site.
  [https://sciencebob.com/](https://sciencebob.com/)
SUBJECT WEBSITES IDEAS-SOCIAL STUDIES

• **Awesome Stories**
  Videos and stories highlighting famous, unique, and interesting individuals. A pictorial history which includes science and social study subjects.
  www.awesomestories.com

• **Contemporary's GED Social Studies**
  You’ll find Chapter Review Quizzes, Chapter Outlines, Interactive Flashcards, Web Links, additional Readings in Social Studies, and more!

• **Digital History**
  Resources that aims to cover the latest trends in digital history.
  http://digitalhistory.unl.edu/

• **Free Social Studies worksheets, Games and Projects**
  Social Studies Games and Quizzes, Social Studies Worksheets and Games
  http://www.softschools.com/social_studies/

• **GED Social Studies Practice | GED Practice Questions**
  GED Social Studies test is 90 minutes. First section is 65 minute long, 35 questions-Civics & Government (50%), United States History (20%), Economics (15%), and Geography (15%).
  http://www.gedpracticequestions.com/ged-social-studies/
SUBJECT WEBSITES IDEAS-WRITING

- **Argument & Persuasive Writing @Web English Teacher**
  Argument-Lesson plans and teaching resources
  http://www.webenglishteacher.com/argument.html

- **Welcome to AzarGrammar.com**
  Free materials to download and use in your classroom, including worksheets contributed by fellow teachers and the full text of Fun with Grammar...
  http://azargrammar.com

- **Contemporary's GED Language Arts, Writing**
  Contemporary's GED Language Arts, Writing. Student Center-Click on the link above, and then choose a chapter from the table of contents. You'll find Chapter Review Quizzes, Chapter Outlines, Interactive Flashcards, Web Links, a Writing Handbook, and more!

- **Essay Map/Student Interactives - ReadWriteThink**
  An interactive graphic organizer, Essay Map offers several ways to structure their writing through the use of an outline. Students fill in the boxes with an introductory statement, a main idea, the supporting details of their piece, and a concluding statement. This site has a huge selection of interactive writing activities: Inquiry and Analysis, Compare and Contrast, Webbing Tools.
  http://www.readwritethink.org/classroom-resources/student-interactives/
  http://www.readwritethink.org/files/resources/interactives/essaymap/

- **Essay Writing Topics**
  ESSAY TOPICS for GED TEST PRACTICE
  http://abeged.com/essaytopics.html
PROFESSIONAL DEVELOPMENT
Professional Development Related to Technology Integration and Blended Learning


Take the DL Challenge 4 Online Courses / 3 Professional Development Hours Each

- Google Forms
- Email
- Google Slides
- Searching the Internet

Using Technology to Support Instruction 6 Professional Development Hours

Creating a Web Page for Instructional Use 3 Professional Development Hours
Professional Development Related to Technology Integration and Blended Learning


Integrating Technology in the Adult Education Classroom

- **Why** is technology important for instruction and learning?
- **How** do you approach integrating technology?
- **What** tools can you use to integrate technology?
Upcoming Webinars: edWeb webinars are free. You'll receive a CE certificate for attending. Register for a webinar this month. Just hover over a date and go to the details, then click on the link to register. You’ll receive a CE certificate for attending live. If you can’t attend live, join the community where we post the webinar recordings and slides, and also provide a quiz so you can get a CE certificate! Stay tuned for future webinars.
ASCD Webinar Archive: Free professional learning online and all the time.

ASCD  http://www.ascd.org/professional-development/webinars/ascd-webinar-archive.aspx
Advertising, marketing, promotions, public relations, and sales managers

**Description:** These workers help businesses sell their products. Before a product ever goes on the assembly line, marketing managers decide whether it will sell and who will buy it. Advertising managers decide what type of ads will work best. Promotions and sales managers design campaigns to let the public know about the product. Public relations managers help companies create a good image in the community. All of these managers travel a lot, and job transfers are common.


**Complete Job Profile:** [http://www.bls.gov/oco/ocos020.htm](http://www.bls.gov/oco/ocos020.htm)

**Salary:** $50,001 or more per year

There are 21 math topics Advertising, marketing, promotions, public relations, and sales managers need to know.

- **Basic Math / Algebra**
  - Fractions
  - Decimals
  - Ratio and Proportion
  - Percent
  - Customary Measurement
  - Measurement Conversion
  - Basic Probability
  - Basic Statistics
  - Statistical Graphing
  - Negative Numbers
  - Basic Problem Solving

- **First-Year Algebra**
  - Using Formulas
  - Linear Equations
  - Algebraic Representation

- **Geometry**
  - Basic Terminology
  - Angle Measurement
  - Similarity

- **Other Topics**
  - Basic Calculator Use
  - Computer Use
  - Group Problem Solving
  - Mental Math

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Computer and information systems managers

**Description:** Computer and information systems managers plan and direct computer labs in large and small companies and for the government. They hire computer programmers and support specialists. They manage and review the work in a business and help determine salaries. They also decide what workers and equipment are needed to do certain jobs.


**Complete Job Profile:** [http://www.bls.gov/oco/ocos258.htm](http://www.bls.gov/oco/ocos258.htm)

**Salary:** $50,001 or more per year

There are 60 math topics Computer and information systems managers need to know.

- **Basic Math / Algebra**
  - Fractions
  - Decimals
  - Ratio and Proportion
  - Percent
  - Customary Measurement
  - Metric Measurement
  - Measurement Conversion
  - Basic Probability
  - Basic Statistics
  - Statistical Graphing
  - Powers and Roots
  - Other Number Bases
  - Negative Numbers
  - Scientific Notation
  - Basic Problem Solving

- **First-Year Algebra**
  - Using Formulas
  - Linear Equations
  - Linear Inequalities
  - Operations with Polynomials
  - Factoring Polynomials
  - Rational Expressions
  - Coordinate Graphing 2D
  - Linear Systems
  - Radicals

- **Second-Year Algebra/Trigonometry**
  - Quadratic Equations
  - Algebraic Representation
  - Geometry
  - Basic Terminology
  - Angle Measurement
  - Congruent Triangles
  - Triangle Inequalities
  - Parallel Lines
  - Quadrilaterals
  - Similarity
  - Geometric Mean
  - Pythagorean Theorem
  - Right Triangle Trigonometry
  - Circles
  - Constructions
  - Area
  - Volume
  - Transformations
  - Make/Use 3D Drawings

- **Other Topics**
  - Basic Calculator Use
  - Scientific Calculator Use
  - Computer Use
  - Computer Programming
  - Group Problem Solving
  - Mental Math
  - Inductive/Deductive Reasoning
  - Math Communications
  - Mathematical Modeling

Construction managers

**Description:** Construction managers plan and direct construction projects. On small projects, they are responsible for all the people, materials, and equipment at a job site. They hire and schedule workers, make sure materials are delivered on time, and oversee the safety of the work site. They often work outdoors, and may be on call 24 hours a day to deal with delays, bad weather, and emergencies.


**Complete Job Profile:** http://www.bls.gov/oco/ocos005.htm

**Salary:** $50,001 or more per year

**Comments:**
Hey I’m a commercial subcontractor and I use math everyday fractions, figuring out volume, sq. footage you name it my job is math all day everything I do is math related, figuring out scale from the blue prints etc. I didn’t see anything like that at all also electrical trades are very dependent on math as well, carpenters, etc.

There are 32 math topics Construction managers need to know.

- Basic Math / Algebra
  - Fractions
  - Decimals
  - Ratio and Proportion
  - Percent
  - Customary Measurement
  - Metric Measurement
  - Measurement Conversion
  - Basic Probability
  - Basic Statistics
  - Statistical Graphing
  - Powers and Roots
  - Basic Problem Solving

- First-Year Algebra
  - Using Formulas
  - Linear Equations

- Geometry
  - Basic Terminology
  - Angle Measurement
  - Congruent Triangles
  - Triangle Inequalities
  - Parallel Lines
  - Quadrilaterals
  - Similarity
  - Pythagorean Theorem
  - Circles
  - Area
  - Volume
  - Make/Use 3D Drawings

- Other Topics
  - Basic Calculator Use
  - Computer Use
  - Group Problem Solving
  - Mental Math
  - Inductive/Deductive Reasoning

Human resources, training, and labor relations managers and specialists

**Description:** These workers find the best employees they can and match them with jobs in their company. They interview job candidates and train new workers. They may travel to college campuses to find the best job applicants. They also help to resolve conflicts among workers or between workers and management.


**Complete Job Profile:** http://www.bls.gov/oco/ocos021.htm

**Salary:** $28,001 to $50,000 per year

There are 19 math topics Human resources, training, and labor relations managers and specialists need to know.

- Basic Math / Algebra
  - Fractions
  - Decimals
  - Ratio and Proportion
  - Percent
  - Customary Measurement
  - Metric Measurement
  - Measurement Conversion
  - Basic Problem Solving
  - Using Formulas
  - Linear Equations

- Geometry
  - Area
  - Volume
  - Other Topics
    - Scientific Calculator Use
    - Computer Use
    - Group Problem Solving
    - Mental Math
    - Inductive/Deductive Reasoning
  - First-Year Algebra
    - Using Formulas
    - Linear Equations

- Other Topics
  - Basic Calculator Use
  - Computer Use
  - Group Problem Solving
  - Mental Math
  - Inductive/Deductive Reasoning
  - Basic Calculator Use
  - Computer Use
  - Group Problem Solving
  - Mental Math
  - Inductive/Deductive Reasoning
  - Basic Calculator Use
  - Computer Use
  - Group Problem Solving
  - Mental Math
  - Inductive/Deductive Reasoning
Food service managers

Description: Food service managers select and price the food on a restaurant's menu. They hire and train workers and manage staffing, payroll, and bookkeeping. They also oversee the preparation of food, order supplies and ingredients, and make sure the restaurant is clean and well maintained. Many managers work nights and weekends, often under stressful circumstances.


Complete Job Profile: [http://www.bls.gov/oco/ocos024.htm](http://www.bls.gov/oco/ocos024.htm)

Salary: $28,001 to $50,000 per year

There are 18 math topics Food service managers need to know.


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Medical and health services managers

Description: Medical and health services managers plan, organize, and supervise the delivery of health care. They determine staffing and equipment needs and direct the public relations, marketing, and finances of hospitals, nursing homes, HMOs, clinics, and doctor's offices. They may be in charge of an entire organization or only one department within it. These managers earn high salaries, but they often work long hours.


Complete Job Profile: [http://www.bls.gov/oco/ocos014.htm](http://www.bls.gov/oco/ocos014.htm)

Salary: $50,001 or more per year

There are 71 math topics Medical and health services managers need to know.

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### Basic Math / Algebra
- Decimals
- Ratio and Proportion
- Percent
- Customary Measurement
- Metric Measurement
- Basic Statistics
- Statistical Graphing
- Powers and Roots
- Negative Numbers
- Basic Problem Solving

### First-Year Algebra
- Using Formulas

### Geometry
- Basic Terminology
- Angle Measurement
- Area
- Volume

### Other Topics
- Basic Calculator Use
- Computer Use
- Group Problem Solving

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### Basic Math / Algebra
- Fractions
- Decimals
- Ratio and Proportion
- Percent
- Customary Measurement
- Metric Measurement
- Measurement Conversion
- Basic Probability
- Basic Statistics
- Statistical Graphing
- Powers and Roots
- Other Number Bases
- Negative Numbers
- Scientific Notation
- Basic Problem Solving

### First-Year Algebra
- Using Formulas
- Linear Equations
- Linear Inequalities
- Operations with Polynomials
- Factoring Polynomials
- Rational Expressions
- Coordinate Graphing 2D
- Linear Systems
- Radicals
- Quadratic Equations
- Algebraic Representation

### Geometry
- Basic Terminology
- Angle Measurement
- Congruent Triangles
- Triangle Inequalities
- Parallel Lines

### Other Topics
- Similarity
- Geometric Mean
- Pythagorean Theorem
- Right Triangle Trigonometry
- Circles
- Constructions
- Area
- Volume
- Transformations
- Make/Use 3D Drawings

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### Second-Year Algebra / Trigonometry
- Functions
- Variation
- Imaginary Numbers
- Polynomial Equation
- Logarithms
- Sequences and Series
- Matrices
- Coordinate Graphing 3D
- Advanced Probability
- Advanced Statistics
- Conic Sections
- Non-Linear Systems
- Trigonometric/Circular Functions
- Graphs of Trigonometric Functions
- Trigonometric Identities
- Trigonometric Equations/Inverses
- Oblique Triangles
- Polar Coordinates/Graphs
- Vectors
- Mathematical Modeling

### Other Topics
- Calculus and Higher Math
- Basic Calculator Use
- Mental Math
- Scientific Calculator Use
- Computer Use
Thank you. Questions?