



## Math and Reasoning Skills for Health Science Careers: A Course Plan

by Debora Carter and Jill Okin, Rappahannock Area Regional Adult Education

### Transitions Course Plan

<p><b>Course Goal:</b> Students will use mathematical measurement, reasoning, and problem-solving skills to construct, read, interpret, and draw inferences from various graphic formats in order to confidently advance toward employment in a health-related field.</p>					
<p><b>Total Course Duration (weeks):</b> 4</p>					
<p><b>Intensity of Instruction (hours and meetings per week):</b> 2.5-hour class meeting (5 hours per week)</p>					
<p><b>Targeted learners (skill level):</b> ABE/GED class level</p>					
<p><b>Number of students per class:</b> 10-12</p>					
GED Content Unit Objectives	Activities	Common Core Standards & 21st Century Skills Focus	Career Readiness Skills Focus	Technology Skills	Time Allotted (e.g., class sessions or weeks)
<p>Unit 1: Recognize and read place value through thousandths. Compare values of decimal amounts.</p>	<p>Discuss how the knowledge of place value is important in measuring dosages for patients. Pair work: View an online tutorial dosage calculation website and complete quiz.</p>	<p>Comprehension and Collaboration SL.7.1-7.2 HLC01.01.01 ESS01.02.01 ESS01.03.01</p>	<p>Oral/written communication  Team skills  Knowledge of decimals</p>	<p>Using a SMART Board  Completing Internet tutorial activity</p>	<p>2.5 hours</p>



<p>Write decimals with proper placement of the decimal point and placeholder zeros.</p>	<p>Discuss how incorrect drug calculations plague the medical profession; students brainstorm reasons for this. Matching activity: Students match dosage decimal amounts to words on a nursing educational website. Pair work: One student reads the decimal dosage amount and the other writes it. Afterwards they work together to list the dosage amounts in increasing order.</p>	<p>ESS01.03.03 ESS04.04.01-.03 ESS04.11.01 Math 5.NBT.3 Teamwork/ Collaboration HLC07.01.02 ESS07.03.01 HLC03 ESS03.01.02 ESS03.01.04-.05 ESS03.01.07-.08 Critical Thinking/ Problem Solving Presentation of Knowledge and Ideas SL8.4-12.4 ESS07.03.01 HLC05.01.03</p>	<p>Problem solving: calculating and measuring dosages using math skills</p> <p>Sequencing information</p>	<p>Web navigation skills</p>	
<p>Unit 2: Understand the relationships between decimals and percents and convert between forms. Solve percent equations to find the percent, whole, or part.</p>	<p>Game: Divide students into two teams with each having a deck of decimal dosage and percentage amounts. One student from each team shows a card and the first team to correctly determine the largest dose is the winner.</p>	<p>Comprehension and Collaboration SL.7.1-7.2 Critical Thinking/ Problem Solving Teamwork/ Collaboration Creativity and Innovation Math 6-7.NS.3</p>	<p>Oral/written communication</p> <p>Team work</p> <p>Cooperation</p> <p>Interpersonal skills</p>	<p>Using Internet websites</p> <p>Website research skills</p> <p>Microsoft Word skills</p>	<p>2.5 hours</p>



	<p>Small group activity: Students use nutrition labels to write percent problems. Each group will present their problems to the class and students will work individually to solve the problems. Pair work: Internet exploration of current RDA recommendations for an average 25-year-old male or female. Pairs write a paragraph about their findings in Microsoft Word. Discuss impact of RDA (recommended daily allowances) on personal health.</p>	<p>Research to Build and Present Knowledge W.6-12.4 W.8.4, W8.6 Presentation of Knowledge and Ideas SL.11-12.5 Production and Distribution of Writing WHST.6-12.2 WHST.9-10.4 HLC01.01.01 ESS01.02.01 ESS01.02.04-.05 ESS01.03.01-.04 HLC02 ESS02.01.04-.06 ESS02.02.01-.02 ESS02.03.01-.03 ESS02.04.01-.02 ESS02.05.02-.03 HLC03 ESS03.04.02-.03 HLC04 ESS04.04.01-.03 ESS04.11.01 ESS04.05.01 HLC07.01.02 ESS07.03.01 ESS07.04.04 HLC06.01.06</p>	<p>Time management  Math knowledge of percents and decimals  Presentation skills</p>	<p>Printing</p>	
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<p>Unit 3: Understand how metric measurements differ from the English system and know how to convert between the two systems. Read a metric and English ruler/scale.</p>	<p>Discuss how metric measurements are used in health-related fields. Students use a metric converter website to convert metric dosages on prescription bottles to the English system (and vice versa). Using a diagram of a clinical thermometer, students will label the normal body temperature and label specified points above and below it. Students practice using the conversion formula from Fahrenheit to Celsius.</p>	<p>Comprehension and Collaboration SL.7.1-7.2 Critical Thinking/ Problem Solving Teamwork/ Collaboration Creativity and Innovation Math 6.NS.3 Presentation of Knowledge and Ideas SL.7.4-7.5 SL.8.4-8.5 SL.9.4-9.5 HLC01.01.01 ESS01.02,01 ESS01.03.02-.04 HLC02 ESS02.01.04-.06 ESS02.04.01 HLC04 ESS04.04.01-.02</p>	<p>Math skills  Oral communication  Presentation skills  Reading a thermometer  Team participation  Conveying ideas effectively  Analyzing information</p>	<p>Using Internet websites, a SMART Board, and an overhead projector</p>	<p>2.5 hours</p>
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<p>Unit 4: Understand how to read tables, charts, and forms and how to determine their purpose. Complete and interpret data from tables, charts, and forms.</p>	<p>Discuss how and why forms are used in the medical workplace. View online video of medical clerk discussing a table used to schedule surgeries. Practice reading, filling in, and printing forms and tables such as job applications, W-2s, timesheets, and insurance forms (online and worksheets).</p>	<p>Comprehension and Collaboration SL.7.1-12.1 Integration of Knowledge and Ideas 7.1-7.12 Critical Thinking/ Problem Solving Creativity and Innovation Effective Communication ESS01.02.01 HLC02 ESS02.01.04-05 ESS02.04.01-02 ESS02.03.01 HLC04 ESS04.05.01 ESS04.11.01 HLC08.01.01 ESS08.02.02 HLC09 ESS09.06.03</p>	<p>Oral/written communication  Postsecondary: filling out forms for employability  Filling in forms presented online  Evaluating, analyzing, and summarizing information</p>	<p>Using Internet to explore employment websites  Printing</p>	<p>2.5 hours</p>
<p>Unit 5: Read and follow written instructions. Interpret pictorial instructions.</p>	<p>Students read an online article about wound care procedure and write a brief summary.</p>	<p>Key Ideas and Details 6.1-12.1 Critical Thinking/ Problem Solving Collaboration and Teamwork</p>	<p>Problem solving  Teamwork</p>	<p>Using Internet (OSHA website)</p>	<p>2.5 hours</p>



	<p>Pairs write questions based on the rationale of safety procedures in a health-care setting; whole group discusses understanding and following safety procedures at work.</p> <p>Students write paragraphs on the importance of following step-by-step procedures in a workplace setting.</p> <p>They design an advertisement depicting health and safety procedures in the workforce and present advertisements to the class.</p>	<p>Comprehension and Collaboration SL.7.1-12.1 Effective Communication Adaptability Presentation of Knowledge and Ideas SL.11-12.5 Production and Distribution of Writing WHST.6-12.2 WHST.9-10.4 HLC01.01.02 ESS01.02.01 ESS01.02.04-.05 ESS01.02.10 HLC02 ESS02.01.02 ESS02.01.04-.06 ESS02.05.03 ESS02.06.03-.04 HLC04 ESS04.04.01 HLC06.01.01 HLC06.01.06 ESS06.01.01-.04 ESS06.02.01-.02 HLC07.01.02 ESS07.03.01 HLC08.01.01 ESS08.02.02</p>	<p>Complying with policy and procedures</p> <p>Safety and health skills</p> <p>Postsecondary writing skills</p> <p>Prioritizing questions</p> <p>Sequencing</p> <p>Presentation skills</p> <p>Marketing skills</p>	<p>Using Microsoft Word</p>	
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<p>Unit 6: Understand, find, and interpret information on bar and line graphs. Read health- related data displayed in different graphic formats and understand how the data are related. Summarize graphics and be able to state main idea.</p>	<p>Explore different facets of graphs, what they mean, and when to use them. Look at data of the Food Guide Pyramid displayed in pictorial graph and then read and interpret the same data displayed as a bar and line graph. Pair work: Research obesity in adults/children and construct bar and line graphs by hand and then use Excel to create the same graphs. Print results. Follow up with discussion on ways to prevent or combat obesity.</p>	<p>Summarize and Interpret Data Math S.ID.1-5 Integration of Knowledge and Ideas 6.7-6.12 Effective Communication Creativity and Innovation Critical Thinking Technical Skills HLC01.01.01 ESS01.02.01 ESS01.02.03 ESS01.02.06 ESS01.02.09 ESS01.03.06-.07 HLC02 ESS02.01.04-.06 ESS02.02.01 ESS02.03.01-.03 ESS02.04.01-.02 ESS02.06.06 ESS02.09.01-.02 HLC03 ESS03.01.02 ESS03.01.04-.05 ESS03.01.07 ESS03.04.02-.03 HLC04 ESS04.04.01-.03 HLC07.01.02 ESS07.03.01-08</p>	<p>Compare and contrast relationships  Postsecondary: use of Excel  Research skills  Evaluating, analyzing, and summarizing information</p>	<p>Using an overhead projector  Using the Internet to research and gather data  Using Microsoft Excel  Printing</p>	<p>2.5 hours</p>
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<p>Unit 7: Identify trends in the data displayed in graphics. Be able to notice repeating patterns or numbers. Understand how to make decisions based on information displayed by trends.</p>	<p>Display vocabulary describing trends on SMART Board. Exercise: Match various trends to statements. Pair work: Find articles in newspapers and/or online depicting trends in health care utilization. Present findings to whole group. Students analyze and challenge how data was collected, how accurate and reliable the data are, and why differences might exist.</p>	<p>Summarize, Represent, and Interpret Data Math S.ID.1-4 Integration of Knowledge and Ideas 6.7-6.12 Critical Thinking/ Problem Solving Creativity and Innovation RI.8.8 RI.11-12.7 RST.6-8.8 Collaboration Accountability Analysis ESS01.01.01 ESS01.02.01 ESS01.02.03 ESS01.02.06-.07 ESS01.02.09-.10 ESS01.03.07 ESS01.04.01-.02 HLC02 ESS02.01.02 ESS02.01.03-.06 ESS02.02.01-.02 ESS02.03.01-.03 ESS02.04.01-.02 ESS02.05.03</p>	<p>Teamwork Leadership Problem solving Information technology applications Presentation skills Oral communication Analyzing and drawing conclusions</p>	<p>Using a SMART Board and an overhead projector  Researching on the Internet</p>	<p>2.5 hours</p>
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<p>Unit 8: Draw conclusions based on several related graphics. Apply information from one or more graphics to specific workplace situations. Research health science fields and education.</p>	<p>View a line graph from an employment website showing job trends in nursing. Draw conclusions on types of certification required based on hiring trends. Compare line graph of job trends to graphic displaying average salaries for nursing jobs. Write a summary paragraph in Word about pursuing one of the nursing fields based on conclusions drawn from graphics.</p>	<p>Integration of Knowledge and Ideas 7.1-7.12 Summarize, Represent, and Interpret Data Math S.ID.1-4 Presentation of Knowledge and Ideas SL.11-12.5 ESS01.01.01 ESS01.02.03 ESS01.02.04-07 ESS01.02.09 HLC02 ESS02.01.02-.06 ESS02.03.02</p>	<p>Problem solving  Technology applications  Writing skills  Interpreting data  Summarizing  Creating graphs</p>	<p>Using a SMART Board, an overhead projector, the Internet, the VA Wizard website, MS Excel, and MS Word</p>	<p>2.5 hours</p>



	<p>Visit VA Wizard website and research health science fields. Pair work: Create a chart in Excel comparing and contrasting the educational requirements for five nursing fields.</p>	<p>ESS02.04.01 ESS02.05.03 ESS02.09.01-.02 HLC03 ESS03.01.08 ESS03.04.04 HLC04 ESS04.04.01-.02 ESS04.07.01-.02 ESS04.11.01 HLC07.01.02 ESS07.03.01 ESS07.03.08 HLC09 ESS09.03.06 ESS09.05.01-.02 ESS09.07.01-.02 ESS09.08.04 ESS09.09.01-.02 ESS09.10.01</p>	<p>Researching careers  Creativity  Compare and contrast skills</p>		
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### Sample Activity

**GED Activity Learning Objective** Read, extract, and compare information based on several related graphics depicting nursing career trends and explore VA Wizard website to substantiate conclusions drawn from graphics.

**Common Core Standards Addressed**

- Key Ideas and Details 6.1-12.1
- Research to Build and Present Knowledge 6.8-12.8
- Production and Distribution of Writing 6.4-12.4

**Activity Steps**

Working in small groups, students will view a line graph from an employment website showing the percentage of jobs listed for five different nursing jobs. An overhead projector will display a bar graph depicting the average salary for the related nursing jobs. Students will discuss the components of both graphs. They will look for similarities and differences between the graphics. The students will analyze the trends and information within the graphics. They will identify the trends of nursing jobs and draw conclusions on the type of certification required based on hiring trends.

Individually, the students will register and explore the VA Wizard website to research nursing jobs and other health science fields. They will each complete a career interest survey. Using Microsoft Word, each student will write a summary paragraph about pursuing one of the health fields. Volunteers will share their interest to the class.

Working in pairs, students will extrapolate data from the VA Wizard website comparing the educational requirements for either five nursing fields or five related health fields. They will hand-draw a graph of their choice using components of a graph such as titles, column/row headings, and labels. They will then use Excel to create the same graph and present their Excel charts to the class.

<b>Career Awareness / Readiness</b>	<b>Postsecondary Readiness</b>	<b>Technology</b>
Problem solving; Analyzing data; Job procurement skills; Communication skills; Oral/writing skills; Reading data; Interpreting data and making decisions based on information; Group participation and collaboration; Evaluation skills	VA Wizard career interest survey; Knowledge of educational requirements; Job procurement skills; Prioritizing information; Sequencing skills; Time management; Oral communication; Presentation skills	Navigating the Internet; Researching websites and downloading various articles; VA Wizard – registration and exploration of medical careers; Microsoft Excel and Word

**21st Century Skills Addressed**

Critical thinking and problem solving; Effective communication; Collaboration and team building; Creativity and innovation

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