

# Medical Assistant Clinical 3

## COURSE OUTLINE - UC

### **DESCRIPTION:**

Medical Assistant Clinical 3 is the capstone course for the Medical Assistant program. It is designed to equip students with medical assisting skills necessary for employment in a variety of medical settings. Students will practice clinical skills and learn topics covering electrocardiography, phlebotomy, hematology, laboratory procedures, diagnostic testing, emergency procedures and the overall well-being of the patient. Activities include work-based learning and ROP field internship that provide medical assisting experience and connect students to industry and the local community. A negative TB test is required for participation in worksite learning. Students must complete all medical assistant clinical courses and the ROP field internship in the ordered sequence to receive the Medical Assistant certificate. CPR and First Aid certifications are included in this course and are awarded based on a competency examination.

### **INFORMATION:**

PRE-REQUISITES:	Medical Assistant Clinical 2
REQUIREMENTS:	Current NEGATIVE TB Test
LENGTH:	One Year OR Two Terms (404 Hours Classroom, 160 Hours CC*) *Hours reflect competency-based instruction in a laboratory/internship setting
SECTOR:	Health Science and Medical Technology
PATHWAY:	Patient Care
ARTICULATED:	No
UC A-G APPROVAL:	Yes: College-Preparatory Elective (G) / Science – Biology / Life Sciences Requirement

### **O\*NET SOC CODES:**

29-2072.00	Medical Records Specialists
31-9092.00	Medical Assistants
31-9097.00	Phlebotomists
43-6013.00	Medical Secretaries

<b>Orientation</b>
<ul style="list-style-type: none"> <li>A. Introduce the course and facilities.</li> <li>B. Discuss the syllabus and major objectives.</li> <li>C. Explain applicable classroom management procedures, and any operational guidelines.</li> <li>D. Review instructor/student expectations.</li> <li>E. Explain attendance requirements and procedures.</li> <li>F. Review grading and student evaluation procedures.</li> <li>G. Discuss the work-based learning aspect of the program, if applicable.</li> <li>H. Discuss the “next steps” related to additional education, training, and employment.</li> <li>I. Review classroom safety, emergency and disaster procedures.</li> </ul>
<b>1. Communication Skills</b>
<ul style="list-style-type: none"> <li>A. Demonstrate positive verbal communication skills using appropriate vocabulary, demeanor, and vocal tone in the classroom and/or worksite.</li> <li>B. Read and interpret written information and directions.</li> <li>C. Practice various forms of written communication appropriate to the occupation.</li> <li>D. Practice positive body language skills.</li> <li>E. Practice professional verbal skills for resolving a conflict.</li> <li>F. Demonstrate active listening skills including techniques for checking for understanding, and for obtaining clarification of directions.</li> </ul>
<b>2. Interpersonal Skills</b>
<ul style="list-style-type: none"> <li>A. Demonstrate positive teamwork skills by contributing to a group effort.</li> <li>B. Practice the importance of diversity awareness and sensitivity in the workplace.</li> <li>C. Define sexual harassment in the workplace and identify the employee’s role and responsibility.</li> <li>D. Practice participation skills.</li> <li>E. Identify different personality types and demonstrate flexibility and adaptability working with diverse individuals.</li> <li>F. Practice business and social etiquette skills appropriate to the occupation.</li> <li>G. Evaluate and discuss the role of business and personal ethics in decision making based on various job-related scenarios.</li> <li>H. Demonstrate the use of time management skills.</li> </ul>
<b>3. Employability Skills</b>
<ul style="list-style-type: none"> <li>A. Demonstrate appropriate attendance and punctuality practices for the classroom (and worksite, if applicable).</li> </ul>

- B. Prepare a resume, cover letter, and job application.
- C. Demonstrate interviewing techniques in seeking employment, using appropriate tone, body language and professional dress and grooming standards.
- D. Identify strategies for employment retention.
- E. Identify and analyze sources of job information, including electronic sources and the impact of social networking on employability.
- F. Identify the need for continuing education, professional development, and professional growth in chosen field.
- G. Identify appropriate procedures for leaving a job.
- H. Review company policies and current trends in employee compatibility screening, drug screening, and background checks.

#### 4. Leadership

- A. Define leadership and identify the responsibilities, competencies, and behaviors of successful leaders.
- B. Work with peers to promote divergent and creative perspectives.
- C. Demonstrate how to organize and structure work, individually and in teams, for effective performance and the attainment of goals.
- D. Explain multiple approaches to conflict resolution and their appropriateness for a variety of situations in the workplace.
- E. Employ ethical behaviors and actions that positively influence others.
- F. Analyze the short-term and long-term effects a leader's actions and attitudes can have on productivity, morale, and organizational culture.

#### 5. Personal and Occupational Safety

- A. Demonstrate procedures to be followed in case of emergencies.
- B. Describe and discuss the procedure for reporting a work-related hazard or injury (worker's comp), including ways to report a potential safety hazard to a supervisor.
- C. Identify and discuss cyber ethics, cyber safety, and cyber security.
- D. Apply personal safety practices to and from the job.
- E. Recognize the effects of substance abuse in the workplace.
- F. Explain the importance of CAL-OSHA in the industry.
- G. Define and discuss ergonomics in relation to the working environment.
- H. Discuss the electrical hazards of working with electronic equipment.

#### 6. Anatomy and Physiology\*

- A. Demonstrate the ability to use medical terms in their proper context and abbreviations using anatomical positions.
- B. Describe the major body systems and give general functions of each: Integumentary, Muscular, Skeletal, Nervous (including senses), Cardiovascular, Endocrine, Lymphatic, Immune, Respiratory, Gastrointestinal, Urinary, and Reproductive.
- C. Discuss the importance of medical terms and the development of the language of healthcare.
- D. Communicate effectively (in verbal and written forms) using medical terms for anatomy, disease, and diagnostic and therapeutic

procedures.

*\*Competencies in this unit are studied in the Medical Terminology course and discussed throughout this course in pertinent units.*

### **7. Electrocardiography**

- A. Describe and discuss the cardiovascular system and identify any related diseases or disorders.
- B. Demonstrate the proper technique for administering a 12 lead electrocardiogram, including standardization and verification of gain setting.
- C. Discuss the procedure and care of a patient using a Holter monitor.
- D. Identify common cardiac arrhythmias.
- E. Demonstrate the correct preparation of the patient before administering a 12-lead electrocardiogram (EKG).
- F. Identify and discuss the cardiac cycle and conduction system of the heart.
- G. Identify components recorded and factors that are interpreted on the electrocardiogram cycle.

### **8. Phlebotomy\*\***

- A. Describe and discuss the vascular system and identify any related diseases or disorders.
- B. Demonstrate standard precautions, purpose, equipment and procedural steps for a vacuum tube system, syringe venipuncture and butterfly needle method.
- C. Describe the process relating to the initiation of the test request and demonstrate appropriate patient contact and process for proper patient and specimen identification.
- D. Perform and apply standard precautions, purpose, equipment and procedural steps for a vacuum tube system, syringe venipuncture and butterfly needle method on mannequins and classmates.
- E. Discuss and demonstrate patient safety, order of draw additives, risk factors, special precautions and appropriate response to complications, which may arise from capillary/venous puncture on mannequin and classmates.
- F. Identify and demonstrate the assembly of blood collection equipment, arterial puncture equipment, skin puncture equipment and venipuncture equipment for transport to pathology.
- G. Discuss the standard precautions, purpose, equipment and procedure for palpating a vein and preparing the patient for testing.
- H. Demonstrate the procedure to follow in the event of a failure to obtain blood specimen.
- I. Identify and discuss the quality assurance/quality control necessary to provide accurate and reliable test results.
- J. Perform and analyze urine pregnancy test.
- K. Demonstrate and analyze standard precautions, purpose, equipment and procedure for assessing urine volume, color, and clarity.
- L. Demonstrate standard precautions, purpose, equipment and procedure for performing a urinalysis chemical examination, preparing a slide for microscopic examination of urine sediment and a urine culture for a complete urinalysis.
- M. Demonstrate standard precautions, purpose, equipment and procedure for instructing a patient in the collection of a clean-catch, midstream and 24-hour urine specimen.

*\*\*Portions of this unit to be discussed in conjunction with unit on laboratory skills and diagnostic testing*

## **9. Hematology and Blood Chemistry**

- A. Describe and discuss the blood system, Lymphatic, Immune and identify any related diseases or disorders.
- B. Explain and demonstrate the correct procedure for obtaining a venous blood specimen using a safety syringe and needle, vacuum tube, and winged infusion set.
- C. Demonstrate the correct procedure for obtaining a blood specimen by fingertip skin puncture using a hematocrit tube, blood lancets and blood glucometer.
- D. Correctly identify body sites used for obtaining capillary and venous blood for testing and the common collection tubes, the order in which they are used, and the proper handling of blood samples.
- E. List the formation, components, and functions of blood.
- F. Demonstrate the preparation and care of a patient when obtaining a blood sample.
- G. Identify and discuss troubleshooting venipuncture technique and equipment.
- H. Differentiate between the common blood tests ordered, including hematocrit, hemoglobin, cholesterol, and blood glucose.
- I. Differentiate between the types of syringes and needles and identify the uses and safety features of each.

<p><b>10. Laboratory Skills and Diagnostic Testing</b></p> <ul style="list-style-type: none"> <li>A. Describe and discuss disorders and tests related to the urinary, gastro and respiratory, endocrine, lymphatic and immune systems.</li> <li>B. Identify the parts and demonstrate the use of a microscope and centrifuge.</li> <li>C. Discuss patient preparation techniques and how to assist in the collection, transportation, and handling of urine, sputum, throat and nasopharyngeal, wound, and vaginal cultures, including proper documentation and labeling.</li> <li>D. Demonstrate patient preparation techniques for the collection, transportation, and handling of urine.</li> <li>E. Identify diagnostic tests used to specify common medical conditions.</li> </ul>
<p><b>11. Emergency Medicine/CPR &amp; First Aid</b></p> <ul style="list-style-type: none"> <li>A. Describe and discuss the skeletal, cardio, muscular and integumentary systems and identify any related diseases or disorders.</li> <li>B. Successfully demonstrate First Aid techniques for multiple situations.</li> <li>C. Successfully complete the American Heart Association Basic Life Support CPR with AED (infant, child, adult) requirements for certification.</li> <li>D. Identify common signs and symptoms of conditions associated with patient distress.</li> <li>E. Describe the role and responsibility of the Medical Assistant in preventing and/or responding to medical emergencies.</li> <li>F. Describe immediate interventions in a medical emergency and demonstrate knowledge of what items to bring in an emergency.</li> </ul>
<p><b>12. Essentials for Nutrition, Healing and Mobility</b></p> <ul style="list-style-type: none"> <li>A. Describe and discuss the gastro-intestinal system, its relationship to nutrition and identify any related diseases or disorders.</li> <li>B. Explore patient nutrition for overall well-being.</li> <li>C. Identify the major nutrients and explain their functions and sources.</li> <li>D. Compare and contrast food related illnesses anorexia, bulimia, obesity, and malnutrition.</li> <li>E. Describe hot and cold agents as well as chemical packs that promote healing.</li> <li>F. Identify procedures and devices used to promote mobility and ambulation.</li> <li>G. Practice measurements for axillary crutches and demonstrate how to teach patients proper use of crutches, walker, cane and wheelchairs.</li> <li>H. Describe appropriate body mechanics used to ambulate patient transport.</li> </ul>
<p><b>13. Self-care and Workplace Readiness</b></p> <ul style="list-style-type: none"> <li>A. Identify techniques to manage time, stress and promote self-care.</li> <li>B. Explore career opportunities, education, experience and trends in the healthcare industry.</li> <li>C. Demonstrate effective communication and interpersonal relationship skills.</li> <li>D. Demonstrate characteristics of teamwork, leadership, and citizenship.</li> </ul>

- E. Describe employability skills and expectations of employers relating to job responsibilities, positive work habits, and workplace ethics.
- F. Develop a professional portfolio.

## 14. Internship / Certification

- A. Meet internship qualifications and requirements.
- B. Complete up to 160 hours of internship in a clinical setting.
- C. Complete competency exam(s) for industry certification(s).

## 15. Portfolio Design

- A. Develop personal marketing and computer skills by refining your digital portfolio for post-secondary and employment acceptance.
- B. Compile best samples of original works and documents for a variety of purposes, which shows a progression in the acquisition of knowledge and/or skills.
- C. Demonstrate knowledge of competencies through journaling or summary of selected works or documents.
- D. Revise professional resume and cover letter to align with skills and objective statements of the relevant industry.
- E. Dress professionally and practice interviewing techniques using portfolio materials.
- F. Assemble industry and employability documents (resume, cover letter, certifications, recommendation letters, etc.).
- G. Create a "leave behind" book or folder.
- H. Display portfolio materials during a fair, community event, competition, or professional panel review.
- I. Evaluate and utilize feedback to improve portfolio.

## Key Assignments

Assignment	Competencies	Career Ready Practices	Anchor Standards	Pathway Standards	CCSS
1. Students will participate in mock interviews that represent current industry practices (e.g., skills demonstrations, resumes, applications, portfolios, personal websites, e-portfolio, etc.).	1A, B, D 3B, C, D, I, J 13-15	2 3 10	2 3		LS 11-12.6 SLS 11-12.2
2. During mock clinic, students will analyze and explain medical terms so as to demonstrate proper pronunciation of medical terms and the ability to effectively communicate information (in written and verbal forms) for anatomy, disease, and diagnostic and therapeutic procedures. Students will include a 5-page written report and multi-media presentation on any body systems to include diseases, diagnosis, symptoms, and treatment.	1A-F 2A-J 4B-F 6A-D 7A, 8A, 9A, 10A, 11A, 12a	1 2 4 9 11	2 4 8 10	B5.0 B12.0	LS 11-12.1,12.2 LS 11-12.6 RLST 11-12.1,12.4 SLS 11-12.1,12.1b, 12.2 WHSST 11-12.4 WS 11-2.2
3. After participating in a mock general practice clinic, students will annotate in their notebooks a discussion with a patient coming in for an EKG, and write any abnormal body/skin condition, including interference with the procedure.	1B, C 2D, H, I, J 4C, F 5A,B,D,E,G,H 7A-G	1 2 4	2 4 10	B6.0 B7.0	RLST 11-12.3, 12.4 PS 1.B LS 11-12.1, 12.2, 12.6 RSTS 11-12.4
4. In a mock general practice clinic, each student will demonstrate universal and standard precautions and proper patient preparation. Students will palpate a vein and prepare a patient for venipuncture by syringe, vacuum tube system, by butterfly needle system, capillary puncture, obtaining a capillary specimen for transport and obtaining blood for blood culture and follow proper procedures to collect and prepare a blood smear and Uri analysis for microscopic examination.	1A-F, 2A,B,D-F,I, J 4C, F 5A,B,D,E,G,H 8A-M	1 2 4 8 9 12	2 4 9 10	B4.0 B6.0 B7.0 B10.0 B11.0	PS 1.B LS 11-12.6 RLST 11-12.3, 12.4 SLS 11-12.1, 12.1b, 12.1d
5. In a mock general practice clinic, students will practice patient preparation and interviewing techniques, and: - demonstrate the correct procedure for obtaining a blood specimen by fingertip skin puncture using various pieces of equipment.	1A-F, 2A,B,D-F,I, J 4C, F 8B, D, E-H 9A-I	1 2	2 10	B4.0 B6.0 B10.0 B11.0	PS 1.B LS 11-12.6 RLST 11-12.3, 12.4



Assignment	Competencies	Career Ready Practices	Anchor Standards	Pathway Standards	CCSS
6. In a mock general practice clinic, students will obtain and process/label lab specimens as well as prepare a capillary tube for centrifugation.	1B, C 2D, H, I, J 5A,B,D,E,G,H, 8I-M 10A-E	1 4	4 10	B10.0 B11.0	PS 1.B RLST 11-12.3, 12.4 LS 11-12.6 RSTS 11-12.4
7. Demonstrate through role- play the proper use of First Aid and CPR skills according to certification requirements.	1A-F, 2A-J 4C, F 5A-G 11A-F	1 2 5 7 9 12	2 5 6 8 9 10	B5.0 B6.0 B7.0 B8.0	LS 11-12.1 LS 11-12.6 RLST 11-12.3 RLST 11-12.4 SLS 11-12.2
8. Students will evaluate diet based on personal information (age, gender, height, weight, and activity level) and draw conclusions for nutritional needs using the USDA ChooseMyPlate.gov website. Students will participate in a mock general practice clinic in assisting moving patients using wheelchair, walker, crutches, canes, and from chair to standing and to wheelchair.	1B, C 2A-J, 4C, F 12A-H	1 2 4-6 12	2 4-6 10	B1.0 (B1.4) B2.0 B8.0 B9.0	PS 2.A, 2.C LS 11-12.2 RSIT 11-12.7 SLS 11-12.2
9. Student will participate in a community classroom internship program.	All	1-9, 12	2-10	B3.0 B4.0 B5.0 B10.0 B11.0 B12.0	N-Q 1, 2, 3 AREI 1 PS 1.B LS 11-12.6 RSIS 11-12.4 SLS 11-12.1b SLS 11-12.1d

## Standards Assessed in this Program

### Career Ready Practices

1. Apply appropriate technical skills and academic knowledge.
2. Communicate clearly, effectively, and with reason.
3. Develop an education and career plan aligned to personal goals.
4. Apply technology to enhance productivity.
5. Utilize critical thinking to make sense of problems and persevere in solving them.
6. Practice personal health and understand financial well-being.
7. Act as a responsible citizen in the workplace and the community.
8. Model integrity, ethical leadership, and effective management.
9. Work productively in teams while integrating cultural/global competence.
10. Demonstrate creativity and innovation.
11. Employ valid and reliable research strategies.
12. Understand the environmental, social, and economic impacts of decisions.

### Anchor Standards

#### 2.0 Communications

- Acquire and use accurately sector terminology and protocols at the career and college readiness level for communicating effectively in oral, written, and multimedia formats.

#### 3.0 Career Planning and Management

- Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans.

#### 4.0 Technology

- Use existing and emerging technology, to investigate, research, and produce products and services, including new information, as required in the sector workplace environment.

#### 5.0 Problem Solving and Critical Thinking

- Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.

#### 6.0 Health and Safety

- Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the sector workplace environment.

#### 7.0 Responsibility and Flexibility

- Initiate, and participate in, a range of collaborations demonstrating behaviors that reflect personal and professional responsibility, flexibility, and respect in the sector workplace environment and community settings.

#### 8.0 Ethics and Legal Responsibilities

- Practice professional, ethical, and legal behavior, responding thoughtfully to diverse perspectives and resolving contradictions when possible, consistent with applicable laws, regulations, and organizational norms.

## 9.0 Leadership and Teamwork

- Work with peers to promote divergent and creative perspectives, effective leadership, group dynamics, team and individual decision making, benefits of workforce diversity, and conflict resolution.

## 10.0 Technical Knowledge and Skills

- Apply essential technical knowledge and skills common to all pathways in the sector following procedures when carrying out experiments or performing technical tasks.

## Pathway Standards

### Health Science and Medical Technology - Patient Care Pathway

**B1.0** Recognize the integrated systems approach to health care delivery services: prevention, diagnosis, pathology, and treatment. (B1.4: Illustrate the value of preventative and early intervention in relationship to health care practices.)

**B2.0** Understand the basic structure and function of the human body and relate normal function to common disorders.

**B3.0** Know how to apply mathematical computations used in healthcare delivery system.

**B4.0** Recognize and practice components of an intake assessment relevant to patient care.

**B5.0** Know the definition, spelling, pronunciation, and use of appropriate terminology in the healthcare setting.

**B6.0** Communicate procedures and goals to patients using various communication strategies to respond to questions and concerns.

**B7.0** Apply observation techniques to detect changes in the health status of patients.

**B8.0** Demonstrate the principles of body mechanics as they apply to the positioning, transferring, and transporting of patients.

**B9.0** Implement wellness strategies for the prevention of injury and disease.

**B10.0** Comply with protocols and preventative health practices necessary to maintain a safe and healthy environment for patients, healthcare workers, coworkers, and self within the healthcare setting.

**B11.0** Comply with hazardous waste disposal policies and procedures, including documentation, to ensure that regulated waste is handled, packaged, stored, and disposed of in accordance with federal, state, and local regulations.

**B12.0** Adhere to the roles and responsibilities, within the scope of practice, that contribute to the design and implementation of treatment planning.

**B13.0** Research factors that define cultural differences between and among different ethnic, racial, and cultural groups and special populations.

## Common Core State Standards

**ENGLISH LANGUAGE ARTS****Language Standards**

**LS 11-12.1:** Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

**LS 11-12.2:** Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

**LS 11-12.3:** Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

**LS 11-12.6:** Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the (career and college) readiness level, demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

**Reading Standards for Information Text**

**RSIT 11-12.7:** Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

**Reading Standards for Literacy in Science and Technical Subjects**

**RLST 11-12.1:** Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes to any gaps or inconsistencies in the account.

**RLST 11-12.3:** Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

**RLST 11-12.4:** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context.

**Speaking and Listening Standards**

**SLS 11-12.2:** Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions, and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

**SLS 11-12.1:** Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners, building on others ideas and expressing their own clearly and persuasively.

**SLS 11-12.1b:** Work with peers to promote civil, democratic discussions and decision making, set clear goals and deadlines, and establish individual roles as needed.

**SLS 11-12.1d:** Respond thoughtfully to diverse perspectives, synthesize comments, claims and evidence made on all sides of an issue, resolve contradictions when possible, and determine what additional information or research is required to deepen the investigation or complete the work.

**Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects**

**WHSST 11-12.2:** Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

**WHSST 11-12.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate for task, purpose, and audience.

## Writing Standards

**WS 11-12.2:** Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

- a. Introduce a topic or thesis statement; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
- b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
- c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
- d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topics.
- e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
- f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic.)

**WS 11-12.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

**WS 11-12.6:** Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback including new arguments and information.

**WS 11-12.7:** Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem, narrow or broaden the inquiry when appropriate, synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

**WS 11-12.8:** Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation including footnotes and endnotes.

## MATHEMATICS

### Number and Quantity-Quantities

**N-Q 1:** Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

**N-Q 2:** Define appropriate quantities for the purpose of descriptive modeling.

**N-Q 3:** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

### Algebra-Reasoning with Equations and Inequalities

**A-REI 1:** Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

**SCIENCE**

**Physical Sciences**

**PS1: Matter and Its Interactions**

**PS 1.B:** Chemical Reactions

**PS2: Motion and Stability: Forces and Interactions**

**PS2.A:** Forces and Motion

**PS2.C:** Stability and Instability in Physical Systems