**Physical Science Honors   (#2003320)**

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| **Course Number:**2003320 | **Course Path: Section:** Grades PreK to 12 Education Courses > **Grade Group:** Grades 9 to 12 and Adult Education Courses > **Subject:** Science > **SubSubject:**Physical Sciences >  |
| **Course Section:**Grades PreK to 12 Education Courses | **Abbreviated Title:**PHY SCI HON |
| **Honors?**Yes |  |
| **Number of Credits:**One credit (1) | **Course Length:**Year (Y) |
| **Course Type:**Core | **Course Level:**3 |
| **Course Status:**Draft - Board Approval Pending |  |
| **Keywords:**PreK to 12 Education, Pre K to 12 Education, Grades 9 to 12 and Adult Education, 9 to 12, 9-12, High School, Science, Physical Sciences, Physical Science Honors, Physical Science, Honors, Physical, PHY SCI HON |  |
| **Grade Level(s):**9, 10, 11, 12 |  |

**General Notes:**

While the content focus of this course is consistent with the Physical Science course, students will explore these concepts in greater depth. In general, the academic pace and rigor will be greatly increased for honors level course work. Laboratory investigations that include the use of scientific inquiry, research, measurement, problem solving, laboratory apparatus and technologies, experimental procedures, and safety procedures are an integral part of this course. The National Science Teachers Association (NSTA) recommends that at the high school level, all students should be in the science lab or field, collecting data every week. School laboratory investigations (labs) are defined by the National Research Council (NRC) as an experience in the laboratory, classroom, or the field that provides students with opportunities to interact directly with natural phenomena or with data collected by others using tools, materials, data collection techniques, and models (NRC, 2006, p. 3). Laboratory investigations in the high school classroom should help all students develop a growing understanding of the complexity and ambiguity of empirical work, as well as the skills to calibrate and troubleshoot equipment used to make observations. Learners should understand measurement error; and have the skills to aggregate, interpret, and present the resulting data (National Research Council, 2006, p.77; NSTA, 2007).

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| **Name** | **Description** |
| [SC.912.N.1.1:](http://www.cpalms.org/Public/PreviewStandard/Preview/1856) | Define a problem based on a specific  body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:  1. **Pose questions about the natural world,** (Articulate the purpose of the investigation and identify the relevant scientific concepts).
2. **Conduct systematic observations,** (Write procedures that are clear and replicable. Identify observables and examine relationships between test (independent) variable and outcome (dependent) variable. Employ appropriate methods for accurate and consistent observations; conduct and record measurements at appropriate levels of precision. Follow safety guidelines).
3. **Examine books and other sources of information to see what is already known,**
4. **Review what is known in light of empirical evidence,** (Examine whether available empirical evidence can be interpreted in terms of existing knowledge and models, and if not, modify or develop new models).
5. **Plan investigations,** (Design and evaluate a scientific investigation).
6. **Use tools to gather, analyze, and interpret data (this includes the use of measurement in metric and other systems, and also the generation and interpretation of graphical representations of data, including data tables and graphs),** (Collect data or evidence in an organized way. Properly use instruments, equipment, and materials (e.g., scales, probeware, meter sticks, microscopes, computers) including set-up, calibration, technique, maintenance, and storage).
7. **Pose answers, explanations, or descriptions of events,**
8. **Generate explanations that explicate or describe natural phenomena (inferences),**
9. **Use appropriate evidence and reasoning to justify these explanations to others,**
10. **Communicate results of scientific investigations, and**
11. **Evaluate the merits of the explanations produced by others.**
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| [SC.912.N.1.2:](http://www.cpalms.org/Public/PreviewStandard/Preview/1857) | Describe and explain what characterizes science and its methods. |
| [SC.912.N.1.3:](http://www.cpalms.org/Public/PreviewStandard/Preview/1858) | Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on  critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data presented. |
| [SC.912.N.1.4:](http://www.cpalms.org/Public/PreviewStandard/Preview/1859) | Identify sources of information and assess their reliability according to the strict standards of scientific investigation. |
| [SC.912.N.1.5:](http://www.cpalms.org/Public/PreviewStandard/Preview/1860) | Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome. |
| [SC.912.N.1.6:](http://www.cpalms.org/Public/PreviewStandard/Preview/1861) | Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied. |
| [SC.912.N.1.7:](http://www.cpalms.org/Public/PreviewStandard/Preview/1862) | Recognize the role of creativity in constructing scientific questions, methods and explanations. |
| [SC.912.N.2.1:](http://www.cpalms.org/Public/PreviewStandard/Preview/1866) | Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science). |
| [SC.912.N.2.2:](http://www.cpalms.org/Public/PreviewStandard/Preview/1867) | Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion. |
| [SC.912.N.2.3:](http://www.cpalms.org/Public/PreviewStandard/Preview/1868) | Identify examples of pseudoscience (such as astrology, phrenology) in society. |
| [SC.912.N.2.4:](http://www.cpalms.org/Public/PreviewStandard/Preview/1869) | Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scientific knowledge becomes stronger, leading to its durability. |
| [SC.912.N.2.5:](http://www.cpalms.org/Public/PreviewStandard/Preview/1870) | Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations) of scientists are a strength of science as they are a source of new, testable ideas that have the potential to add new evidence to support one or another of the explanations. |
| [SC.912.N.3.1:](http://www.cpalms.org/Public/PreviewStandard/Preview/1871) | Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have to offer. |
| [SC.912.N.3.2:](http://www.cpalms.org/Public/PreviewStandard/Preview/1872) | Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science. |
| [SC.912.N.3.3:](http://www.cpalms.org/Public/PreviewStandard/Preview/1873) | Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships. |
| [SC.912.N.3.4:](http://www.cpalms.org/Public/PreviewStandard/Preview/1874) | Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions. |
| [SC.912.N.3.5:](http://www.cpalms.org/Public/PreviewStandard/Preview/1875) | Describe the function of models in science, and identify the wide range of models used in science. |
| [SC.912.N.4.1:](http://www.cpalms.org/Public/PreviewStandard/Preview/1876) | Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making. |
| [SC.912.N.4.2:](http://www.cpalms.org/Public/PreviewStandard/Preview/1877) | Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental. |
| [SC.912.E.7.1:](http://www.cpalms.org/Public/PreviewStandard/Preview/1893) | Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon. |
| [SC.912.P.8.1:](http://www.cpalms.org/Public/PreviewStandard/Preview/1902) | Differentiate among the four states of matter. |
| [SC.912.P.8.2:](http://www.cpalms.org/Public/PreviewStandard/Preview/1903) | Differentiate between physical and chemical properties and physical and chemical changes of matter. |
| [SC.912.P.8.3:](http://www.cpalms.org/Public/PreviewStandard/Preview/1904) | Explore the scientific theory of atoms (also known as atomic theory) by describing changes in the atomic model over time and why those changes were necessitated by experimental evidence. |
| [SC.912.P.8.4:](http://www.cpalms.org/Public/PreviewStandard/Preview/1905) | Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within the atom. |
| [SC.912.P.8.5:](http://www.cpalms.org/Public/PreviewStandard/Preview/1906) | Relate properties of atoms and their position in the periodic table to the arrangement of their electrons. |
| [SC.912.P.8.7:](http://www.cpalms.org/Public/PreviewStandard/Preview/1908) | Interpret formula representations of molecules and compounds in terms of composition and structure. |
| [SC.912.P.8.8:](http://www.cpalms.org/Public/PreviewStandard/Preview/1912) | Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions. |
| [SC.912.P.8.11:](http://www.cpalms.org/Public/PreviewStandard/Preview/1910) | Relate acidity and basicity to hydronium and hydroxyl ion concentration and pH. |
| [SC.912.P.10.1:](http://www.cpalms.org/Public/PreviewStandard/Preview/1916) | Differentiate among the various forms of energy and recognize that they can be transformed from one form to others. |
| [SC.912.P.10.2:](http://www.cpalms.org/Public/PreviewStandard/Preview/1917) | Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity. |
| [SC.912.P.10.3:](http://www.cpalms.org/Public/PreviewStandard/Preview/1911) | Compare and contrast work and power qualitatively and quantitatively. |
| [SC.912.P.10.4:](http://www.cpalms.org/Public/PreviewStandard/Preview/1918) | Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter. |
| [SC.912.P.10.5:](http://www.cpalms.org/Public/PreviewStandard/Preview/1865) | Relate temperature to the average molecular kinetic energy. |
| [SC.912.P.10.6:](http://www.cpalms.org/Public/PreviewStandard/Preview/1919) | Create and interpret potential energy diagrams, for example: chemical reactions, orbits around a central body, motion of a pendulum. |
| [SC.912.P.10.7:](http://www.cpalms.org/Public/PreviewStandard/Preview/1665) | Distinguish between endothermic and exothermic chemical processes. |
| [SC.912.P.10.10:](http://www.cpalms.org/Public/PreviewStandard/Preview/1921) | Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear). |
| [SC.912.P.10.11:](http://www.cpalms.org/Public/PreviewStandard/Preview/1922) | Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues. |
| [SC.912.P.10.12:](http://www.cpalms.org/Public/PreviewStandard/Preview/1667) | Differentiate between chemical and nuclear reactions. |
| [SC.912.P.10.14:](http://www.cpalms.org/Public/PreviewStandard/Preview/1699) | Differentiate among conductors, semiconductors, and insulators. |
| [SC.912.P.10.15:](http://www.cpalms.org/Public/PreviewStandard/Preview/1700) | Investigate and explain the relationships among current, voltage, resistance, and power. |
| [SC.912.P.12.6:](http://www.cpalms.org/Public/PreviewStandard/Preview/1794) | Qualitatively apply the concept of angular momentum. |
| [SC.912.P.10.18:](http://www.cpalms.org/Public/PreviewStandard/Preview/1926) | Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications. |
| [SC.912.P.10.21:](http://www.cpalms.org/Public/PreviewStandard/Preview/1929) | Qualitatively describe the shift in frequency in sound or electromagnetic waves due to the relative motion of a source or a receiver. |
| [SC.912.P.12.1:](http://www.cpalms.org/Public/PreviewStandard/Preview/1931) | Distinguish between scalar and vector quantities and assess which should be used to describe an event. |
| [SC.912.P.12.2:](http://www.cpalms.org/Public/PreviewStandard/Preview/1932) | Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time. |
| [SC.912.P.12.3:](http://www.cpalms.org/Public/PreviewStandard/Preview/1933) | Interpret and apply Newton's three laws of motion. |
| [SC.912.P.12.4:](http://www.cpalms.org/Public/PreviewStandard/Preview/1934) | Describe how the gravitational force between two objects depends on their masses and the distance between them. |
| [SC.912.P.12.5:](http://www.cpalms.org/Public/PreviewStandard/Preview/1935) | Apply the law of conservation of linear momentum to interactions, such as collisions between objects. |
| [SC.912.P.12.7:](http://www.cpalms.org/Public/PreviewStandard/Preview/1936) | Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving. |
| [SC.912.P.12.10:](http://www.cpalms.org/Public/PreviewStandard/Preview/1939) | Interpret the behavior of ideal gases in terms of kinetic molecular theory. |
| [SC.912.P.12.11:](http://www.cpalms.org/Public/PreviewStandard/Preview/1940) | Describe phase transitions in terms of kinetic molecular theory. |
| [SC.912.P.12.12:](http://www.cpalms.org/Public/PreviewStandard/Preview/1942) | Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction. |
| [SC.912.L.18.7:](http://www.cpalms.org/Public/PreviewStandard/Preview/2050) | Identify the reactants, products, and basic functions of photosynthesis. |
| [SC.912.L.18.8:](http://www.cpalms.org/Public/PreviewStandard/Preview/2051) | Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration. |
| [SC.912.L.18.12:](http://www.cpalms.org/Public/PreviewStandard/Preview/2055) | Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent. |

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| [MACC.912.N-Q.1.1:](http://www.cpalms.org/Public/PreviewStandard/Preview/5519) | 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. |
| [MACC.912.N-Q.1.3:](http://www.cpalms.org/Public/PreviewStandard/Preview/5521) | Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. |
| [MACC.912.N-VM.1.1:](http://www.cpalms.org/Public/PreviewStandard/Preview/5531) | Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., ***v***, ***|v|***, **||v||**, ***v***). |
| [MACC.912.N-VM.1.3:](http://www.cpalms.org/Public/PreviewStandard/Preview/5533) | Solve problems involving velocity and other quantities that can be represented by vectors. |
| [MACC.912.A-CED.1.4:](http://www.cpalms.org/Public/PreviewStandard/Preview/5557) | Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.*For example, rearrange Ohm’s law V = IR to highlight resistance R.* |
| [MACC.912.F-IF.2.4:](http://www.cpalms.org/Public/PreviewStandard/Preview/5573) | For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.* |
| [MACC.912.F-IF.3.7:](http://www.cpalms.org/Public/PreviewStandard/Preview/5576) | MACC.912.F-IF.3.7 (2013-2014): Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.1. Graph linear and quadratic functions and show intercepts, maxima, and minima.
2. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.
3. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.
4. Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.
5. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

MAFS.912.F-IF.3.7 (2014-2015): Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.1. Graph linear and quadratic functions and show intercepts, maxima, and minima.
2. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.
3. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.
4. Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.
5. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude, and using phase shift.
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| [MACC.912.G-MG.1.2:](http://www.cpalms.org/Public/PreviewStandard/Preview/5639) | Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot). |
| [MACC.912.S-ID.1.1:](http://www.cpalms.org/Public/PreviewStandard/Preview/5641) | Represent data with plots on the real number line (dot plots, histograms, and box plots). |
| [MACC.912.S-ID.1.2:](http://www.cpalms.org/Public/PreviewStandard/Preview/5642) | Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. |
| [MACC.912.S-ID.1.3:](http://www.cpalms.org/Public/PreviewStandard/Preview/5643) | Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). |
| [MACC.912.S-ID.1.4:](http://www.cpalms.org/Public/PreviewStandard/Preview/5644) | Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve. |
| [MACC.912.S-ID.2.5:](http://www.cpalms.org/Public/PreviewStandard/Preview/5645) | Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data. |
| [MACC.912.S-ID.2.6:](http://www.cpalms.org/Public/PreviewStandard/Preview/5646) | Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.1. Fit a function to the data; use functions fitted to data to solve problems in the context of the data.*Use given functions or choose a function suggested by the context. Emphasize linear, and exponential models.*
2. Informally assess the fit of a function by plotting and analyzing residuals.
3. Fit a linear function for a scatter plot that suggests a linear association.
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| [LACC.910.SL.1.1:](http://www.cpalms.org/Public/PreviewStandard/Preview/6108) | Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.1. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
2. Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed.
3. Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.
4. Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.
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| [LACC.910.SL.1.2:](http://www.cpalms.org/Public/PreviewStandard/Preview/6109) | Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source. |
| [LACC.910.SL.1.3:](http://www.cpalms.org/Public/PreviewStandard/Preview/6110) | Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence. |
| [LACC.910.SL.2.4:](http://www.cpalms.org/Public/PreviewStandard/Preview/6111) | Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task. |
| [LACC.910.SL.2.5:](http://www.cpalms.org/Public/PreviewStandard/Preview/6112) | Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest. |
| [LACC.910.RST.1.1:](http://www.cpalms.org/Public/PreviewStandard/Preview/6214) | Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions. |
| [LACC.910.RST.1.2:](http://www.cpalms.org/Public/PreviewStandard/Preview/6215) | Determine the central ideas or conclusions of a text; trace the text’s explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text. |
| [LACC.910.RST.1.3:](http://www.cpalms.org/Public/PreviewStandard/Preview/6216) | Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text. |
| [LACC.910.RST.2.4:](http://www.cpalms.org/Public/PreviewStandard/Preview/6217) | 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 relevant to grades 9–10 texts and topics. |
| [LACC.910.RST.2.5:](http://www.cpalms.org/Public/PreviewStandard/Preview/6218) | Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy). |
| [LACC.910.RST.2.6:](http://www.cpalms.org/Public/PreviewStandard/Preview/6219) | Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address. |
| [LACC.910.RST.3.7:](http://www.cpalms.org/Public/PreviewStandard/Preview/6220) | Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words. |
| [LACC.910.RST.3.8:](http://www.cpalms.org/Public/PreviewStandard/Preview/6221) | Assess the extent to which the reasoning and evidence in a text support the author’s claim or a recommendation for solving a scientific or technical problem. |
| [LACC.910.RST.3.9:](http://www.cpalms.org/Public/PreviewStandard/Preview/6222) | Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts. |
| [LACC.910.RST.4.10:](http://www.cpalms.org/Public/PreviewStandard/Preview/6223) | By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently. |
| [LACC.910.WHST.1.1:](http://www.cpalms.org/Public/PreviewStandard/Preview/6233) | Write arguments focused on *discipline-specific content.*1. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.
2. Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience’s knowledge level and concerns.
3. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
4. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
5. Provide a concluding statement or section that follows from or supports the argument presented.
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| [LACC.910.WHST.1.2:](http://www.cpalms.org/Public/PreviewStandard/Preview/6234) | Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.1. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
2. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic.
3. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.
4. Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers.
5. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
6. 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).
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| [LACC.910.WHST.2.4:](http://www.cpalms.org/Public/PreviewStandard/Preview/6235) | Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. |
| [LACC.910.WHST.2.5:](http://www.cpalms.org/Public/PreviewStandard/Preview/6236) | Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. |
| [LACC.910.WHST.2.6:](http://www.cpalms.org/Public/PreviewStandard/Preview/6237) | Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically. |
| [LACC.910.WHST.3.7:](http://www.cpalms.org/Public/PreviewStandard/Preview/6238) | 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. |
| [LACC.910.WHST.3.8:](http://www.cpalms.org/Public/PreviewStandard/Preview/6239) | Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation. |
| [LACC.910.WHST.3.9:](http://www.cpalms.org/Public/PreviewStandard/Preview/6240) | Draw evidence from informational texts to support analysis, reflection, and research. |
| [LACC.910.WHST.4.10:](http://www.cpalms.org/Public/PreviewStandard/Preview/6241) | Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. |