

# Career & Technical Education (CTE) Standards Revision Project

## Cluster: Transportation, Distribution & Logistics

Pathways: Transportation Operations, Logistics planning & Management, Warehousing & Distribution Operations, Facility & Equipment Maintenance, Transportation Systems, Sales & Service

## Transportation Distribution & Logistics Cluster Overview

The Transportation Distribution & Logistics cluster prepares students for careers and businesses involved in the planning, management, and movement of people, materials and products by road, air, rail and water. Pathways related to professional and technical support for this cluster include: Warehousing & Distribution Operations, Logistic Planning and Management, Facility & Mobile Equipment Maintenance, Sales & Service and Transportation Operations. (Source: [www.careerclusters.org](http://www.careerclusters.org))

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## Standards: Transportation 2

<b>Career Cluster/Cluster Grouping:</b>	<b>Transportation, Distribution and Logistics Career Cluster</b>
<b>Pathway(s):</b>	<b>Logistics Planning and Management</b>
<b>Prepared Completer Competencies:</b> <ul style="list-style-type: none"> <li>• TRPB.01 Identify and manage resources that help assess needs and solutions for services rendered in logistics planning and management related to transportation.</li> </ul>	
<b>High School Expectations</b>	
<b>Concepts and skills students know include:</b> <ul style="list-style-type: none"> <li>• TRPB.01.01 Analyze needs and develop logistics solutions for company/customers in order to provide targeted and successful logistics planning and management services.</li> </ul>	
<b>Evidence Outcomes - Students can:</b>	<b>21<sup>st</sup> Century Skills and Readiness Competencies</b>
<p>a. Assess company/customer needs and requirements using a structured process.</p> <p>MAT01.02.a, MAT02.06.a, MAT03.01.a, MAT03.01.b, MAT03.01.c, MAT03.02.a, MAT03.02.c, MAT03.03.a, MAT03.03.b, MAT03.03.c</p> <p>PWR02.01.a, PWR02.08.a, PWR02.09.d</p> <p>b. Select mode/modes of transportation needed to meet identified company/ customer needs and requirements.</p> <p>RWC01.01.c, RWC01.02.b</p> <p>PWR02.01.a, PWR02.01.d, PWR02.08.a, PWR02.09.d</p>	<b>Academic Content Knowledge Alignment:</b> <p><b>MAT01.02.a - Number Sense, Properties, and Operations:</b></p> <ul style="list-style-type: none"> <li>• Use of number theory arguments to justify relationships involving whole numbers. <ul style="list-style-type: none"> <li>○ Develop and justify conjectures about relationships involving whole numbers.</li> </ul> </li> </ul> <p><b>MAT01.03.a - Number Sense, Properties, and Operations.</b></p> <ul style="list-style-type: none"> <li>• Systematic counting techniques are used to describe and solve problems. <ul style="list-style-type: none"> <li>○ Use combinatorics (Fundamental Counting Principle, permutations and combinations) to solve problems in real-world contexts.</li> </ul> </li> </ul> <p><b>MAT02.02.d - Patterns, Functions, and Algebraic Structures:</b></p> <ul style="list-style-type: none"> <li>• Graphs and tables are used to describe the qualitative behavior of common types of functions. <ul style="list-style-type: none"> <li>○ Make qualitative statements about the rate of change of a function, based on its graph or table.</li> </ul> </li> </ul>

<p>c. Recommend the carriers to use for the various transportation mode/modes given the customer needs and requirements.</p> <p>MAT03.01.c, RWC01.01.c, RWC01.02.b</p> <p>PWR02.01.a, PWR02.01.d, PWR02.08.a, PWR02.09.d</p> <p>d. Assess the options for locating facilities and services within available logistics networks.</p> <p>MAT01.02.a, MAT03.03.a</p> <p>PWR01.02.a, PWR02.01.a, PWR02.01.d, PWR02.08.a, PWR02.09.a</p> <p>e. Develop transportation plans including costs, routes, and schedules for transporting people and goods.</p> <p>MAT01.02.a, MAT01.03.a, MAT02.02.d, MAT02.05.c, MAT02.06.a</p> <p>RWC3.01.d, PWR02.01.a, PWR02.01.d, PWR02.08.a, PWR02.09.d</p> <p>f. Develop warehousing/storage solutions that meet needs and requirements.</p> <p>MAT01.02.a, MAT02.05.a, MAT04.01.a, MAT04.01.b, MAT04.01.c, MAT04.01.d, MAT04.01.e, MAT04.01.f, MAT04.02.c</p> <p>RWC01.01.c, RWC01.02.b</p> <p>PWR02.01.a, PWR02.01.d, PWR02.08.a, PWR02.09.d</p>	<p><b>MAT02.05.a - Patterns, Functions, and Algebraic Structures:</b></p> <ul style="list-style-type: none"> <li>• Solutions to equations, inequalities and systems of equations are found using a variety of tools. <ul style="list-style-type: none"> <li>○ Find, using all tools including graphing technology, solutions to quadratic and cubic equations and inequalities by using appropriate algebraic methods such as factoring, completing the square, graphing or using the quadratic formula.</li> </ul> </li> </ul> <p><b>MAT02.05.c - Patterns, Functions, and Algebraic Structures:</b></p> <ul style="list-style-type: none"> <li>• Solutions to equations, inequalities and systems of equations using all available tools, including technology.. <ul style="list-style-type: none"> <li>○ Rewrite literal equations in terms of an unknown variable.</li> </ul> </li> </ul> <p><b>MAT02.06.a - Patterns, Functions, and Algebraic Structures:</b></p> <ul style="list-style-type: none"> <li>• Quantitative relationships in the real world can be modeled and solved using functions. <ul style="list-style-type: none"> <li>○ Represent, solve, using all tools including graphing technology, and interpret problems in various contexts using linear, quadratic, and exponential functions.</li> </ul> </li> </ul> <p><b>MAT03.01.a - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• Statistical methods take variability into account, supporting informed decision-making through quantitative studies designed to answer specific questions. <ul style="list-style-type: none"> <li>○ Formulate appropriate research questions that can be answered with statistical analysis.</li> </ul> </li> </ul> <p><b>MAT03.01.b - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• Statistical methods take variability into account, supporting informed decision-making through quantitative studies designed to answer specific questions. <ul style="list-style-type: none"> <li>○ Determine appropriate data collection methods to answer a research question.</li> </ul> </li> </ul> <p><b>MAT03.01.c - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• Statistical methods take variability into account, supporting informed decision-making through quantitative studies designed to answer specific questions. <ul style="list-style-type: none"> <li>○ Explain how data might be analyzed to provide answers to a research question.</li> </ul> </li> </ul> <p><b>MAT03.02.a - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• The design of an experiment or sample survey is of critical importance to analyzing the data and drawing conclusions. <ul style="list-style-type: none"> <li>○ Identify the characteristics of a well-designed and well-conducted survey.</li> </ul> </li> </ul> <p><b>MAT03.02.c - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• The design of an experiment or sample survey is of critical importance to analyzing the data and drawing conclusions. <ul style="list-style-type: none"> <li>○ Differentiate between the inferences that can be drawn in experiments versus observational studies.</li> </ul> </li> </ul>
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<p>g. Develop packaging and material handling solutions to meet needs and requirements including HAZMAT requirements.</p> <p>MAT02.05.a, MAT03.01.a, MAT03.01.b, MAT03.01.c, MAT03.02.a, MAT03.03.b MAT04.01.a, MAT04.01.b, MAT04.01.c, MAT04.01.d, MAT02.06.a</p> <p>RWC01.01.c, RWC01.02.b</p> <p>SCI1.2.b, SCI1.3.e, SCI02.06.b,</p> <p>PWR02.01.a, PWR02.01.d, PWR02.08.a, PWR02.09.d</p> <p>h. Develop documentation and information flow requirements and solutions.</p> <p>RWC01.01.c, RWC01.02.b,</p> <p>PWR02.01.a, PWR02.02.a, PWR02.08.b</p> <p>i. Develop documentation and other requirements for international transportation and logistics.</p> <p>RWC01.01.c, RWC01.02.b</p> <p>PWR02.01.a, PWR02.02.a, PWR02.04.b</p> <p>j. Develop and negotiate contracts for logistics planning and management services.</p> <p>MAT01.02.a, MAT02.06.a</p> <p>RWC01.01.c, RWC01.02.b</p> <p>PWR02.01.a, PWR02.02.a, PWR02.08.b</p>	<p><b>MAT03.03.a - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• Visual displays and summary statistics condense the information in data sets into usable knowledge. <ul style="list-style-type: none"> <li>○ Identify and choose appropriate ways to summarize numerical or categorical data using tables, graphical displays, and numerical summary statistics (describing shape, center and spread) and accounting for outliers when appropriate.</li> </ul> </li> </ul> <p><b>MAT03.03.b - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• Visual displays and summary statistics condense the information in data sets into usable knowledge. <ul style="list-style-type: none"> <li>○ Define and explain how sampling distributions (developed through simulation) are used to describe the sample-to-sample variability of sample statistics.</li> </ul> </li> </ul> <p><b>MAT03.03.c - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• Visual displays and summary statistics condense the information in data sets into usable knowledge. <ul style="list-style-type: none"> <li>○ Describe the relationship between two categorical variables using percents.</li> </ul> </li> </ul> <p><b>MAT3.5.a-Mathematics, Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• Experimentation with random phenomena using probability and simulation with technology.. <ul style="list-style-type: none"> <li>○ Develop simulations that demonstrate probability as a long-run relative frequency.</li> </ul> </li> </ul> <p><b>MAT04.01.a - Shape, Dimension, and Geometric Relationships:</b></p> <ul style="list-style-type: none"> <li>• Attributes of two- and three-dimensional objects are measurable and can be quantified. <ul style="list-style-type: none"> <li>○ Calculate (or estimate when appropriate) the perimeter and area of a two-dimensional irregular shape.</li> </ul> </li> </ul> <p><b>MAT04.01.b - Shape, Dimension, and Geometric Relationships:</b></p> <ul style="list-style-type: none"> <li>• Attributes of two- and three-dimensional objects are measurable and can be quantified. <ul style="list-style-type: none"> <li>○ Justify, interpret, and apply the use of formulas for the surface area, and volume of cones, pyramids, and spheres including real-world situations.</li> </ul> </li> </ul> <p><b>MAT04.01.c - Shape, Dimension, and Geometric Relationships:</b></p> <ul style="list-style-type: none"> <li>• Attributes of two- and three-dimensional objects are measurable and can be quantified. <ul style="list-style-type: none"> <li>○ Solve for unknown quantities in relationships involving perimeter, area, surface area, and volume.</li> </ul> </li> </ul>
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**MAT04.01.d - Shape, Dimension, and Geometric Relationships:**

- Attributes of two- and three-dimensional objects are measurable and can be quantified.
  - Apply the effect of dimensional change, utilizing appropriate units and scales in problem-solving situations involving perimeter, area, and volume.

**MAT04.01.e - Shape, Dimension, and Geometric Relationships:**

- Determination and utilization of the area of irregular shapes, and surface area and volume of cones and pyramids, cylinders and prisms, and spheres..
  - Analyze real-world situations involving perimeter and area of irregular shapes and volume of cones/pyramids, cylinders/prisms, and spheres.

**MAT04.01.f - Shape, Dimension, and Geometric Relationships:**

- Determination and utilization of the area of irregular shapes, and surface area and volume of cones and pyramids, cylinders and prisms, and spheres..
  - Develop and justify conjectures about relationships among properties of shapes in two- and three-dimensions using construction tools, including technology.

**MAT04.02.c - Shape, Dimension, and Geometric Relationships:**

- Objects in the plane and their parts, attributes, and measurements can be analyzed deductively.
  - Know and apply properties of angles including corresponding, exterior, interior, vertical, complementary, and supplementary angles to solve problems. Justify the results using two-column proofs, paragraph proofs, flow charts, or illustrations.

**RWC01.01.c - Oral Expression and Listening:**

- Effective speaking in formal and informal settings requires appropriate use of methods and audience awareness.
  - Use examples, illustrations, graphics, quotations, analogies, facts, and statistics to focus and support the content of a presentation.

**RWC01.02.b - Oral Expression and Listening:**

- Effective collaborative groups accomplish goals.
  - Implement an effective group effort that achieves a goal.

**RWC03.01.d - Writing and Composition:**

- Use a recursive writing process for planning, developing and revising text for a variety of academic, workplace, and literary purposes and audiences..
  - Write with clear focus, depth, accurate and relevant detail.

**SCI1.2.b-Science, Physical Science:**

- Matter has definite structure which determines characteristic physical and chemical properties.
  - Gather, analyze and interpret data on chemical and physical properties of elements (e.g., density, melting point, boiling point, pH, conductivity).

**SCI1.3.e-Science, Physical Science:**

- Matter can change form through chemical or nuclear (fusion and fission) reactions that rearrange the molecules and structure of atoms while abiding by the laws of conservation of mass and energy..
  - Predict reactants and products for different types of chemical and nuclear reactions.

**SCI02.06.b - Life Science:**

- Populations interact with each other, as well as abiotic factors in an ecosystem, establishing a state of dynamic equilibrium..
  - Analyze and interpret data about the ecological consequences of humans transferring natural resources from their origin to their disposal (e.g., from one reservoir to another) that support claims that the practice is beneficial or risky.

**Learning & Behavioral Skills – Post - Secondary & Workplace Readiness:**

**PWR01.02.a-Postsecondary & Workforce Readiness, Content Knowledge , Mathematical Sciences**

- Think critically, analyze evidence, read graphs, understand logical arguments, detect logical fallacies, test conjectures, evaluate risks, and appreciate the role mathematics plays in the modern world, i.e., be quantitatively literate.

**PWR02.01.a-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Critical Thinking and Problem Solving**

- Apply logical reasoning and analytical skills.

**PWR02.01.d-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Critical Thinking and Problem Solving**

- Collect and analyze quantitative and qualitative data and research.

**PWR02.02.a-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Find and Use Information/Information Technology**

- Select, integrate, and apply appropriate technology to access and evaluate new information.

	<p><b>PWR02.04.b-Postsecondary &amp; Workforce Readiness, Learning and Behavior Skills, Global and Cultural Awareness</b></p> <ul style="list-style-type: none"><li>• Interact effectively with and respect the diversity of different individuals, groups, and cultures.</li></ul> <p><b>PWR02.08.a-Postsecondary &amp; Workforce Readiness, Learning and Behavior Skills, Communication</b></p> <ul style="list-style-type: none"><li>• Read, write, listen and speak effectively.</li></ul> <p><b>PWR02.08.b-Postsecondary &amp; Workforce Readiness, Learning and Behavior Skills, Communication</b></p> <ul style="list-style-type: none"><li>• Construct clear, coherent, and persuasive arguments.</li></ul> <p><b>PWR02.09.a-Postsecondary &amp; Workforce Readiness, Learning and Behavior Skills, Collaboration</b></p> <ul style="list-style-type: none"><li>• Work effectively with others.</li></ul> <p><b>PWR02.09.d-Postsecondary &amp; Workforce Readiness, Learning and Behavior Skills, Collaboration</b></p> <ul style="list-style-type: none"><li>• Use teamwork and leadership skills effectively.</li></ul>
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<b>High School Expectations</b>	
<b>Concepts and skills students know include:</b>	
<ul style="list-style-type: none"> <li>• TRPB01.02 Analyze and improve performance of logistics systems in order to provide targeted and successful logistics planning and management services.</li> </ul>	
<b>Evidence Outcomes - Students can:</b>	<b>21<sup>st</sup> Century Skills and Readiness Competencies</b>
<p>a. Assess and analyze data used to monitor and report on the performance of logistics systems.</p> <p>MAT02.02.d, MAT03.01.a, MAT03.01.b, MAT03.01.c, MAT03.02.a, MAT03.02.c, MAT03.03.a, MAT03.03.b, MAT03.03.c</p> <p>RWC01.01.c, RWC01.02.b, RWC4.01.d,</p> <p>PWR01.02.a, PWR01.02.d</p> <p>b. Develop short-term and long-term logistics demand forecasts.</p> <p>MAT02.02.d, MAT02.06.a, MAT03.01.a,</p> <p>RWC01.02.b,</p> <p>PWR01.02.a, PWR01.02.d</p> <p>c. Develop strategies to improve logistics service.</p> <p>MAT02.02.d, MAT03.01.a</p> <p>RWC01.02.b,</p> <p>PWR01.02.a, PWR01.02.d</p> <p>d. Evaluate compliance with documentation and other requirements for international transportation and logistics.</p> <p>RWC01.02.b</p> <p>All reading standards - Attachment 1.</p> <p>PWR02.01.a, PWR02.04.b</p>	<p><b>Academic Content Knowledge Alignment:</b></p> <p><b>MAT01.02.a - Number Sense, Properties, and Operations:</b></p> <ul style="list-style-type: none"> <li>• Use of number theory arguments to justify relationships involving whole numbers.. <ul style="list-style-type: none"> <li>○ Develop and justify conjectures about relationships involving whole numbers.</li> </ul> </li> </ul> <p><b>MAT02.02.d - Patterns, Functions, and Algebraic Structures:</b></p> <ul style="list-style-type: none"> <li>• Graphs and tables are used to describe the qualitative behavior of common types of functions. <ul style="list-style-type: none"> <li>○ Make qualitative statements about the rate of change of a function, based on its graph or table.</li> </ul> </li> </ul> <p><b>MAT02.06.a - Patterns, Functions, and Algebraic Structures:</b></p> <ul style="list-style-type: none"> <li>• Quantitative relationships in the real world can be modeled and solved using functions. <ul style="list-style-type: none"> <li>○ Represent, solve, using all tools including graphing technology, and interpret problems in various contexts using linear, quadratic, and exponential functions.</li> </ul> </li> </ul> <p><b>MAT03.01.a - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• Statistical methods take variability into account, supporting informed decision-making through quantitative studies designed to answer specific questions. <ul style="list-style-type: none"> <li>○ Formulate appropriate research questions that can be answered with statistical analysis.</li> </ul> </li> </ul> <p><b>MAT03.01.b - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• Statistical methods take variability into account, supporting informed decision-making through quantitative studies designed to answer specific questions. <ul style="list-style-type: none"> <li>○ Determine appropriate data collection methods to answer a research question.</li> </ul> </li> </ul> <p><b>MAT03.01.c - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• Statistical methods take variability into account, supporting informed decision-making through quantitative studies designed to answer specific questions. <ul style="list-style-type: none"> <li>○ Explain how data might be analyzed to provide answers to a research question.</li> </ul> </li> </ul>

<p>e. Evaluate performance and contract compliance of contractors and service providers.</p> <p>MAT01.02.a, MAT03.01.a, MAT03.01.b, MAT03.01.c, MAT03.02.a, MAT03.02.c, MAT03.03.a, MAT03.03.b, MAT03.03.c</p> <p>RWC01.02.b,</p> <p>PWR01.02.a, PWR01.04.b</p> <p>f. Utilize geographic information system software common to the transportation distribution and logistic industry to coordinate and facilitate business related tasks.</p> <p>MAT02.02.d, MAT03.01.a, MAT03.03.a, MAT03.03.b, MAT03.03.c</p> <p>RWC01.02.b</p> <p>PWR02.02.a, PWR02.09.a</p>	<p><b>MAT03.02.a - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• The design of an experiment or sample survey is of critical importance to analyzing the data and drawing conclusions. <ul style="list-style-type: none"> <li>○ Identify the characteristics of a well-designed and well-conducted survey.</li> </ul> </li> </ul> <p><b>MAT03.02.c - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• The design of an experiment or sample survey is of critical importance to analyzing the data and drawing conclusions. <ul style="list-style-type: none"> <li>○ Differentiate between the inferences that can be drawn in experiments versus observational studies.</li> </ul> </li> </ul> <p><b>MAT03.03.a - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• Visual displays and summary statistics condense the information in data sets into usable knowledge. <ul style="list-style-type: none"> <li>○ Identify and choose appropriate ways to summarize numerical or categorical data using tables, graphical displays, and numerical summary statistics (describing shape, center and spread) and accounting for outliers when appropriate.</li> </ul> </li> </ul> <p><b>MAT03.03.b - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• Visual displays and summary statistics condense the information in data sets into usable knowledge. <ul style="list-style-type: none"> <li>○ Define and explain how sampling distributions (developed through simulation) are used to describe the sample-to-sample variability of sample statistics.</li> </ul> </li> </ul> <p><b>MAT03.03.c - Data Analysis, Statistics, and Probability:</b></p> <ul style="list-style-type: none"> <li>• Visual displays and summary statistics condense the information in data sets into usable knowledge. <ul style="list-style-type: none"> <li>○ Describe the relationship between two categorical variables using percents.</li> </ul> </li> </ul> <p><b>All reading standards - Attachment 1.</b></p> <p><b>RWC01.01.c - Oral Expression and Listening:</b></p> <ul style="list-style-type: none"> <li>• Effective speaking in formal and informal settings requires appropriate use of methods and audience awareness. <ul style="list-style-type: none"> <li>○ Use examples, illustrations, graphics, quotations, analogies, facts, and statistics to focus and support the content of a presentation.</li> </ul> </li> </ul>
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**RWC01.02.b -Reading, Writing and Communicating, Oral Expression and Language Study**

- Design, implement, and lead collaborative groups to accomplish a goal..
  - Give formal talks for various purposes using appropriate level of formality and rhetorical devices.

**RWC04.01.d-Reading, Writing and Communicating, Research and Reasoning:**

- Conduct self-designed research that gathers and analyzes information from a variety of sources to answer a question, propose solutions or share findings and conclusions.
  - Evaluate quality, accuracy, and completeness of information and the credibility of the sources.

**Learning & Behavioral Skills – Post - Secondary & Workplace Readiness:**

**PWR01.02.a-Postsecondary & Workforce Readiness, Content Knowledge, Mathematical Sciences**

- Think critically, analyze evidence, read graphs, understand logical arguments, detect logical fallacies, test conjectures, evaluate risks, and appreciate the role mathematics plays in the modern world, i.e., be quantitatively literate.

**PWR01.02.b-Postsecondary & Workforce Readiness, Content Knowledge , Mathematical Sciences**

- Understand and apply algebraic and geometric concepts and techniques.

**PWR01.02.d-Postsecondary & Workforce Readiness, Content Knowledge , Mathematical Sciences**

- Apply knowledge of mathematics to problem solve, analyze issues, and make critical decisions that arise in everyday life.

**PWR01.04.b-Postsecondary & Workforce Readiness, Content Knowledge , Social Studies and Social Sciences**

- Interpret sources, and evaluate evidence and competing ideas.

**PWR02.02.a-Postsecondary & Workforce Readiness, Learning and Behavior Skills, Find and Use Information/Information Technology**

- Select, integrate, and apply appropriate technology to access and evaluate new information.

	<p><b>PWR02.04.b-Postsecondary &amp; Workforce Readiness, Learning and Behavior Skills, Global and Cultural Awareness</b></p> <ul style="list-style-type: none"><li>• Interact effectively with and respect the diversity of different individuals, groups, and cultures.</li></ul> <p><b>PWR02.09.a-Postsecondary &amp; Workforce Readiness, Learning and Behavior Skills, Collaboration</b></p> <ul style="list-style-type: none"><li>• Work effectively with others.</li></ul>
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## Attachment 1

*All of the following academic standards apply to all of the transportation standards.*

### **RWC01.02.e - Oral Expression and Listening:**

- Effective collaborative groups accomplish goals.
  - Assume a leadership role in a group that is collaboratively working to accomplish a goal.

### **RWC01.03.a - Oral Expression and Listening:**

- Verbal and nonverbal cues impact the intent of communication.
  - Give informal talks using an appropriate level of formality of verbal language and nonverbal interaction with audience

### **RWC01.03.c - Oral Expression and Listening:**

- Verbal and nonverbal cues impact the intent of communication
  - Deliver oral talks with clear enunciation, vocabulary, and appropriate organization; nonverbal gestures; and tone

### **RWC01.03.d - Oral Expression and Listening:**

- Verbal and nonverbal cues impact the intent of communication.
  - Analyze audience responses to evaluate how effectively the talk or presentation met the purpose

### **RWC01.05.a - Oral Expression and Listening:**

- Content that is gathered carefully and organized well successfully influences an audience.
  - Organize and deliver a presentation that influences a specific audience

### **RWC01.05.b - Oral Expression and Listening:**

- Content that is gathered carefully and organized well successfully influences an audience.
  - Reflect on the content and approach to a presentation.

### **RWC01.05.c - Oral Expression and Listening:**

- Content that is gathered carefully and organized well successfully influences an audience.
  - Select organizational patterns and structures and choose precise vocabulary and rhetorical devices

**RWC01.05.d - Oral Expression and Listening:**

- Content that is gathered carefully and organized well successfully influences an audience.
  - Make decisions about how to establish credibility and enhance appeal to the audience

**RWC01.05.e - Oral Expression and Listening:**

- Content that is gathered carefully and organized well successfully influences an audience.
  - Rehearse the presentation to gain fluency, to adjust tone and modulate volume for emphasis, and to develop poise

**RWC01.05.f - Oral Expression and Listening:**

- Content that is gathered carefully and organized well successfully influences an audience.
  - Use feedback to evaluate and revise the presentation.

**RWC01.06.d - Oral Expression and Listening:**

- Effectively operating in small and large groups to accomplish a goal requires active listening.
  - Facilitate (or lead) a group by developing an agenda designed to accomplish a specified goal.

**RWC01.06.e - Oral Expression and Listening:**

- Effectively operating in small and large groups to accomplish a goal requires active listening.
  - Support others in discussions, activities, and presentations through active listening

**RWC01.07.a - Oral Expression and Listening:**

- Oral presentations require effective preparation strategies.
  - Give formal and informal talks to various audiences for various purposes using appropriate level of formality and rhetorical devices.

**RWC01.07.b - Oral Expression and Listening:**

- Oral presentations require effective preparation strategies.
  - Use verbal and nonverbal techniques to communicate information.

**RWC01.07.c - Oral Expression and Listening:**

- Oral presentations require effective preparation strategies.
  - Define a position and select evidence to support that position.

**RWC01.07.d - Oral Expression and Listening:**

- Oral presentations require effective preparation strategies.
  - Develop a well-organized presentation to defend a position.

**RWC01.07.e - Oral Expression and Listening:**

- Oral presentations require effective preparation strategies.
  - Use effective audience and oral delivery skills to persuade an audience

**RWC01.07.f - Oral Expression and Language Study:**

- Deliver and apply skills in preparing a planned formal and informal oral presentations to various audiences using appropriate communication skills..
  - Use effective audience and oral delivery skills to convince an audience.

**RWC01.07.g - Oral Expression and Language Study:**

- Deliver and apply skills in preparing a planned formal and informal oral presentations to various audiences using appropriate communication skills..
  - Select appropriate technical or specialized language to help the audience understand content of the presentation.

**RWC02.02.a - Reading for All Purposes:**

- Interpreting and evaluating complex informational texts require the understanding of rhetoric, critical reading, and analysis skills.
  - Use reading and note-taking strategies (outlining, mapping systems, skimming, scanning, key word search) to organize information and make connections within and across informational texts.

**RWC02.02.c - Reading for All Purposes:**

- Interpreting and evaluating complex informational texts require the understanding of rhetoric, critical reading, and analysis skills.
  - Obtain and use information from text and text features (index, bold or italicized text, subheadings, graphics) to answer questions, perform specific tasks, or identify and solve problems

**RWC02.02.d - Reading for All Purposes:**

- Interpreting and evaluating complex informational texts require the understanding of rhetoric, critical reading, and analysis skills.
  - Explain and interpret the visual components supporting the text (maps, complex tables and diagrams, and transitional devices, such as use of white space)

**RWC02.05.a - Reading for All Purposes:**

- Literary and historical influences determine the meaning of traditional and contemporary literary texts.
  - Generalize about universal themes, cultural or historical perspectives from multiple texts.

**RWC02.06.a - Reading for All Purposes:**

- The development of new ideas and concepts within informational and persuasive manuscripts.
  - Provide a response to text that expresses an insight (such as an author's perspective or the nature of conflict) or use text-based information to solve a problem not identified in the text (for example, use information from a variety of sources to provide a response to text that expresses an insight)

**RWC02.06.b - Reading for All Purposes:**

- Apply understanding of complex organizational text structures and features to reading comprehension..
  - Use the features of electronic information to communicate, gain information, or research a topic.

**RWC02.12.a - Reading for All Purposes:**

- Interpret relevant details, make inferences and draw conclusions in complex informational texts..
  - Critique author's choice of literary genres to convey a message.

**RWC03.01.a - Writing and Composition:**

- Use a recursive writing process for planning, developing and revising text for a variety of academic, workplace, and literary purposes and audiences..
  - Establish and maintain a text structure appropriate to audience and purpose.

**RWC03.01.b - Writing and Composition:**

- Use a recursive writing process for planning, developing and revising text for a variety of academic, workplace, and literary purposes and audiences..
  - Organize ideas consistent with text structure (e.g., chronology, proposition-support, critique, inductive-deductive) in well- developed paragraphs..

**RWC03.01.c - Writing and Composition:**

- Use a recursive writing process for planning, developing and revising text for a variety of academic, workplace, and literary purposes and audiences..
  - Select and use formal, informal, literary, or technical language appropriate to audience and context..

**RWC03.01.d - Writing and Composition:**

- Use a recursive writing process for planning, developing and revising text for a variety of academic, workplace, and literary purposes and audiences..
  - Write with clear focus, depth, accurate and relevant detail.

**RWC3.02.c-Reading, Writing and Communicating, Writing and Composition:**

- Manipulate the elements and devices of literature to create literary texts that communicate ideas artistically..
  - Use a range of elaboration techniques (i.e., questioning, comparing, connecting, interpreting, analyzing, or describing) to establish a focus. (Technical texts, reading & writing)

**RWC03.02.i - Writing and Composition:**

- Manipulate the elements and devices of literature to create literary texts that communicate ideas artistically..
  - Choose conventional or alternative text structures to achieve intended impact.

**RWC3.03.c-Reading, Writing and Communicating, Writing and Composition:**

- Manipulate the elements and structures of informational text to create persuasive, academic, and technical writing..
  - Address audience needs and anticipate audience questions or misunderstandings.

**RWC03.04.a - Writing and Composition:**

- Stylistic and thematic elements of literary or narrative texts can be refined to engage or entertain an audience..
  - Organize events, details, ideas and reflections or observations strategically to influence the audience's emotions and understanding of the implicit or explicit theme.

**RWC03.04.b - Writing and Composition:**

- Stylistic and thematic elements of literary or narrative texts can be refined to engage or entertain an audience..
  - Write literary and narrative texts using a range of stylistic devices (poetic techniques, figurative language, symbolism, graphic or visual components) to support the presentation of implicit or explicit theme.

**RWC03.04.c - Writing and Composition:**

- Stylistic and thematic elements of literary or narrative texts can be refined to engage or entertain an audience.
  - Enhance the expression of voice, tone, and point of view in a text by strategically using precise diction (considering denotation, connotation, and audience associations); diverse syntax; varied sentence patterns; and punctuation for stylistic effect.

**RWC03.04.d - Writing and Composition:**

- Stylistic and thematic elements of literary or narrative texts can be refined to engage or entertain an audience.
  - Use a range of strategies to evaluate whether the writing is presented in a clear and engaging manner (such as reading the text from the perspective of the intended audience, seeking feedback from a reviewer).

**RWC03.06.a - Writing and Composition.**

- Writing demands ongoing revisions and refinements for grammar, usage, mechanics, and clarity.
  - Apply punctuation correctly and articulate stylistic choices.

**RWC03.08.b - Writing and Composition:**

- Organizational writing patterns inform or persuade an audience.
  - Select and apply the organizational pattern best suited to purpose and audience.

**RWC03.09.a - Writing and Composition:**

- Grammar, language usage, mechanics, and clarity are the basics of ongoing refinements and revisions within the writing process.
  - Apply dashes, colons, and semi-colons to create varied sentences, to emphasize important ideas, and to show relationships among ideas.

**RWC03.09.b - Writing and Composition:**

- Grammar, language usage, mechanics, and clarity are the basics of ongoing refinements and revisions within the writing process.
  - Identify instances where sentences are not grammatically parallel and revise sentences to establish parallelism

**RWC04.01.a - Research and Reasoning:**

- Independent research designs articulate and defend information, conclusions and solutions that address specific contexts and purposes.
  - Define and narrow a topic for self-designed research for a variety of purposes and audiences.

**RWC04.01.b - Research and Reasoning:**

- Independent research designs articulate and defend information, conclusions and solutions that address specific contexts and purposes.
  - Critique research questions of self and others for bias and underlying assumptions.

**RWC04.01.c - Research and Reasoning:**

- Independent research designs articulate and defend information, conclusions and solutions that address specific contexts and purposes.
  - Critique and defend sources and information based on credibility, relevance and appropriateness relative to context and purpose.

**RWC04.01.d - Research and Reasoning:**

- Independent research designs articulate and defend information, conclusions and solutions that address specific contexts and purposes.
  - Design and defend a set of diverse research strategies (e.g. cross referencing bibliographies, creating annotated bibliographies, researching source credentials) to identify information appropriate to the needs of a research question.

**RWC4.03.a-Reading, Writing and Communicating, Research and Reasoning:**

- Apply critical thinking to complex situations and across multiple disciplines.
  - Analyze the purpose, question at issue, information, points of view, implications and consequences, inferences, assumptions and concepts inherent in thinking.

**RWC4.04.c-Reading, Writing and Communicating, Research and Reasoning:**

- Understand how the analysis of thinking, assessment of thinking, and intellectual character are integrated to form a complete reasoning process..
  - Understand how to develop a plan and collect information.

**RWC04.05.b - Research and Reasoning:**

- Evaluating quality reasoning includes the value of intellectual character such as humility, empathy, and confidence.
  - Assess strengths and weaknesses of thinking and thinking of others by using criteria including relevance, clarity, accuracy, fairness, significance, depth, breadth, logic, and precision.

**RWC04.08.a - Research and Reasoning:**

- Informational materials, including electronic sources, need to be collected, evaluated, and analyzed for accuracy, relevance, and effectiveness for answering research questions.
  - Integrate information from different sources to research and complete a project.

**RWC04.09.a - Research and Reasoning:**

- Information from primary and secondary sources is used to establish relevance, significance, and accuracy in answering research questions.
  - Examine materials to determine appropriate primary and secondary sources to use for investigating a question, topic, or issue (e.g., library databases, print and electronic encyclopedia and other reference materials, pamphlets, book excerpts, online and print newspaper and magazine articles, letters to an editor, digital forums, oral records, research summaries, scientific and trade journals).

**RWC04.10.a - Research and Reasoning:**

- Effective problem-solving strategies require high-quality reasoning.
  - Analyze the purpose, question at issue, information, points of view, implications and consequences, inferences, assumptions and concepts inherent in thinking.

**RWC04.10.b - Research and Reasoning:**

- Effective problem-solving strategies require high-quality reasoning.
  - Assess strengths and weaknesses of their thinking and thinking of others by using criteria including relevance, clarity, accuracy, fairness, significance, depth, breadth, logic and precision.

**RWC04.10.c - Research and Reasoning:**

- Effective problem-solving strategies require high-quality reasoning.
  - Implement a purposeful and articulated process to solve a problem.