Curriculum: Auto Collision I & II

Curricular Unit: Safety (WKR01)

Instructional Unit: A. Shop and personal safety

**Standard Alignments (Section 2)**

<table>
<thead>
<tr>
<th>HECLE: HME.4.A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge: (CA) 3,5 (H/PE) 6,7</td>
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<tr>
<td>CCSS: 11-12.SL.1; 11-12.RST.3; 11-12.RST.4; 11-12.WHST.4</td>
</tr>
<tr>
<td>NETS: 1c; 3d; 4c</td>
</tr>
<tr>
<td>Performance: 3.1, 4.7</td>
</tr>
</tbody>
</table>

**Unit (Section 3)**

Learning Targets:

- **Incorporate basic procedures for safety and preventive measures in a shop environment**
- Understand the importance of labeling and when workplace labeling is required
- Identify hazardous material exposures and learn storage regulations
- Understand how to use personal protective equipment and emergency handling equipment
- Identify hazardous waste types and waste regulations
- Select and use proper personal protective equipment
- Identify proper storage requirements hazardous waste materials

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- Students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
- The teacher will model/demonstrate proper safety procedures

Board Approved 8-3-15
### Assessments/Evaluations:

- **I-CAR module:**
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

### Sample Assessment Questions:

- The means of identifying a hazardous chemical anywhere in the world, regardless of the spoken language, is the ____________.

### Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series
- Technology used includes:
  - teacher and student computers
  - projector and SMART Board
  - computerized paint mixing system
- Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
  - hand and power tools
  - welders
  - a frame machine
  - measuring systems
  - a paint mixing room and paint booth

### Cross Curricular Connections:

- **Health:** Apply safety skills during physical activities
- **English:**
  - Technical reading
  - Writing
  - Discussion

**Depth of Knowledge (Section 5)**

DOK: 2
Curriculum: Auto Collision I & II

Curricular Unit: Movable Glass (GLA01)

Instructional Unit: B. Removing and replacing automotive glass and lifting mechanisms

**Standard Alignments (Section 2)**

<table>
<thead>
<tr>
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<tr>
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**Unit (Section 3)**

**Learning Targets:**

- Identify the roles of movable glass in vehicles and types of drive mechanisms
- Understand considerations for replacing rear-body and side-door glass
- Describe parts of window regulators and window channels
- Understand removal and replacement considerations for sunroofs and removable glass panels
- Know how to complete post-collision inspection processes
- Analyze damage and troubleshoot for glass and electrical problems

**Instructional Strategies:**

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students summarize and organize information in a targeted I-CAR note-taking activity
- The teacher will model/demonstrate proper safety procedures
- Students:
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
Assessments/Evaluations:

- I-CAR module:
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in a unit
- Techniques introduced in a unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

Sample Assessment Questions:

- Technician A says that tempered safety glass is held intact when it breaks by a layer of polyvinyl butyral (PVB). Technician B says that laminated safety glass can only be used in windshields. Who is right?
  a. a only
  b. b only
  c. Both a and b
  d. Neither a nor b

Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series
- Technology used includes:
  - teacher and student computers
  - projector and SMART Board
  - computerized paint mixing system
- Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
  - hand and power tools
  - welders
  - a frame machine
  - measuring systems
  - a paint mixing room and paint booth

Cross Curricular Connections:

- PE: Create a simple movement sequence
- Health: Apply safety skills during physical activities
- English:
  - Technical reading
  - Writing
  - Discussion
- Math:
  - Number sense
  - Geometric design

**Depth of Knowledge (Section 5)**

DOK: 3
Curriculum: Auto Collision I & II

Curricular Unit: Bolted-On Part Replacement (EXT01)

Instructional Unit: C. Exterior panel repair and replacement – steel and plastic

**Standard Alignments (Section 2)**

<table>
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<td>Performance: 3.1, 4.7</td>
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**Unit (Section 3)**

Learning Targets:

- **Identify and understand considerations around working with bolted-on exterior panel replacement parts**
- Understand considerations around replacing bumpers, hoods, and fenders
- Understand removal and installation procedures for doors
- Understand considerations around removing and installing rear closure panels
- Analyze and diagnose the source of leaks and understand how to install weather stripping

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
- The teacher will model/demonstrate proper safety procedures

Assessments/Evaluations:

- I-CAR module:
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

Board Approved 8-3-15
Sample Assessment Questions:

- Technician A says that on vertical, cowl-mounted hood hinges, the hood gaps can be adjusted left or right. Technician B says that horizontally mounted hood hinges allow the hood to be adjusted forward and reward. Who is right?
  a. a only
  b. b only
  c. Both a and b
  d. Neither a nor b

Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series
- Technology used includes:
  - teacher and student computers
  - projector and SMART Board
  - computerized paint mixing system
- Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
  - hand and power tools
  - welders
  - a frame machine
  - measuring systems
  - a paint mixing room and paint booth

Cross Curricular Connections:

- PE: Create simple movement sequence
- Health: Apply safety skills during physical activities
- English:
  - Technical reading
  - Writing
  - Discussion
- Math:
  - Number sense
  - Geometric design

**Depth of Knowledge (Section 5)**

DOK: 3
Curriculum: Auto Collision I & II

Curricular Unit: GMA Mig Welding (WCS01)

Instructional Unit: D. Perform and evaluate automotive welds

**Standard Alignments (Section 2)**

| HEGLE: HME.4.A                      |
| SCCLE: SC1.1.Ga                    |
| Knowledge: (FA) 1 (H/PE) 6,7 (MA) 1,2 |
| CCSS: 11-12.SL.1; 11-12.RST.3; 11-12.WHST.4; N.Q.1; N.Q.3; G.MG.3; G.C0.12 |
| NETS: 1c; 3d; 4c                   |
| Performance: 1.4, 3.1, 4.7         |

**Unit (Section 3)**

Learning Targets:

- Sets up and tunes the welding machine
- Prepares the metal for welding
- **Demonstrates welding techniques**
- Performs Auto Collision related welds
- Inspects welds for defects

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
- The teacher will model/demonstrate proper safety procedures

Assessments/Evaluations:

- I-CAR module:
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

Board Approved 8-3-15
Sample Assessment Questions:

- Which of the following could cause porosity?
  a. Not enough shielding gas
  b. Not enough voltage
  c. Too much heat
  d. Too much wire speed

Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series
- Technology used includes:
  • teacher and student computers
  • projector and SMART Board
  • computerized paint mixing system
- Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
  • hand and power tools
  • welders
  • a frame machine
  • measuring systems
  • a paint mixing room and paint booth

Cross Curricular Connections:

- Health: Apply safety skills during physical activities
- English:
  • Technical reading
  • Writing
  • Discussion
- Math:
  • Number sense
  • Geometric design
- Science: Understand properties of matter

Depth of Knowledge (Section 5)

DOK: 3
Curriculum: Auto Collision I & II

Curricular Unit: Non-Structural Repair (EDS01)

Instructional Unit: E. Panel repair and alignment

**Standard Alignments (Section 2)**

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**Unit (Section 3)**

**Learning Targets:**

- Identify characteristics and considerations for steel repairs
- Examine different types of damage and understand repair procedures
- Understand procedures and considerations for application of paintless dent repair (PDR)

**Instructional Strategies:**

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate (Door/Fender project)
- The teacher will model/demonstrate proper safety procedures

**Assessments/Evaluations:**

- I-CAR module:
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

Board Approved 8-3-15
Sample Assessment Questions:

- When performing body hammer maintenance:
  - a. file the hammer face in one direction only
  - b. file the hammer face so it is flat
  - c. polish the hammer face with fine sandpaper
  - d. polish the hammer face with soft steel wool

Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series
- Technology used includes:
  - teacher and student computers
  - projector and SMART Board
  - computerized paint mixing system
- Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
  - hand and power tools
  - welders
  - a frame machine
  - measuring systems
  - a paint mixing room and paint booth

Cross Curricular Connections:

- Health: Apply safety skills during physical activities
- English:
  - Technical reading
  - Writing
  - Discussion
- Math:
  - Number sense
  - Geometric design

**Depth of Knowledge (Section 5)**

DOK: 3
Curriculum: Auto Collision I & II

Curricular Unit: Corrosion Protection (CPS01)

Instructional Unit: F. Corrosion protection

**Standard Alignments (Section 2)**

<table>
<thead>
<tr>
<th>Alignment</th>
<th>Details</th>
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<td>3.1, 4.7</td>
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**Unit (Section 3)**

**Learning Targets:**

- **Recognize causes of corrosion and understand the corrosion protection processes of manufacturers**
- Identify the steps required in determining where to apply anti-corrosion compounds and an undercoating
- Understand the considerations for properly preparing parts for corrosion protection coatings
- Explain how to apply corrosion protection materials
- Identify the function and location of chip-resistant coating and how to replace it during the repair process
- Identify seam sealer characteristics and applications
- Identify the different corrosion protection recommendations from the different vehicle makers

**Instructional Strategies:**

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
- The teacher will model/demonstrate proper safety procedures

Board Approved 8-3-15
Assessments/Evaluations:

- I-CAR module:
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

Sample Assessment Questions:

- Technician A says that moisture is formed during the heating and cooling process of metal. Technician B says that grinding may create enough heat for corrosion to be a concern. Who is right?
  a. a only
  b. b only
  c. Both a and b
  d. Neither a nor b

Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series
- Technology used includes:
  - teacher and student computers
  - projector and SMART Board
  - computerized paint mixing system
- Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
  - hand and power tools
  - welders
  - a frame machine
  - measuring systems
  - a paint mixing room and paint booth

Cross Curricular Connections:

- Health: Apply safety skills during physical activities
- English:
  - Technical reading
  - Writing
  - Discussion
- Math:
  - Number sense
  - Geometric design
- Science: Understand properties of matter

**Depth of Knowledge (Section 5)**

DOK: 3

Board Approved 8-3-15
Curriculum: Auto Collision I & II

Curricular Unit: Refinishing (EDS02)

Instructional Unit: G. Applying, repairing and detailing automotive finishes

**Standard Alignments (Section 2)**

| HEGLE: HME.4.A |
| SCCLE: SC1.1.Ga |
| Knowledge: (SC) 1 (H/PE) 6,7 (MA) 1 |
| CCSS: 11-12.SL.1; 11-12.RST.3; 11-12.WHST.4; N.Q.1; N.Q.3 |
| NETS: 1c; 3d; 4c |
| Performance: 3.1, 4.7 |

**Unit (Section 3)**

Learning Targets:

- Understand safety precautions when working with a spray gun
- Identify different types of designs of spray guns and understand their setup procedures
- Understand how to work safely around compressed air
- Identify VOC rules and regulations
- Know how to work with mixing tools and mixing ratios
- Identify refinishing and finish materials
- Understand how to develop a refinishing plan
- Understand how to mask and remove parts
- Know how to prepare substrates and apply primers

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
- The teacher will model/demonstrate proper safety procedures
Assessments/Evaluations:

- I-CAR module:
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

Sample Assessment Questions:

- All of these are types of OEM finishes EXCEPT:
  - a. single-stage.
  - b. basecoat/clearcoat
  - c. multi-stage
  - d. saturated color

Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series
- Technology used includes:
  - teacher and student computers
  - projector and SMART Board
  - computerized paint mixing system
- Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
  - hand and power tools
  - welders
  - a frame machine
  - measuring systems
  - a paint mixing room and paint booth

Cross Curricular Connections:

- Health: Apply safety skills during physical activities
- English:
  - Technical reading
  - Writing
  - Discussion
- Math: Number sense
- Science: Understand properties of matter

Depth of Knowledge (Section 5)

DOK: 3
Curriculum: Auto Collision I & II

Curricular Unit: Detailing (REF04)

Instructional Unit: H. Detailing

**Standard Alignments (Section 2)**

<table>
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**Unit (Section 3)**

Learning Targets:

- Perform a thorough vehicle inspection and identify defects in a vehicle finish
- Be able to remove finish defects by using the proper removal procedures
- Understand interior and exterior detailing

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
- The teacher will model/demonstrate proper safety procedures

Assessments/Evaluations:

- I-CAR module:
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

Sample Assessment Questions:

- Which of these should be used to keep the area wet when hand wet sanding?
  - a. Sponging on water dipped in a bucket
  - b. Using a hose or spray bottle
  - c. Dipping the sponge pad and paper in a bucket
  - d. Pouring on soapy water

Board Approved 8-3-15
Instructional Resources/Tools:

• I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
• I-CAR Education Edition Refinish Technician ProLevel 1 Package
• I-CAR Intro to Collision Repair Series
• Technology used includes:
  • teacher and student computers
  • projector and SMART Board
  • computerized paint mixing system
• Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
  • hand and power tools
  • welders
  • a frame machine
  • measuring systems
  • a paint mixing room and paint booth

Cross Curricular Connections:

• Health: Apply safety skills during physical activities
• English:
  • Technical reading
  • Writing
  • Discussion
• Math:
  • Number sense
  • Geometric design

**Depth of Knowledge (Section 5)**

DOK: 3
Curriculum: Auto Collision I & II

Curricular Unit: Plastic and Composite Repair (PLA03)

Instructional Unit: I. Identify, repair, refinish and replace plastic and composite panels

**Standard Alignments (Section 2)**

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**Unit (Section 3)**

Learning Targets:

- Identify different types of plastics by their characteristics and determine the level of plastic identification that is required to perform a repair
- Understand correct preparation procedures for plastics
- Identify different types of plastics used on today's vehicles and the correct methods to repair each
- Recognize proper adhesives for different repairs and when to use adhesion promoter
- Perform one- and two-sided plastic adhesive repairs and mounting tab repairs
- Understand the considerations around refinishing plastic parts
- Identify the types of plastic welds in automotive applications
- Identify welding equipment and its uses
- Explain how hot air welds and airless welds are made
- Identify differences between a fusion weld and an adhesion weld

Board Approved 8-3-15
### Instructional Strategies:

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
- The teacher will model/demonstrate proper safety procedures

### Assessments/Evaluations:

- I-CAR module:
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

### Sample Assessment Questions:

- Technician A says that conventional fiberglass repair material can be used to repair SMC. Technician B says that pinning is used to strengthen repairs to fiber-reinforced plastic. Who is right?
  a. a only
  b. b only
  c. Both a and b
  d. Neither a nor b

### Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series
- Technology used includes:
  - teacher and student computers
  - projector and SMART Board
  - computerized paint mixing system
- Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
  - hand and power tools
  - welders
  - a frame machine
  - measuring systems
  - a paint mixing room and paint booth

Board Approved 8-3-15
Cross Curricular Connections:

- Health: Apply safety skills during physical activities
- English:
  - Technical reading
  - Writing
  - Discussion
- Math:
  - Number sense
  - Geometric design
- Science: Understand properties of matter

### Depth of Knowledge (Section 5)

DOK: 3
Curriculum: Auto Collision I & II

Curricular Unit: Lighting, Starting, and Charging Systems (LSC01)

Instructional Unit: J. Understanding, diagnosing, and repairing electrical systems

**Standard Alignments (Section 2)**

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Knowledge: (CA) 5,6 (H/PE) 6,7 (MA) 1,2 (SC) 1

CCSS: 11-12.SL.1; 11-12.RST.3, 11-12.RST.4; 11-12.WHST.4; N.Q.1; N.Q.3; G.MG.3

NETS: 1c; 3d; 4c

Performance: 3.1, 4.7

**Unit (Section 3)**

**Learning Targets:**

- Understand different types of automotive batteries and their functions
- Identify problems related to starting and charging systems and considerations around removal and replacement
- Describe repair considerations around operation and repair of headlamps
- Understand collision related problems in exterior and interior lighting

**Instructional Strategies:**

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
- The teacher will model/demonstrate proper safety procedures

**Assessments/Evaluations:**

- I-CAR module:
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

Board Approved 8-3-15
Sample Assessment Questions:

- An open circuit battery voltage test is:
  a. performed with the engine running
  b. performed while cranking the engine
  c. used to check the state of charge of a battery
  d. used to check the specific gravity of a battery

Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series
- Technology used includes:
  - teacher and student computers
  - projector and SMART Board
  - computerized paint mixing system
- Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
  - hand and power tools
  - welders
  - a frame machine
  - measuring systems
  - a paint mixing room and paint booth

Cross Curricular Connections:

- Health: Apply safety skills during physical activities
- English:
  - Technical reading
  - Writing
  - Discussion
- Math:
  - Number sense
  - Geometric design
- Science: Understand properties of matter

**Depth of Knowledge (Section 5)**

DOK: 3
Curriculum: Auto Collision I & II

Curricular Unit: Hazardous Airborne Pollutant Reduction (HAP01)

Instructional Unit: K. Hazardous airborne pollutant reduction

**Standard Alignments (Section 2)**

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<tr>
<td>Performance: 3.1, 4.7</td>
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</tbody>
</table>

**Unit (Section 3)**

**Learning Targets:**

- Explain requirements of the EPA regulations and evaluate how they apply to specific businesses
- Identify hazardous air pollutants (HAP) and how they can affect public health and the environment
- Understand how to use personal protection equipment
- Identify ways to reduce the amount of methylene chloride (MeCl) paint stripper
- Identify equipment that reduces the amount of HAP
- Identify spray application techniques and gun adjustments that reduce the amount of HAP released into the environment
- Understand spray gun cleaning requirements
- Understand spraybooth requirements and filter maintenance schedules material

**Instructional Strategies:**

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
- The teacher will model/demonstrate proper safety procedures

Board Approved 8-3-15
Assessments/Evaluations:

- I-CAR module:
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

Sample Assessment Questions:

- List three ways the amount of air pollutants released by a repair shop can be reduced.

Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series
- Technology used includes:
  - teacher and student computers
  - projector and SMART Board
  - computerized paint mixing system
- Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
  - hand and power tools
  - welders
  - a frame machine
  - measuring systems
  - a paint mixing room and paint booth

Cross Curricular Connections:

- Health: Apply safety skills during physical activities
- English:
  - Technical reading
  - Writing
  - Discussion
- Math:
  - Number sense
  - Geometric design
- Science: Understand properties of matter

**Depth of Knowledge (Section 5)**

DOK: 3

Board Approved 8-3-15
Curriculum: Auto Collision I & II

Curricular Unit: Liquid and Solid Hazardous Waste Storage and Disposal Overview (HWD01)

Instructional Unit: L. Identifying, storing, and disposing of hazardous waste

**Standard Alignments (Section 2)**

<table>
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<tr>
<td>Performance: 3.1, 4.7</td>
<td></td>
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</tbody>
</table>

**Unit (Section 3)**

**Learning Targets:**

- Identify hazardous waste
- Determine proper storage and disposal of hazardous waste
- Maintain proper hazardous waste records

**Instructional Strategies:**

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
- The teacher will model/demonstrate proper safety procedures

**Assessments/Evaluations:**

- I-CAR module:
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

**Sample Assessment Questions:**

- How many pounds of hazardous material can a small quantity generator accumulate in one year?
### Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series

Technology used includes:
- teacher and student computers
- projector and SMART Board
- computerized paint mixing system

Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
- hand and power tools
- welders
- a frame machine
- measuring systems
- a paint mixing room and paint booth

### Cross Curricular Connections:

- **Health:** Apply safety skills during physical activities
- **English:**
  - Technical reading
  - Writing
  - Discussion
- **Math:** Number sense
- **Science:** Understand properties of matter

### Depth of Knowledge (Section 5)

DOK: 1
Curriculum: Auto Collision I & II

Curricular Unit: Trim and Hardware (TRM01)

Instructional Unit: M. Removing and installing automotive trim and stripes

Standard Alignments (Section 2)

<table>
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<td>Performance: 3.1, 4.7</td>
</tr>
</tbody>
</table>

Unit (Section 3)

Learning Targets:

- Identify hardware and understand correct uses
- Understand how to work with trim and moldings
- Describe methods for application and removal of pinstripes and decals
- Explain processes for installing door trim panels, handles, and lock cylinders
- Identify interior and exterior parts and understand how to remove and replace them

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
- The teacher will model/demonstrate proper safety procedures

Assessments/Evaluations:

- I-CAR module:
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

Board Approved 8-3-15
Sample Assessment Questions:

- Galvanic corrosion occurs between steel and:
  a. plastic
  b. steel
  c. fiberglass
  d. aluminum

Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series
- Technology used includes:
  • teacher and student computers
  • projector and SMART Board
  • computerized paint mixing system
- Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
  • hand and power tools
  • welders
  • a frame machine
  • measuring systems
  • a paint mixing room and paint booth

Cross Curricular Connections:

- Health: Apply safety skills during physical activities
- English:
  • Technical reading
  • Writing
  • Discussion
- Math:
  • Number sense
  • Geometric design

Depth of Knowledge (Section 5)

DOK: 3
Curriculum: Auto Collision I & II

Curricular Unit: Exterior Panel Repair and Replacement (EXT02)

Instructional Unit: N. Exterior panel repair and replacement

**Standard Alignments (Section 2)**

<table>
<thead>
<tr>
<th>HECLE: HME.4.A</th>
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**Unit (Section 3)**

**Learning Targets:**

- **Analyze collision damage**
- **Make a repair plan**
- Perform panel repairs
- Perform panel replacement, welded and bolted

**Instructional Strategies:**

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
- The teacher will model/demonstrate proper safety procedures

**Assessments/Evaluations:**

- **I-CAR module:**
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course
### Sample Assessment Questions:

- Which of these should be done when performing a trial fit of a replacement door skin?
  - a. Braze the door skin to the door shell
  - b. Hem small areas of the skin to the door shell
  - c. Place a few spot welds around the door panel
  - d. Bond the door skin temporarily with adhesive

### Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series
- Technology used includes:
  - teacher and student computers
  - projector and SMART Board
  - computerized paint mixing system
- Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
  - hand and power tools
  - welders
  - a frame machine
  - measuring systems
  - a paint mixing room and paint booth

### Cross Curricular Connections:

- Health: Apply safety skills during physical activities
- English:
  - Technical reading
  - Writing
  - Discussion
- Math:
  - Number sense
  - Geometric design

### Depth of Knowledge (Section 5)

**DOK:** 3
Curriculum: Auto Collision I & II

Curricular Unit: Automotive Foams (FOM01)

Instructional Unit: O. Understanding and using automotive foams

Standard Alignments (Section 2)

| HEGLE: HME.4.A |
| PEGLE: EHMP.2.A |
| SCCLE: SC1.1Ga |
| Knowledge: (CA) 5,6 (H/PE) 6,7 (MA) 1,2 (SC) 1 |
| CCSS: 11-12.SL.1; 11-12.RST.3; 11-12.RST.4; 11-12.WHST.4; N.Q.1; N.Q.3; G.MG.3 |
| NETS: 1c; 3d; 4c |
| Performance: 3.1, 4.7 |

Unit (Section 3)

Learning Targets:

- Understand uses and application procedures for automotive foam
- Understand structural foam considerations and curing methods
- Identify procedures related to installation of expandable foam
- Understand how to choose correct replacement materials
- Know how to work safely around automotive foams

Instructional Strategies:

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
- The teacher will model/demonstrate proper safety procedures

Assessments/Evaluations:

- I-CAR module:
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

Board Approved 8-3-15
Sample Assessment Questions:

- All of these are true about sound-dampening material EXCEPT it:
  - a. is an expanding material
  - b. can be used as an adhesive
  - c. has an extended work time
  - d. is applied to small gaps

Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series
- Technology used includes:
  - teacher and student computers
  - projector and SMART Board
  - computerized paint mixing system
- Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
  - hand and power tools
  - welders
  - a frame machine
  - measuring systems
  - a paint mixing room and paint booth

Cross Curricular Connections:

- Health: Apply safety skills during physical activities
- English:
  - Technical reading
  - Writing
  - Discussion
- Math:
  - Number sense
  - Geometric design
- Science: Understand properties of matter

**Depth of Knowledge (Section 5)**

DOK: 3
Curriculum: Auto Collision I & II

Curricular Unit: Vehicle Technology and Trends 2011 (NEW11)

Instructional Unit: P. Identifying, diagnosing, and repairing new vehicle technologies

**Standard Alignments (Section 2)**

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<td>Performance: 3.1, 4.7</td>
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</tbody>
</table>

**Unit (Section 3)**

**Learning Targets:**

- Recognize new vehicle materials and designs, safety features, park-assist systems, collision-warning systems, and alternative fuel systems
- Describe features and technologies that distinguish newer model vehicles from their predecessors
- Determine repair procedures for technology trends such as plug-in electrics, hybrid high-voltage batteries, and pressure-based sensors
- Understand how the economic climate, new efficiency practices, and government mandates are contributing to rapid changes in vehicle technology
- Identify the newest technologies found on North American, Asian, and European vehicles
- Identify the trends that will become tomorrow’s standard features

**Instructional Strategies:**

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
- The teacher will model/demonstrate proper safety procedures

Board Approved 8-3-15
Assessments/Evaluations:

- I-CAR module:
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

Sample Assessment Questions:

- Which of these parts on the 2010 Buick LaCrosse may affect the blind zone alert sensors if damaged?
  a. Front bumper
  b. Quarter panel
  c. Rear door
  d. Lower rear fascia

Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series
- Technology used includes:
  - teacher and student computers
  - projector and SMART Board
  - computerized paint mixing system
- Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
  - hand and power tools
  - welders
  - a frame machine
  - measuring systems
  - a paint mixing room and paint booth

Cross Curricular Connections:

- Health: Apply safety skills during physical activities
- English:
  - Technical reading
  - Writing
  - Discussion
- Math:
  - Number sense
  - Geometric design
- Social Studies: Apply major economic concepts

**Depth of Knowledge (Section 5)**

DOK: 3

Board Approved 8-3-15
Curriculum: Auto Collision I & II

Curricular Unit: Advanced High-Strength Steel Overview (AHS01)

Instructional Unit: Q. Understanding high-strength steel

**Standard Alignments (Section 2)**

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<td>Performance</td>
<td>3.1, 4.7</td>
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</table>

**Unit (Section 3)**

**Learning Targets:**

- Understand vehicle maker recommendations for advanced high-strength steels
- Identify which tools and equipment should be used when working on advanced high-strength steel (AHSS)
- Understand the effect of temperature on AHSS when determining proper joining methods
- Understand how heat used during straightening of AHSS may affect strength and durability
- Identify the importance of monitoring anchoring points when straightening AHSS parts

**Instructional Strategies:**

- Content is introduced with a teacher-guided lecture/discussion and I-CAR instructional video
- The students will:
  - summarize and organize information in a targeted I-CAR note-taking activity
  - demonstrate unit competencies and skills collaboratively and individually in shop projects
  - complete relevant live work when appropriate
- The teacher will model/demonstrate proper safety procedures

Board Approved 8-3-15
### Assessments/Evaluations:

- **I-CAR module:**
  - formative worksheets and quizzes
  - summative post-test
- Students will model/demonstrate proper procedures introduced in the unit
- Techniques introduced in the unit are observed and monitored every day with each activity
- Unit competencies are assessed in all summative projects included in the course

### Sample Assessment Questions:

- What type of steel should not be sectioned on an automobile?
  a. Mild steel
  b. High strength, low alloy steel
  c. Aluminum
  d. Boron

### Instructional Resources/Tools:

- I-CAR Education Edition Non-Structural Technician ProLevel 1 Package
- I-CAR Education Edition Refinish Technician ProLevel 1 Package
- I-CAR Intro to Collision Repair Series
- Technology used includes:
  - teacher and student computers
  - projector and SMART Board
  - computerized paint mixing system
- Students have individual toolboxes assigned to them as well as a well-stocked tool room including:
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  - welders
  - a frame machine
  - measuring systems
  - a paint mixing room and paint booth

### Cross Curricular Connections:

- Health: Apply safety skills during physical activities
- English:
  - Technical reading
  - Writing
  - Discussion
- Math:
  - Number sense
  - Geometric design
- Science: Understand properties of matter

### Depth of Knowledge (Section 5)

DOK: 3
Curriculum: Embedded Math (Auto Collision)

Curricular Unit: Math in Auto Collision

Instructional Unit: R. Apply math skills required in the industry

**Standard Alignments (Section 2)**

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**Unit (Section 3)**

Learning Targets:

- Apply and extend previous understandings of adding/subtracting/multiplying/dividing of whole numbers to solve practical problems
- Apply and extend previous understandings of adding/subtracting/multiplying/dividing of fractions to solve practical problems
- Apply and extend previous understandings of adding/subtracting/multiplying/dividing of decimals to solve practical problems
- Apply and extend previous understandings of ratios, proportions, and percents to solve practical problems
- Use a variety of tools and methods to solve and design problems. (e.g., standard/metric ruler, architect/engineer scale, t-square, voltmeter, ammeter, ohmmeter, Vernier caliper, micrometer, hydrometer, etc.)
- Convert and apply measurements to solve real-life and mathematical problems
- Recognize the basic shapes (2D and 3D) used in industry and apply basic geometry to measure them
- Use and apply formulas to solve real-life and mathematical problems (e.g., Pythagorean Theorem, Ohm’s Law, Watt’s Law, Volume, Area, Torque, Power, Air Mass, etc.)
- Solve power and root equations as they apply to real-life and mathematical problems
- COMPASS Test-Prep: Practice Algebra COMPASS test-prep targets ranging from Pre-Algebra through College Algebra

Board Approved 8-3-15
Instructional Strategies:

• The teacher will:
  • use classroom instruction and/or demonstrations to introduce or revisit targets required to practice the competency at hand
  • model appropriate work required to complete the task
  • direct students to appropriate resources when needed
  • provide examples of good vs. poor work
  • provide feedback during and at the conclusion of the assignment
  • provide small learning group opportunities when applicable

Assessments/Evaluations:

• Formative:
  • Projects/activities
  • Constructions
  • Worksheets
  • Quizzes
  • Games
• Summative: The only summative given is the Term Exam which is comprehensive of both the relevant math and the compass test-prep targets practiced

Sample Assessment Questions:

• If the mixing ratio is 3:1:2 clear coat:hardener:reducer and you need 54 oz ready to spray, how many ounces of each is needed?

  One part = ____oz
  Coat: ______
  Hardener: ______
  Reducer: ______
  Ready to Spray: 54 oz

Instructional Resources/Tools:

• Textbooks/workbooks:
  • *Practical Problems in Mathematics for Automotive Technicians*, 3rd Edition, Moore, 1985
• Internet Sources (examples):
  • Ruler game: [http://www.rulergame.net/](http://www.rulergame.net/)
• Supplies and tools, such as:
  • rulers
  • scales
  • t-square
  • drafting boards
  • triangles
  • compass
  • protractor

Board Approved 8-3-15
• Technology Tools:
  • SMART Board
  • iPad
  • Laptop
  • Scanner
  • Student Desktops
  • Printer

Cross Curricular Connections:

• Math:
  • Calculating
  • Applying formulas
  • Measurement
  • Geometry
  • Proportions, percents, ratios
  • Algebra

• ELA:
  • Following multi-step directions
  • Comprehending nonfiction text to apply to procedures

**Depth of Knowledge (Section 5)**

DOK: 3
Curriculum: Auto Collision I & II

Curricular Unit: Writing for Employment

Instructional Unit: S. Résumés and cover letters

**Standard Alignments (Section 2)**

<table>
<thead>
<tr>
<th>SSCLE:</th>
<th>ECP.4.A</th>
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<tbody>
<tr>
<td>Knowledge:</td>
<td>(CA) 1,4,7 (SS) 6</td>
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<tr>
<td>CCSS:</td>
<td>11-12.WHST.4; 11-12.WHST.5; 11-12.WHST.6</td>
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<td>NETS:</td>
<td>1b; 6a,b</td>
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<tr>
<td>Performance:</td>
<td>1.4, 1.8, 1.10, 2.1</td>
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**Unit (Section 3)**

**Learning Targets:**

- Understand purpose and audience in employment writing
- Use precise, effective word choice
- Organize information for clarity and purpose
- Revise writing effectively
- Collaborate to improve writing of peers and self

**Instructional Strategies:**

- Students will:
  - investigate job postings in the auto collision field
  - identify and discuss most common desired employee requirements and qualities
  - construct job objective and qualification statements based on results of investigation
- The teacher will:
  - discuss components of functional résumé and cover letter
  - guide the creation and revision of résumés and cover letters

**Assessments/Evaluations:**

- Formative:
  - Auto Collision Target Job Requirements Partner Research Guide
  - Résumé and cover letter drafts
- Summative: Résumé and cover letter final draft

**Sample Assessment Questions:**

- Visit the three websites listed below. Under each site, list three different job requirements or employee qualities you find in postings for auto collision repair technician positions. Try to choose different ones from each site.

Board Approved 8-3-15
### Instructional Resources/Tools:

- Websites:
  - MidMoCareers.com
  - Monster.com
  - Careerbuilder.com
  - BLS Occupational Outlook Handbook (online)
- Google Drive/Docs
- Computer

### Cross Curricular Connections:

- Social Studies: Apply economic concepts, such as unemployment and full employment
- ELA:
  - Writing
  - Researching
  - Editing/Peer collaboration

### Depth of Knowledge (Section 5)

DOK: 3