Auto Body Damage Analysis & Estimating
Course Number – 20120

Rationale Statement: There is a high demand for motivated and creative individuals in the auto body industry. This course is designed to expose the students to different industry terminology, safety practices, auto body estimating and very basic auto body repairs. The desire for this course is for the students to receive basic industry based training before stepping up to higher level courses in this field.

Suggested Grade Level: 9-10

Topics Covered:

1. Safety Practices
2. Estimating
3. Collision repair terms
4. Automotive repair and finishes
5. Obtaining Information
6. Damage Reports
7. Repair Estimates
8. Careers

Indicator #1:	Demonstrate understanding of auto body safety practices and careers.
Webb Level	**Standards**
Two	IAB1.1 Demonstrate auto body safety practices.
Two	IAB 1.2 Analyze career opportunities in the Transportation, Distribution, and Logistics career cluster.

Indicator #2:	Demonstrate auto body tools and equipment uses.
Webb Level	**Standards**
Two	IAB2.1 Demonstrate hand and power tools and their uses.
Three	IAB 2.2 Analyze uses of a compressed air systems.

Indicator #3:	Employ collision repair estimating processes.
Webb Level	**Standards**
Three	IAB3.1 Demonstrate the process involved in obtaining important information.
Two	IAB3.2 Demonstrate the process of writing a repair estimate.

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Indicator #4:	Apply auto body repair and finishing techniques.
Webb Level	**Standards**
Two	IAB4.1 Demonstrate basic auto body repair techniques.
Two	IAB4.2 Demonstrate the processes in automotive finishing.

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Indicator	Indicator: #1 Demonstrate understanding of auto body safety practices and careers.

Webb's Level	Number Sequence & Standard
Two	IAB1.1 Demonstrate auto body safety practices.

Student Friendly Language:

I understand the importance of safety in the auto shop and can manage my work environment to keep myself and others safe.

Know (factual)	**Understand** (conceptual)	**Do** (procedural, application, extended thinking)
• Safety Regulations • Safety Equipment	• Procedures to use safety equipment • How to respond to injuries or accidents in a shop	• Show proper safety procedures while performing auto body tasks • Complete safety test

Key Vocabulary:

respirator, asbestos, asphyxiation, carbon monoxide, electrical fires, electrocution, environmental safety, first aid kit, face shield, safety goggles, hazardous waste, gloves, jack stands, MSDS, NIOSH, OSHA, pathogens, Right-to-Know laws, combustion, toxic, vehicle lift points, welding helmet

Relevance and Applications: How the grade level expectation is applied at home, on the job or in a real-world, relevant context. Include at least one example. Stem for the conversation with students to answer the question "why do I have to learn this"?

Safety in auto body is not only important for you to know and practice but also for the safety of your co-workers and the environment.

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Indicator	Indicator #1: Demonstrate understanding of auto body safety practices and careers.

Webb's Level	**Number Sequence & Standard**
Two	IAB1.2 Analyze career opportunities in the Transportation, Distribution, and Logistics career cluster.

Student Friendly Language:

My knowledge from this class will help me prepare for career opportunities in the industry.

Know (factual)	**Understand** (conceptual)	**Do** (procedural, application, extended thinking)
• Auto body repair shop positions • Non repair shop positions • Auto body certifications available • Postsecondary education degrees available	• Qualifications necessary for positions • Levels of degrees or qualifications required for auto body positions • Post-secondary options • How to locate available jobs	• Locate possible job openings • Research optional schools and qualifications • Mock applications for job openings

Key Vocabulary:

dealership, body shop, collision repair, estimator, insurance adjuster, tool salesman, body technician, refinishing technician, parts supplier, tool supplier, material supplier, detailer, manager, owner, ASE, entrepreneur, I-CAR, professional, reliability, social skills, work traits, application, resume, cover letter

Relevance and Applications: How the grade level expectation is applied at home, on the job or in a real-world, relevant context. Include at least one example. Stem for the conversation with students to answer the question "why do I have to learn this"?

Knowing the positions available at an auto body repair facility and the expectations of those positions will help you prepare for a successful career.

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Indicator	Indicator #2: Demonstrate auto body tools and equipment uses.

Webb's Level	Number Sequence & Standard
Two	IAB2.1 Demonstrate hand and power tools and their uses.

Student Friendly Language:

I can understand what tool to use when performing certain tasks for auto body repair.

Know (factual)	**Understand** (conceptual)	**Do** (procedural, application, extended thinking)
• Names of tools • Uses of tools • Difference between pneumatic and electric • Power tool attachments	• Proper way to use tools • Safety when using tools • Different ways to use the same tool	• Identify tools • Show proper ways to use tools • Show how to maintain tools

Key Vocabulary:

Hand tools: wrench, spoon, punch, hammer, chisel, pliers, sockets, dolly, extensions, screwdriver, ratchet, spreader, squeegee, file, tap, torx, vise grips

Power Tools: grinder, die grinder, unispotter, eraser tool, dual action sander, air inline sander, hydraulic jack, porta power, impact wrench, drill, air ratchet, air saw, air chisel, air nibbler, buffer, media blaster

Relevance and Applications: How the grade level expectation is applied at home, on the job or in a real-world, relevant context. Include at least one example. Stem for the conversation with students to answer the question "why do I have to learn this"?

Using the right tool for the right job can increase an auto body technician's efficiency and help them to do the job right without doing more damage to the vehicle
.
Well paid auto body technicians know his/her tools very well.

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Indicator	Indicator: #2 Demonstrate auto body tools and equipment uses.

Webb's Level	Number Sequence & Standard
Three	IAB2.2 Analyze uses of a compressed air systems.

Student Friendly Language:		
Use of compressed air technology is important in auto body repair.		
Know (factual)	**Understand** (conceptual)	**Do** (procedural, application, extended thinking)
• Components of a compressed air system • Compressed air system maintenance • Uses of a compressed air system	• Safety issues when using compressed air • Operations of a compressed air system	• Demonstrate use of compressed air in different operations
Key Vocabulary:		
PSI (pounds per Square inch), regulator, adapter, after cooler, refrigerant dryer, coupling, CFM (cubic feet per minute), displacement, gauges, air filter, pressure switch, dissicant dryer, compressor, single stage, two stage, oil filter		
Relevance and Applications: How the grade level expectation is applied at home, on the job or in a real-world, relevant context. Include at least one example. Stem for the conversation with students to answer the question "why do I have to learn this"?		
Proper use of compressed air systems increases productivity, profitability and job quality. Improper use of a compressed air can lead to serious injury and death.		

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Indicator	**Indicator #3:** Employ collision repair estimating process.

Webb's Level	Number Sequence & Standard
Three	IAB3.1 Demonstrate the process involved in obtaining important information.

Student Friendly Language:

Obtaining important information is vital for writing a quality industry- accepted estimate.

Know (factual)	**Understand** (conceptual)	**Do** (procedural, application, extended thinking)
• What is important information • Location of important information	• Understand information labels • Understand the significance of a VIN	• Locate information on vehicle • Recorded the information obtained

Key Vocabulary:

VIN (Vehicle Information Number), paint code, date of production, vehicle options

Relevance and Applications: How the grade level expectation is applied at home, on the job or in a real-world, relevant context. Include at least one example. Stem for the conversation with students to answer the question "why do I have to learn this"?

Improper information may delay or cause you to lose the customer.

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Indicator	Indicator #3: Employ collision repair estimating process

Webb's Level	Number Sequence & Standard
Two	IAB3.2 Demonstrate the process of writing a repair estimate.

Student Friendly Language:

I can demonstrate the process of writing estimates to help me succeed in the auto body repair industry.

Know (factual)	**Understand** (conceptual)	**Do** (procedural, application, extended thinking)
• Location of Procedure page • Estimating publishers • Difference between manual and electronic estimating • Purpose of an estimate • Supplements • Difference between direct and indirect damage	• Preexisting damage • Unseen damage • Purpose of supplements • Labor totals • Aftermarket and OEM Parts • Estimating Software • Estimating Manuals • P Pages • Total Loss • Collision related damage • Purpose of an estimate • Overlap • Part Prices and totals • Material costs	• Document Supplements • Vehicle Inspections • Written Estimate • Computerized Estimate • Determine reparability of a vehicle or panels • Calculate material cost • Use a camera to take detailed pictures • Calculate labor cost • Calculate parts cost

Key Vocabulary:

deductible, estimating, flat rate, included operations, overlap, overhaul (O/H), procedure pages (P-pages), remove and install (RI), remove and replace (RR), salvage, work order, OEM, supplement, sublet, adjacent, non-adjacent, CAPA, subtotal, total, labor rate, body hours, refinish hours

Relevance and Applications: How the grade level expectation is applied at home, on the job or in a real-world, relevant context. Include at least one example. Stem for the conversation with students to answer the question "why do I have to learn this"?

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A properly written estimate insures a satisfied client and business productivity and profitability.

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Indicator	Indicator #4: Apply auto body repair and finishing techniques.

Webb's Level	Number Sequence & Standard
Two	IAB4.1 Demonstrate basic auto body repair techniques.

Student Friendly Language:

I can demonstrate basic auto body repair techniques to help me succeed.

Know (factual)	**Understand** (conceptual)	**Do** (procedural, application, extended thinking)
• Proper corrosion protection • Welding process • Metal straightening techniques • Filler options • Plastic repair techniques • Purpose of block sanding	• Why you apply corrosion protection is applied • Hammer and Dolly procedures • Pick and File procedures • Weld on dent pullers • Cold/heat shrinking • Block sanding techniques • Plastic welding • Plastic adhesives • Uses of different body fillers • Proper uses of sandpaper grits	• Apply corrosion protection • Hammer and dolly metal straightening • Weld on dent puller metal straightening • Cold/heat shrinking • Block sanding • Apply body fillers • Plastic repair • Use correct sandpaper grits per application

Key Vocabulary:

body hammer, buckles, deformation, gouge, hammer-off-dolly, hammer-on-dolly, shrinking, spring-back, stretched metal, tensile strength, work hardening, yield strength, unispotter, slide hammer, sanding block, sandpaper grit, dual action sander (DA), featheredging, guide coat, hardener, mixing board, spot putties, glazing putties, body filler, adhesion promoter, backing strip, plastic memory, plastic welding, two-part adhesive

Relevance and Applications: How the grade level expectation is applied at home, on the job or in a real-world, relevant context. Include at least one example. Stem for the conversation with students to answer the question "why do I have to learn this"?

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Learning basic auto body repair techniques is the gateway to repairing heavily damaged vehicles and becoming an efficient technician.

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Indicator	Indicator #4: Apply auto body repair and finishing techniques.

Webb's Level	Number Sequence & Standard
Two	IAB4.2 Demonstrate the processes in automotive finishing

Student Friendly Language:

I have a basic knowledge of spray material, spray techniques, and spray equipment for use in auto body repair.

Know (factual)	**Understand** (conceptual)	**Do** (procedural, application, extended thinking)
• Proper overspray protection • Proper refinishing procedures • Proper surface preparation • Refinishing equipment	• Overspray protection • Refinishing procedures • Proper surface preparation • Use of proper refinishing equipment	• Apply overspray protection • Prepare different surfaces properly • Demonstrate how to use refinishing equipment (including maintenance) • Perform a spray gun test

Key Vocabulary:

blending, overall, atomization, paint gun, HVLP, paint shaker, fluid control knob, pattern control knob, spray booth, spray gun cleaning, distance, speed, stroke, triggering, overlap, spray pattern test, e-coat, strainer, final sanding, flash time, masking, reverse masking, scuffing, adhesion promoter, force drying, primer, sealer, base, clear, reducer, hardener

Relevance and Applications: How the grade level expectation is applied at home, on the job or in a real-world, relevant context. Include at least one example. Stem for the conversation with students to answer the question "why do I have to learn this"?

Knowing proper refinishing techniques will help you and the auto body repair business to be successful.