



# Mechanics

Book  
**1**

Jim D. Dearholt



**Express Publishing**

# Table of contents

## Tools

Unit 1 - Hand tools 1 .....	4
Unit 2 - Hand tools 2 .....	6
Unit 3 - Fasteners .....	8
Unit 4 - Power tools .....	10
Unit 5 - Bench and machine tools .....	12

## Mechanic basics

Unit 6 - Basic actions .....	14
Unit 7 - Materials .....	16
Unit 8 - Numbers .....	18
Unit 9 - Measurements .....	20
Unit 10 - Around the shop .....	22

## Auto basics

Unit 11 - Types of cars .....	24
Unit 12 - Parts of a car: Exterior .....	26
Unit 13 - Parts of a car: Interior .....	28
Unit 14 - Gauges and meters .....	30
Unit 15 - Tires .....	32

## Appendix

Glossary .....	34
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# 1 Hand tools 1



long-nose pliers

**Mr Fix it!**

claw hammer



flathead screwdriver



Phillips screwdriver



slip-joint pliers

## Great Advice When You Need It

Today's Column

**Question:** I recently bought a house, and something breaks every month. I want to fix things myself. What do I need?

- Frank G.

**Mr Fix it! Answers:** .....

Sometimes things break in houses. Calling a repair man is expensive. As a homeowner, you need tools. Go to the local hardware store. Most sell **tool kits** with the basic **hand tools**. They usually include a couple of **Phillips screwdrivers**, **flathead screwdrivers**, and an **adjustable wrench**. Some tool kits also have **slip-joint pliers** and **long-nose pliers**. Then buy a tape measure, a **claw hammer**, and a **utility knife** separately. Utility knives have **retractable** blades, so they last a long time. And these separate items can be found for less than ten dollars. Read about how to use these tools, and home improvement projects are easy.

### Get ready!

1 Before you read the passage, talk about these questions.

- 1 What are some common hand tools?
- 2 What repairs and tasks do you use hand tools for?

### Reading

2 Read the advice column. Then, choose the correct answers.

- 1 What is the column mostly about?
  - A an expensive repair man
  - B a recommendation for tools
  - C a local hardware store
  - D a description of how long tools last
- 2 What are NOT included in tool kits?
  - A tape measures
  - B adjustable wrenches
  - C Phillips screwdrivers
  - D flathead screwdrivers
- 3 According to the columnist, what is true about utility knives?
  - A The blades break frequently.
  - B They are included in tool kits.
  - C The blades are not always out.
  - D They cost less than hammers.



adjustable wrench



### Vocabulary

3 Match the words (1-5) with the definitions (A-E).

- |                  |                    |
|------------------|--------------------|
| 1 __ wrench      | 4 __ utility knife |
| 2 __ retractable | 5 __ hand tool     |
| 3 __ adjustable  |                    |

- A a manual device used for home improvement projects
- B being able to pull back in
- C a small cutting device
- D a hand tool that tightens and loosens nuts and bolts
- E being able to change sizes

4 Read the sentence pair. Choose where the words best fit the blanks.

1 Phillips screwdriver / flathead screwdriver

A A screw with a flat slot needs a \_\_\_\_\_.

B A screw with a cross-shape on the head needs a \_\_\_\_\_.

2 slip-joint pliers / long-nose pliers

A \_\_\_\_\_ are adjustable.

B \_\_\_\_\_ have needle-like pincers.

3 claw hammer / tool kit

A A \_\_\_\_\_ can drive in or remove nails.

B Many tools are included in a \_\_\_\_\_.

5 Listen and read the advice column. What kind of measuring device does it recommend homeowners' buy?

## Listening

6 Listen to a conversation between a sales associate and a customer. Mark the following statements as true (T) or false (F).

1 \_\_\_ The customer needs Phillips and flathead screwdrivers.

2 \_\_\_ They do not sell hand tools individually.

3 \_\_\_ Buying tools in a set is less expensive than buying them one at a time.

7 Listen again and complete the conversation.

Sales Associate: 1 \_\_\_\_\_, welcome to Bob's Hardware.

Customer: Hi. Can you tell me where the hand tools are?

Sales Associate: Sure. They're right 2 \_\_\_\_\_. What are you looking for?

Customer: Well, I need some 3 \_\_\_\_\_ screwdrivers.

Sales Associate: Okay. 4 \_\_\_\_\_ full sets or individual screwdrivers.

Customer: Oh, okay. But I only need a few sizes. What do you recommend?

Sales Associate: I 5 \_\_\_\_\_ a full set.

Customer: Really? Why is that?

Sales Associate: It's cheaper than buying them separately. Plus, 6 \_\_\_\_\_ the sizes some day.

## Speaking

8 With a partner, act out the roles below based on Task 7. Then switch roles.

### USE LANGUAGE SUCH AS:

*Can you tell me ...?*

*What do you ...?*

*I recommend ...*

Student A: You are a sales associate. Talk to Student B about:

- location of hand tools
- full sets and individual tools
- costs of purchasing tools

Student B: You are a customer. Talk to Student A about purchasing hand tools.

## Writing

9 Use the conversation from Task 8 to fill out the customer feedback form.

Bob's Hardware

### Customer Feedback Form

Customer name: \_\_\_\_\_

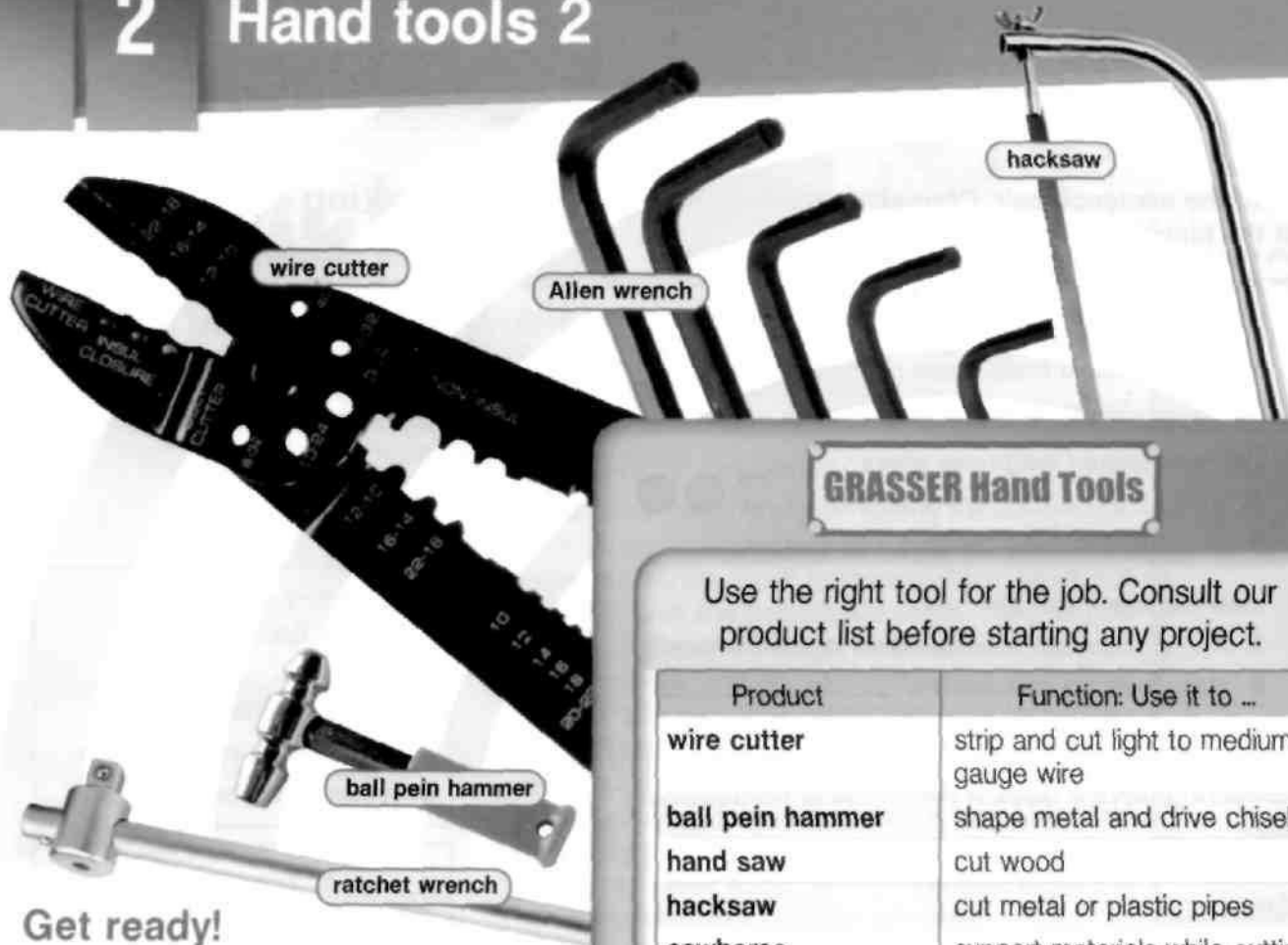
Date of purchase: \_\_\_\_\_

Items purchased: \_\_\_\_\_

What did our employee help you with?  
\_\_\_\_\_  
\_\_\_\_\_

Was our employee helpful? Y / N

## 2 Hand tools 2



### GRASSER Hand Tools

Use the right tool for the job. Consult our product list before starting any project.

Product	Function: Use it to ...
wire cutter	strip and cut light to medium gauge wire
ball peen hammer	shape metal and drive chisels
hand saw	cut wood
hacksaw	cut metal or plastic pipes
sawhorse	support materials while cutting
ratchet wrench (includes socket set and 2 socket extensions)	tighten or loosen bolts or nuts
combination wrench	work with multiple sizes of bolts
spanner wrench	access hard to reach bolts
Allen wrench	turn Allen key bolts
nut driver	insert or remove nuts
pipe wrench	turn multiple size pipe connections

### Get ready!

1 Before you read the passage, talk about these questions.

- 1 What tool can be used to cut pipes?
- 2 What are some different types of wrenches?

### Reading

2 Read the tool manufacturer's website. Then, choose the correct answers.

- 1 What is the purpose of the website?
  - A to advertise an upcoming sale
  - B to explain product functions
  - C to compare hand and power tools
  - D to take online customer orders
- 2 What tool should be used to cut wood?
 

A wire cutter	C hacksaw
B hand saw	D ball peen hammer
- 3 Which tool CANNOT work on different sizes of bolts?
  - A Allen key
  - B pipe wrench
  - C combination wrench
  - D ratchet wrench and socket set

### Vocabulary

3 Place the words and phrases from the word bank under the correct heading.

#### word BANK

hack saw    nut driver    hand saw  
socket    wire cutter    spanner

Tools for cutting	Tools for turning
_____	_____
_____	_____
_____	_____

- 4 Fill in the blanks with the correct words and phrases from the word bank.

**Word BANK**

pipe wrench    Allen wrench  
 ratchet wrench    combination wrench  
 ball pein hammer

- 1 See which \_\_\_\_\_ fits the hexagonal recess in this bolt.
- 2 Tom used the open end of the \_\_\_\_\_.
- 3 The plumber used an adjustable \_\_\_\_\_.
- 4 Sue shaped the metal fitting with a \_\_\_\_\_.
- 5 Where are the sockets for this \_\_\_\_\_?

- 5 Listen and read the tool manufacturer's tool manufacturer's website again. What does the ratchet wrench come with?

**Listening**

- 6 Listen to a conversation between a customer and a tool company employee. Mark the following statements as true (T) or false (F).

- 1 \_\_\_ The man calls to get help choosing tools.
- 2 \_\_\_ The man orders several pipe wrenches.
- 3 \_\_\_ The man needs hand saws and hacksaws.

- 7 Listen again and complete the conversation.

**Employee:** Grasser Hand Tools, how can I help you?  
**Customer:** Hi, this is Tom from Russet Hardware. I'd like to 1 \_\_\_\_\_.  
**Employee:** Hi, Tom. What can I put you down for?  
**Customer:** Well, I need five 2 \_\_\_\_\_, a case of Allen wrench sets, and a box of adjustable hook spanner wrenches.  
**Employee:** Okay. 3 \_\_\_\_\_?  
**Customer:** Yes. I need three more of the small 4 \_\_\_\_\_ with replaceable blades.  
**Employee:** 5 \_\_\_\_\_ the hand saws, or the hacksaws?  
**Customer:** Oh, 6 \_\_\_\_\_.

**Speaking**

- 8 With a partner, act out the roles below based on Task 7. Then switch roles.

**USE LANGUAGE SUCH AS:**

*I'd like to place ...*  
*I need ...*  
*Do you mean the ... or the ...?*

**Student A:** You work for a tool manufacturer. Talk to Student B about:

- placing an order
- tools needed
- specifying a tool

**Student B:** You are ordering tools. Talk to Student A about your order.

**Writing**

- 9 Use the conversation from Task 8 to fill out the tool company order form.



**Grasser HAND TOOLS**

**Order Form**

Customer name \_\_\_\_\_ Date \_\_\_\_\_

Qty	Item
_____	_____
_____	_____
_____	_____

# 3 Fasteners



## Which fastener is right for your job?

If you need a temporary fastener, go with a **pin** or **clamp**.

**Nails** are a quick and long-lasting fastener. They are ideal for walls and wood surfaces.

**Screws** are a more secure fastener. **Wood screws** are best for solid wood surfaces. But **sheet metal screws** work on wood as well as other surfaces. Remember to check the correct **thread** for your project. This store carries both **UTS thread** and **metric thread** measurements. Use an **anchor** for situations requiring extra support.

Use **bolts** when pressing pieces together from both sides. Select a bolt with the appropriate **grade**. Otherwise, the bolt may break. Get the right **washers** and **nuts** to add strength and prevent damage to surfaces.

### Get ready!

1 Before you read the passage, talk about these questions.

- 1 What are some different parts used to attach two things together?
- 2 What type of fastener requires a hammer?

### Reading

2 Read the poster. Then, mark the following statements as true (T) or false (F).

- 1  Clamps are long-lasting fasteners.
- 2  Sheet metal screws will damage wood surfaces.
- 3  Washers protect surfaces from damage.

### Vocabulary

3 Match the words (1-7) with the definitions (A-G).

- |                                   |  |
|-----------------------------------|--|
| 1 <input type="checkbox"/> anchor | 5 <input type="checkbox"/> clamp             |
| 2 <input type="checkbox"/> nut    | 6 <input type="checkbox"/> metric thread     |
| 3 <input type="checkbox"/> nail   | 7 <input type="checkbox"/> sheet metal screw |
| 4 <input type="checkbox"/> grade  |  |

- A a piece of metal with a hole in the middle
- B a long, narrow fastener with a smooth rod
- C a device that tightly presses things together
- D a thread measured in millimeters
- E the measurement of a bolt's strength
- F a device that adds support to a screw
- G a fastener with threads along the entire rod



4 Read the sentence pair. Choose where the words best fit the blanks.

1 screw / washer

- A Place a \_\_\_\_\_ between the nut and surface.
- B The hook is attached to the wall with a \_\_\_\_\_.

2 bolt / thread

- A Jules attached the table leg with a \_\_\_\_\_.
- B I don't know the best \_\_\_\_\_ size for the screws.

3 fastener / UTS thread

- A The mechanic was only familiar with \_\_\_\_\_ sizes, not metric.
- B The hardware store was known for having a \_\_\_\_\_ for every project.

4 pin / wood screw

- A A \_\_\_\_\_ is not effective on metal.
- B Albert used a \_\_\_\_\_ to hold the boards together temporarily.

- 5 Listen and read the poster again. What different thread measurements exist?

## Listening

- 6 Listen to a conversation between a mechanic and a customer. Choose the correct answers.

- What is the conversation mainly about?
  - an explanation of a repair
  - an estimate of repair costs
  - a set of maintenance instructions
  - a description of a broken appliance
- What can you infer about the new bolts?
  - They do not require washers.
  - They cost less than the old bolts.
  - They are a higher grade than the old bolts.
  - They are specially made for air conditioners.

- 7 Listen again and complete the conversation.

**Mechanic:** All right, Mr. Zane. Your air conditioner is fixed.

**Customer:** Oh, I'm 1 \_\_\_\_\_! What was the problem?

**Mechanic:** Well, that rattling you heard was 2 \_\_\_\_\_ loose nuts.

**Customer:** Really? 3 \_\_\_\_\_ they come loose?

**Mechanic:** The bolts were the wrong grade. The weight of the unit damaged the bolt's thread. You needed something 4 \_\_\_\_\_.

**Customer:** Oh, I see. Did you replace them?

**Mechanic:** 5 \_\_\_\_\_. You have all new bolts, nuts, and washers.

**Customer:** That sounds good. 6 \_\_\_\_\_ so much.



## Speaking

- 8 With a partner, act out the roles below based on Task 7. Then switch roles.

### USE LANGUAGE SUCH AS:

*I repaired ...*  
*How did ...*  
*You needed ...*

**Student A:** You are a mechanic. Talk to Student B about:

- an air conditioner
- loose fasteners
- your repairs

**Student B:** You are a customer. Talk to Student A about an air conditioner.

## Writing

- 9 Use the conversation from Task 8 to fill out the mechanic's invoice.



### Granderson Mechanics and Repair

## Summary of Services

Item repaired: \_\_\_\_\_

Problem with item: \_\_\_\_\_

Description of repairs: \_\_\_\_\_

\_\_\_\_\_



# 4 Power tools



impact wrench



drill



angle grinder



air ratchet



drill bit

## Larry's Auto Shop Inventory Checklist

Unit	In Working Condition?	Damaged Parts?	Notes
Drill	✓		
Drill Bits			missing 1/8 inch bits
Air Compressor		✓	worn piston rings
Sander	✓		
Shop Vac		✓	damaged filter
Air Ratchet	✓		
Pneumatic Torque Wrench	✓		
Heat Gun	✓		
Impact Sockets	✓		
Impact Wrench	✓		
Angle Grinder	✓		

We are missing most of the 1/8 inch drill bits from the tool box. Add one 10-count box to the purchase order.

The air compressor is consuming too much oil. The piston rings need to be changed before using it again.

The shop vac is discharging dust from the exhaust because of the torn filter. It needs to be replaced. Add filters to the purchase order.

### Get ready!

1 Before you read the passage, talk about these questions.

- 1 What are some types of power tools?
- 2 What is one power tool that is used when working on cars?

### Reading

2 Read the inventory checklist. Then, mark the following statements as true (T) or false (F).

- 1  The impact sockets are missing pieces.
- 2  The impact wrench is damaged.
- 3  The pneumatic torque wrench is in working condition.

### Vocabulary

3 Match the words (1-6) with the definitions (A-F).

- |                                      |   |
|--------------------------------------|---|
| 1 <input type="checkbox"/> drill     | 4 <input type="checkbox"/> heat gun       |
| 2 <input type="checkbox"/> drill bit | 5 <input type="checkbox"/> impact socket  |
| 3 <input type="checkbox"/> shop vac  | 6 <input type="checkbox"/> air compressor |

- A a power tool used to bore holes
- B a durable socket for an impact wrench
- C a vacuum that can clean wet substances
- D a cutting tool that rotates in a drill
- E a machine that pressurizes air
- F a power tool that delivers hot air to something

4 Place the words and phrases from the word bank under the correct heading.

#### word BANK

- sander
- angle grinder
- air ratchet
- impact wrench
- pneumatic torque wrench

Used to smooth / remove surfaces

---



---

Used to tighten / loosen nuts or bolts

---



---

- 5 Listen and read the inventory checklist again. What is wrong with the air compressor?

## Listening

- 6 Listen to a conversation between two mechanics. Choose the correct answers.

- 1 What is the conversation mostly about?  
 A a powerful impact wrench  
 B a new power tool  
 C a broken socket  
 D a slow manual ratchet
- 2 Why does the man like the air ratchet more than a manual ratchet?  
 A it is newer      C it is lighter  
 B it is safer      D it is faster

- 7 Listen again and complete the conversation.

- Mechanic 1: Hey, Laura. 1 \_\_\_\_\_ see our new air ratchet?
- Mechanic 2: Morning, Joe. I didn't. When did we get it?
- Mechanic 1: It came in yesterday while 2 \_\_\_\_\_. It's great.
- Mechanic 2: I see. So you like it more than the 3 \_\_\_\_\_ ratchet?
- Mechanic 1: Definitely. It can loosen nuts and bolts much faster. It does the job in 4 \_\_\_\_\_.
- Mechanic 2: Nice. So it's like the 5 \_\_\_\_\_?
- Mechanic 1: Well, 6 \_\_\_\_\_. But an impact wrench creates more torque. In fact, it could shatter the air ratchet sockets.
- Mechanic 2: That's good to know.



## Speaking

- 8 With a partner, act out the roles below based on Task 7. Then switch roles.

### USE LANGUAGE SUCH AS:

*When did we get it?*

*So you like it more than the ...?*

*It can ... much faster.*

**Student A:** You are a mechanic. Talk to Student B about:

- a new tool
- the tool's capabilities
- safety

**Student B:** You are a mechanic. Ask Student A about a new tool.

## Writing

- 9 Use the conversation from Task 8 to fill out the product description.

**New from**  
**Trust-T-Tools**

Check out our new \_\_\_\_\_!

Use it to \_\_\_\_\_  
 and \_\_\_\_\_.

It can \_\_\_\_\_  
 \_\_\_\_\_.

# 5 Bench and machine tools

**drill press**

**bench grinder**

**lathe**

**lift**

**table saw**

## CARSON SHOP WORKS

MACHINE AND BENCH TOOLS

Where **BIG** names buy **BIG** tools

**Drill Press** - Variable Drill and Motor Speeds

**Lathe** - Rotates your work piece for expert carving, sanding, and knurling

**Grinding Machine** - Heavy duty grinding at a lightweight price

**Bench Grinder** - Dual **abrasive** grinding wheels, LED work lamp

**Sanders** - Hand sanders, bench sanders, and belt sanders. We've got them all

**Bearing Press** - Perfect for installation of gears, pulleys, and U-Joints

**Automotive Lift** - Making you a more comfortable mechanic

**Table Saw** - Precision cuts, optimum safety

Save **BIG** at Carson Shop Works!

## Get ready!

1 Before you read the passage, talk about these questions.

- 1 What machine tool is used to inspect the underside of a car?
- 2 What tool is used to cut wood?

## Reading

2 Read the website for a retailer's machine tool department. Then, mark the following statements as true (T) or false (F).

- 1  The lathe has two abrasive wheels.
- 2  The drill press has motor speed options.
- 3  The bearing press includes a work lamp.

## Vocabulary

3 Match the words (1-6) with the definitions (A-F).

- |  |   |
|--|---|
| 1 <input type="checkbox"/> rotate      | 4 <input type="checkbox"/> grinding machine |
| 2 <input type="checkbox"/> abrasive    | 5 <input type="checkbox"/> table saw        |
| 3 <input type="checkbox"/> drill press | 6 <input type="checkbox"/> sander           |

- A a tool with one or more abrasive wheels for sharpening tools
- B to turn something about an axis
- C a machine for smoothing wood
- D a machine with a flat surface to cut wood
- E a heavy duty hole making machine
- F of a rough grainy texture

4 Read the sentence pair. Choose where the words best fit the blanks.

1 bearing press / lift

A Let's put the truck up on the \_\_\_\_\_ to see the U-joints underneath.

B Use the \_\_\_\_\_ to install the gears.

2 lathe / bench grinder

A Scott sharpened the bits with a \_\_\_\_\_.

B Sam used a \_\_\_\_\_ to carve the table legs.

5 Listen and read the website for a retailer's machine tool department again. Which tool features a light to help a mechanic see better?

## Listening

6 Listen to a conversation between a tool salesman and a customer. Choose the correct answers.

1 What does the woman need a machine to do?

- A repair tools      C sharpen hand tools  
B buff finishes      D install attachments

2 What will the woman probably buy?

- A a bench grinder      C a table saw  
B a sander      D a lathe

7 Listen again and complete the conversation.

Salesman: Hello Ma'am. Is there anything I can help you with?

Customer: Yes. I need to 1 \_\_\_\_\_. I was looking at this sander.

Salesman: Well, that 2 \_\_\_\_\_ does have attachments for grinding. But a bench grinder will work better.

Customer: A 3 \_\_\_\_\_. Where are those?

Salesman: Right over here. See, this one has two wheels, one 4 \_\_\_\_\_ and one fine.

Customer: This is what I'm looking for.

Salesman: I agree. Those 5 \_\_\_\_\_ buffing finishes. But for sharpening tools you want a grinder.

Customer: 6 \_\_\_\_\_.

## Speaking

8 With a partner, act out the roles below based on Task 7. Then switch roles.

### USE LANGUAGE SUCH AS:

*I need to ...*

*See, this one has ...*

*Those sanders are great for ...*

Student A: You are a tool salesman. Talk to Student B about:

- sanders
- bench grinders
- sharpening tools

Student B: You are a customer. Talk to Student A about something to sharpen your hand tools.

## Writing

9 Use the conversation from Task 8 to fill out the grinder product description.

### Carson \_\_\_\_\_ Grinder

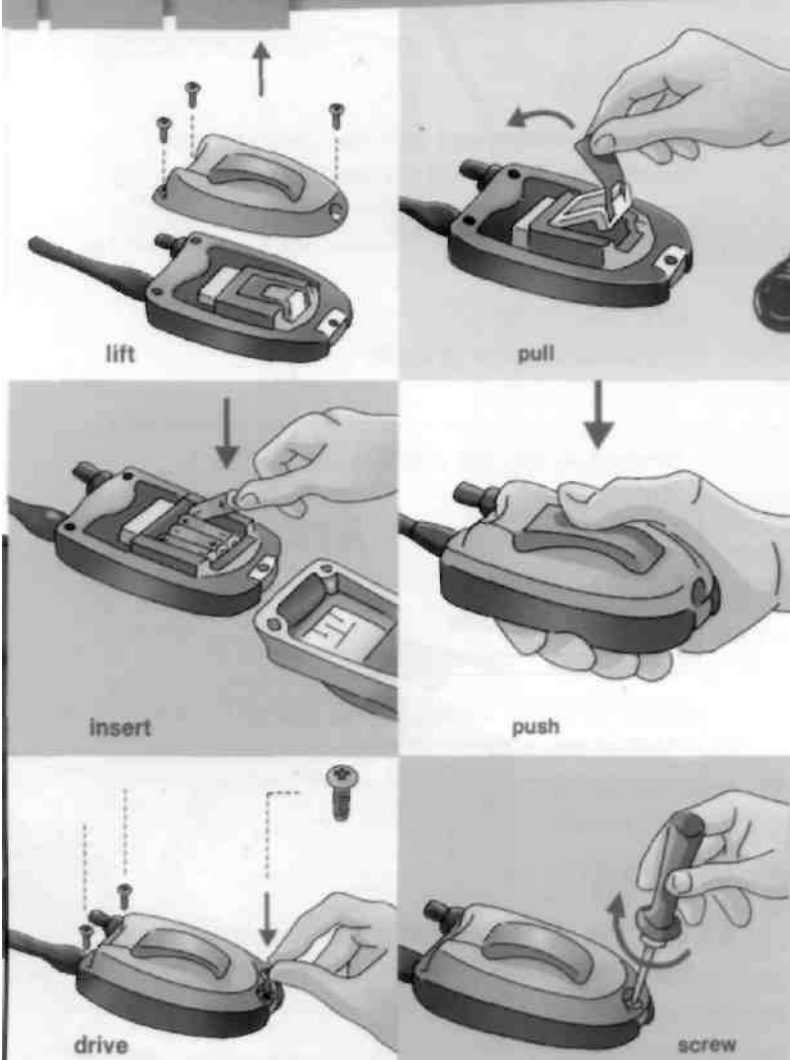
#### Product Specifications

- Two Abrasive Grinding Wheels (one \_\_\_\_\_ and one \_\_\_\_\_)
- Convenient LED Work Lamp
- Great for \_\_\_\_\_

*On Sale Now for Only \$299!!!*



## 6 Basic actions



### Get ready!

1 Before you read the passage, talk about these questions.

- 1 What are some basic actions mechanics use when working?
- 2 What are some actions that require tools to complete?

### Reading

2 Read the instructions. Then, choose the correct answers.

- 1 What is the purpose of the manual page?
  - A to describe how the radio works
  - B to explain how to change the batteries
  - C to compare types of CB radios
  - D to provide radio repair instructions
- 2 What instruction is NOT given?
  - A flip the battery cover over
  - B drive screw into the battery cover
  - C twist screws until tight
  - D drive in the battery cover
- 3 Which item will NOT be removed from the radio?
 

A green tab	C dead batteries
B battery cover	D screws in cover

### Vocabulary

3 Write a word that is similar in meaning to the underlined part.

- 1 The instructions are on the other side. Turn the paper over. \_ \_ \_ p
- 2 Put the drill bit into the chuck. \_ \_ \_ e \_ t
- 3 Turn the light bulb clockwise until secure. s \_ r \_ \_
- 4 Push upward on the table so I can put this mat underneath it. \_ i \_ \_

### Trucker's Transmit CB Radio Owner's Manual

#### Changing the batteries on your Trucker's Transmit CB Radio.

- 1 **Grip** radio firmly in one hand.
- 2 **Unscrew** the screws from battery cover with a flathead screwdriver.
- 3 **Lift** battery cover and **pull** green tab to **remove** old batteries.
- 4 **Flip** battery cover over to see battery diagram.
- 5 Remove old batteries and **insert** new ones as shown on diagram.
- 6 Replace battery cover. **Push** cover closed.
- 7 **Drive** screws back into battery cover.
- 8 **Screw** in with screwdriver and **twist** until tight.
- 9 To avoid **stripping** the screws, do not over tighten.

Turn on radio to test batteries.

- 4 Fill in the blanks with the correct words (and phrases) from the word bank.

**Word BANK**

twist push drive pull  
unscrew remove strip grip

- 1 \_\_\_\_\_ the knob clockwise to close the valve.
- 2 \_\_\_\_\_ the handle toward yourself to open the door.
- 3 \_\_\_\_\_ the trunk down so it closes.
- 4 She used a hammer to \_\_\_\_\_ in the nail.
- 5 If the bolt is over tightened, you might \_\_\_\_\_ its threads.
- 6 To install a new bulb, you must \_\_\_\_\_ the old one.
- 7 \_\_\_\_\_ the handle firmly to avoid slippage.

- 5 Listen and read the instructions again. How does the owner know which way to put the batteries in?

**Listening**

- 6 Listen to a conversation between a mechanic and a customer. Check (✓) the actions that are required.

- 1  locate the light bulb holder
- 2  pull the metal tab
- 3  lift the hood
- 4  cut the three wires
- 5  unscrew the old bulb
- 6  remove the wire housing

- 7 Listen again and complete the conversation.

**Mechanic:** The bulbs for your headlights need to be replaced. I can show you 1 \_\_\_\_\_ do it.

**Customer:** That would be great.

**Mechanic:** First, 2 \_\_\_\_\_ and locate the light bulb holder with the three wires.

**Customer:** Okay. 3 \_\_\_\_\_?

**Mechanic:** 4 \_\_\_\_\_, push on this metal tab and gently unplug the wire housing.

**Customer:** That looks easy enough.

**Mechanic:** It's not too difficult. 5 \_\_\_\_\_, just unscrew the old bulb. Then, insert the new one.

**Customer:** Great. 6 \_\_\_\_\_.

**Speaking**

- 8 With a partner, act out the roles below based on Task 7. Then switch roles.

**USE LANGUAGE SUCH AS:**

*The bulbs for your headlights need ...*

*First ... / Next, just ...*

**Student A:** You are a mechanic. Talk to Student B about:

- locating a light
- removing a light
- replacing a light

**Student B:** You are a customer. Talk to Student A about replacing a light bulb.

**Writing**

- 9 Use the conversation from Task 8 to fill out the light bulb replacement instructions.

**Larry's Auto Shop**


**Replacing your headlight bulbs**

First, \_\_\_\_\_.

Then, \_\_\_\_\_.

Next, \_\_\_\_\_.

Finally, test the lights to make sure they work.

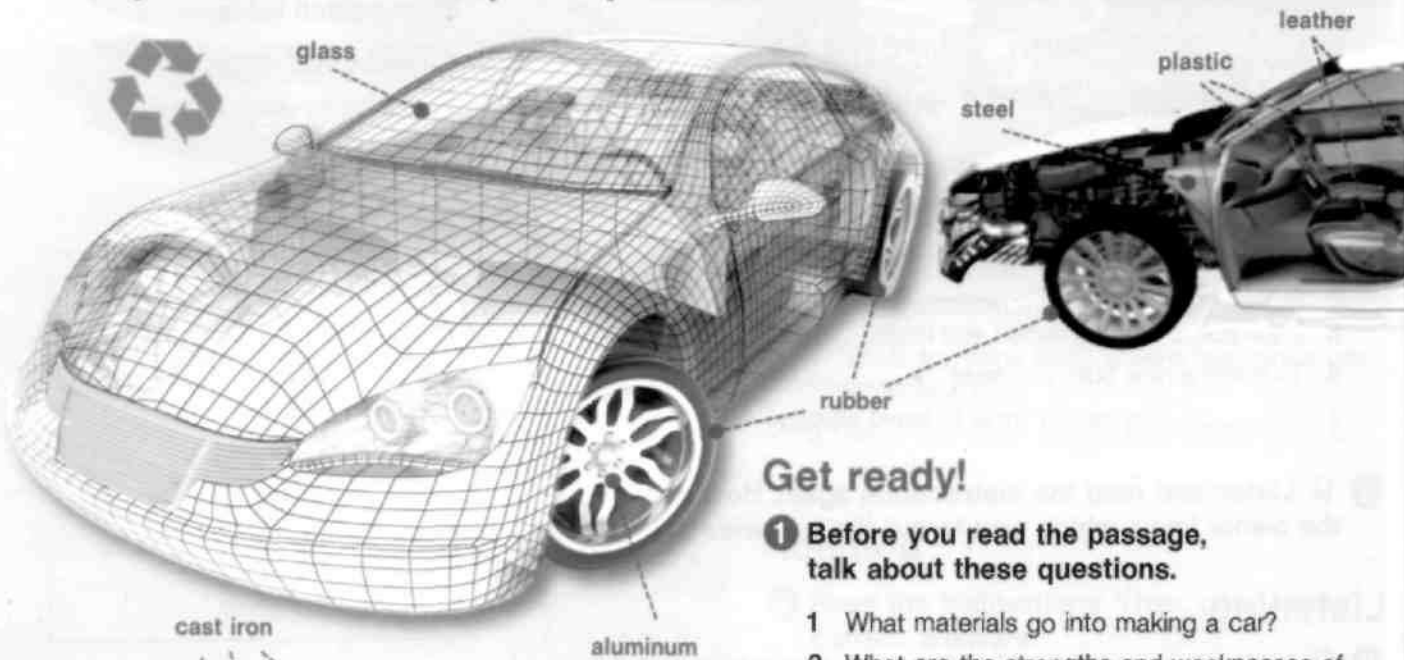


# 7 Materials

## What's in a Car?

A quick look at what your speed racer is made of.

By Ashley Simms



### Get ready!

1 Before you read the passage, talk about these questions.

- 1 What materials go into making a car?
- 2 What are the strengths and weaknesses of different materials?

### Reading

2 Read the magazine article. Then, complete the table using information from the article.

Material	Use in car manufacturing
rubber	_____
cast iron	_____
plastic	_____
glass	_____

### Vocabulary

3 Match the words (1-5) with the definitions (A-E).

- |               |                 |
|---------------|-----------------|
| 1 _ leather   | 4 _ lightweight |
| 2 _ cast iron | 5 _ fiberglass  |
| 3 _ glass     |                 |

- A a brittle material used to make windows
- B a durable metal used to make engine blocks
- C low in mass relative to volume
- D material composed of fine filaments
- E a flexible material made from animal skin

When we think of cars, we think of metal. And it's true that car manufacturers use **steel** to build the frames of cars and trucks. They use **cast iron** for its durability to make engine blocks. And **lightweight aluminum** is perfect for wheel rims. But **plastic** and **fiberglass** makeup

much of car bodies these days. **Glass** is used to make windows and mirrors. And black **rubber** goes into almost every tire on the road. Of course, there are softer materials, too. **Leather** is commonly used to line the interior of the finest cars.

4 Read the sentence pair. Choose when the words best fit the blanks.

1 rubber / plastic

- A The body of this car is made of \_\_\_\_\_.  
 B Tire manufacturers use much of the world's \_\_\_\_\_.

2 steel / aluminum

- A The frame of the truck is made of \_\_\_\_\_.  
 B The wheel rims are made of lightweight \_\_\_\_\_.

5 Listen and read the magazine article again. What material is often used inside expensive cars?

## Listening

6 Listen to a conversation between two mechanics looking at a new car. Mark the following statements as true (T) or false (F).

- 1 \_ The car body is made mostly of steel.  
 2 \_ Plastic is less expensive than steel.  
 3 \_ The safety cage is made of fiberglass.

7 Listen again and complete the conversation.

- Mechanic 1:** They sure don't make them like they used to, do they?  
**Mechanic 2:** No, they don't. Most of this car's body is 1 \_\_\_\_\_.  
**Mechanic 1:** No kidding? Plastic must be cheaper than 2 \_\_\_\_\_.  
**Mechanic 2:** It's cheaper and 3 \_\_\_\_\_.  
 Lightweight material improves fuel efficiency.  
**Mechanic 1:** Yeah, but what does it do for 4 \_\_\_\_\_?  
**Mechanic 2:** Well, there's a 5 \_\_\_\_\_ around the passenger area.  
**Mechanic 1:** I see. And are these outer panels made of 6 \_\_\_\_\_?  
**Mechanic 2:** Yeah. They're made of a combination of fiberglass and plastic.

## Speaking

8 With a partner, act out the roles below based on Task 7. Then switch roles.

### USE LANGUAGE SUCH AS:

- Most of this car's body is ...*  
*Plastic must be ...*  
*These outer panels are ...*

**Student A:** You are a mechanic. Talk to Student B about:

- a car body
- parts and materials
- reasons for using those materials

**Student B:** You are a mechanic. Talk to Student A about the makeup of a car.

## Writing

9 Use the article and the conversation from Task 8 to fill out the car body makeup chart.



2005 Tolento Cyclone

### Car body makeup chart

- Side panels \_\_\_\_\_  
 Safety cage \_\_\_\_\_  
 Windows \_\_\_\_\_  
 Tires \_\_\_\_\_



# 8 Numbers

## How do they say it?

Symbol	Interpretation	Example
=	is, equals, comes to	$\frac{1}{2} = 0.5$ One-half equals point five.
+	and, plus, add	$a + b = c$ A and B comes to C.
-	minus, less, subtract	$a - b = c$ A less B is C.
X	times, multiplied by	$a \times b = c$ A times B equals C.
$\frac{7}{8}$	seven eighths	$a / b$ A Bths
1,200	one thousand two hundred or twelve hundred	The repair cost twelve hundred dollars.

### Get ready!

1 Before you read the passage, talk about these questions.

- How do you say symbols like = and  $\div$ ?
- What endings should you add to fractions when saying them aloud?

### Reading

2 Read the chart. Then, mark the following statements as true (T) or false (F).

- Eight less two means the same thing as eight minus two.
- Seven times six equals seven plus six.
- $\frac{3}{8}$  is pronounced three times eight.

### Vocabulary

3 Fill in the blanks with the correct words and phrases from the word bank.

#### word BANK

add times less  
plus comes to hundred

- Three \_\_\_\_\_ two is six.
- Four plus seven \_\_\_\_\_ eleven.
- Fifty \_\_\_\_\_ twenty equals thirty.
- One thousand plus four hundred is fourteen \_\_\_\_\_.
- To get ten, \_\_\_\_\_ three and seven.
- Fifteen \_\_\_\_\_ two is seventeen.

4 Read the sentence and choose the correct word.

- 1 Six **plus** / **divided by** three is nine.
- 2 Ten **and** / **less** eight equals two.
- 3 Start with eight, **subtract** / **add** two: this equals six.
- 4 Four **multiplied by** / **comes to** two is eight.
- 5 Five plus six **equals** / **less** eleven.

5 Listen and read the chart again. Which symbol do you use to multiply two numbers?

## Listening

6 Listen to a conversation between two mechanics. Choose the correct answers.

- 1 What is the dialogue mostly about?  
A buying new tools  
B getting tools for a co-worker  
C asking what size tools to use  
D choosing the best tool for a task
- 2 What will the man most likely do next?  
A Tighten a loose nut.  
B Find some wrenches.  
C Go to the hardware store.  
D Suggest a different size tool.

7 Listen again and complete the conversation.

**Mechanic 1:** Joe, are you busy?  
**Mechanic 2:** 1 \_\_\_\_\_.  
What do you need?  
**Mechanic 1:** I have my hand on a loose nut. I don't want to let it go. 2 \_\_\_\_\_ some tools for me?  
**Mechanic 2:** 3 \_\_\_\_\_. What do you need?  
**Mechanic 1:** Can I get a 4 \_\_\_\_\_ combination wrench?  
**Mechanic 2:** Sure. Anything else?  
**Mechanic 1:** Yeah. A three eighths wrench 5 \_\_\_\_\_. Thanks.  
**Mechanic 2:** 6 \_\_\_\_\_. I'll grab them from the tool box now.

## Speaking

8 With a partner, act out the roles below based on Task 7. Then switch roles.

### USE LANGUAGE SUCH AS:

*Are you busy?*  
*Can you grab ...*  
*Can I get a ...*

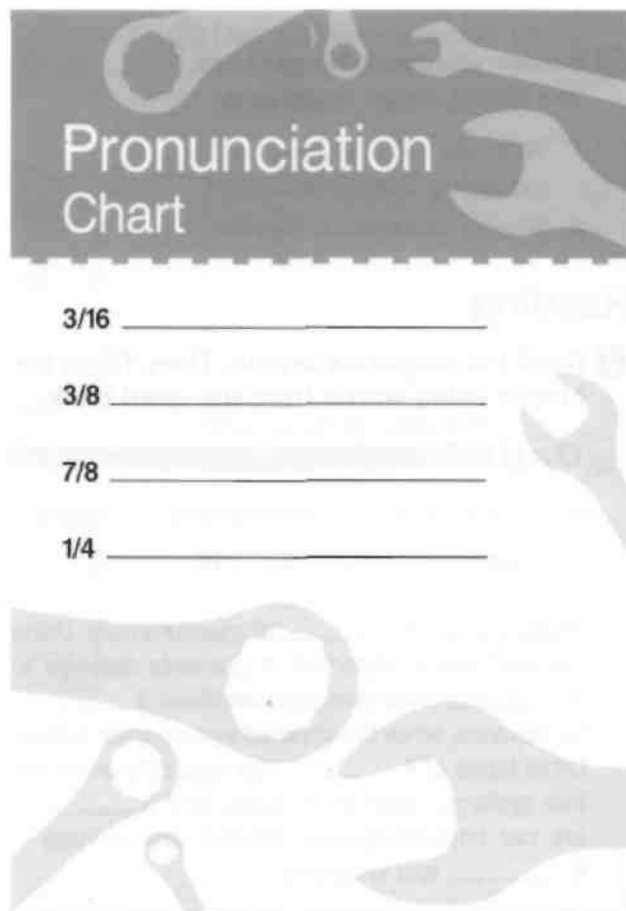
**Student A:** You are a mechanic. Ask Student B about:

- getting tools
- sizes of tools

**Student B:** You are a mechanic. Answer Student A's questions.

## Writing

9 Use the chart and the conversation from Task 8 to fill out the pronunciation chart.



**Pronunciation Chart**

3/16 \_\_\_\_\_

3/8 \_\_\_\_\_

7/8 \_\_\_\_\_

1/4 \_\_\_\_\_