Countdown Chapter 8

Engineering
Countdown Chapter 8
Engineering

Contents

Computers: Computer Madness ................................................................. 1
Computers: Keyboard Crazy ................................................................. 3
All-Terrain Vehicles: ATV Action ......................................................... 5
Bicycles: Rules of the Road ................................................................. 9
Bicycles: Maintaining Your Wheels .................................................... 11
Bicycles: The Serious Cyclist .............................................................. 13
Bicycles: Putting It All Together ......................................................... 15
First Aid: Quick Response ................................................................. 17
Rope: Tying It All Together ............................................................... 19
Lawn Care: Lawn Mower Lock-Up ..................................................... 21
Lawn Care: Mower Message .............................................................. 23
Woodworking: Measuring Up ............................................................. 25
Woodworking: Tools of the Trade ..................................................... 27
Electricity: Plugging It Together ......................................................... 29
Tractors: Tractor Tips ........................................................................ 31
Computers

Computer Madness
Find the words hidden in the word search. Words can be across, down, diagonal, backwards, grouped, or “around-the-corner.”

- artificial intelligence
- magnetic
- chips
- modem
- component
- monitor
- computer
- path
- CPU
- printer
- database
- processor
- disk
- programs
- floppy
- random access memory
- graphics
- software
- keyboard
- terminal

L | T | N | E | N | O | P | M | O | C | U | B | I | K
C | R | A | D | R | I | V | E | D | A | T | A | N | E
G | A | C | C | E | S | S | H | T | A | P | S | T | Y
R | N | G | P | R | I | N | T | E | R | G | E | E | B
A | D | P | U | C | P | R | O | G | R | A | M | L | O
P | O | D | A | R | T | I | F | I | C | I | A | L | A
H | M | E | M | O | R | Y | Q | U | H | F | G | I | R
I | O | M | O | N | I | T | O | R | I | L | N | G | D
C | F | B | D | I | S | K | T | L | P | O | E | E | X
S | F | Z | E | C | R | A | S | H | S | P | T | N | E
D | C | O | M | P | U | T | E | R | B | P | I | C | R
G | P | R | O | C | E | S | S | O | R | Y | C | E | A
O | T | E | R | M | I | N | A | L | S | O | F | T | W

Source: 4-H 565, Learning About Computers
Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Computers

Computer Madness

Find the words hidden in the word search. Words can be across, down, diagonal, backwards, grouped, or "around-the-corner."

- artificial intelligence
- magnetic
- chips
- modem
- component
- monitor
- computer
- path
- CPU
- printer
- database
- processor
- disk
- programs
- floppy
- random access memory
- graphics
- software
- keyboard
- terminal

Source: 4-H 565, Learning About Computers

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Healthy/Safety
## Computers

### Keyboard Crazy

Match the keyboard in the left column with its function in the right column. Each key will match only one definition.

<table>
<thead>
<tr>
<th>Key</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPS LOCK</td>
<td>Moves cursor up a whole screen.</td>
</tr>
<tr>
<td>DELETE (Backspace)</td>
<td>Lets you leave what you are doing.</td>
</tr>
<tr>
<td>END</td>
<td>Moves cursor down a whole screen.</td>
</tr>
<tr>
<td>ESC</td>
<td>Turns every character you type into a capital letter.</td>
</tr>
<tr>
<td>HOME</td>
<td>Moves cursor to the beginning of a word, line, or document.</td>
</tr>
<tr>
<td>INSERT</td>
<td>Moves cursor to the next line.</td>
</tr>
<tr>
<td>PAGE DOWN</td>
<td>Moves cursor to the end of a word, line, or document.</td>
</tr>
<tr>
<td>PAGE UP</td>
<td>Turns every character you type into a capital letter when it is held down.</td>
</tr>
<tr>
<td>RETURN (Enter)</td>
<td>Lets you type new characters in between other characters.</td>
</tr>
<tr>
<td>SHIFT</td>
<td>Allows you to remove the letter before the cursor.</td>
</tr>
</tbody>
</table>

Source: 4-H 565, Learning About Computers

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Computers
Keyboard Crazy

Match the keyboard in the left column with its function in the right column. Each key will match only one definition.

- CAPS LOCK: Moves cursor up a whole screen.
- DELETE (Backspace): Lets you leave what you are doing.
- END: Moves cursor down a whole screen.
- ESC: Turns every character you type into a capital letter.
- HOME: Moves cursor to the beginning of a word, line, or document.
- INSERT: Moves cursor to the next line.
- PAGE DOWN: Moves cursor to the end of a word, line, or document.
- PAGE UP: Turns every character you type into a capital letter when it is held down.
- RETURN (Enter): Lets you type new characters in between other characters.
- SHIFT: Allows you to remove the letter before the cursor.

Source: 4-H 565, Learning About Computers

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
**All-Terrain Vehicles**

**ATV Action**

Fill in the blanks using the following words.

- adult sized
- safety
- passengers
- highways
- goggles
- manufacturers
- riding pants
- appropriate-sized
- comfort
- all-terrain vehicle
- shock
- low-pressure
- responsible
- width
- double
- ankles
- six-hundred
- recommendations
- trails
- gloves
- operators
- helmet
- force
- boots
- supervision
- collapse
- illegal
- chest protectors
- guidelines
- hazards
- off-road
- street
- protection

1. ATVs are equipped with __________ - ____________________ tires.

2. Riding gear worn to protect the eyes. ____________________

3. An ATV is 50 inches or less in _________________.

4. The inner liner of a helmet will slowly ____________________ during a hit.

5. In most states, it is ____________________ to ride on public roads.

6. Children under 16 should never ride __________ - __________ ATVs.

7. Wearing protective gear enhances ____________________.

8. ATV stands for __________ - ____________________ ____________________.

9. The outer shell of the helmet reduces the ____________________ of impact.

10. Follow the age/size ____________________.

11. Gloves offer ____________________ from scratches and abrasion.

12. Follow the age/size recommendations adopted by the ____________________.

13. Many accidents could have been ____________________.

14. A passenger can interfere with the ____________________ control.

15. It is best to ride on ____________________.

*Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety*
16. Stay off public ____________________ when riding ATVs.

17. Constantly watch for ____________________ when riding.

18. Worn to protect the feet, ankles, and lower legs. ____________________

19. The weight of the ATV is __________ - __________ pounds or less.

20. ATVs were designed for ____________________ - ____________________ use only.

21. Never ride ____________________ on an ATV.

22. Protective gear for the hands. ____________________

23. Never ride on the ____________________

24. Worn to protect the head from a serious blow. ____________________

25. Well-dressed riders wear these over their shirt for added protection. ____________________

26. By following the safety ____________________ many accidents can be prevented.

27. Carrying ____________________ can cause the operator to lose control.

28. Over-the-calf ATV boots offer the best protection for the ____________________

29. Worn to protect the legs from scratches and burns during riding. ____________________

30. ATV riders are ____________________ for their actions.

31. Always ride an ____________________ - ____________________ ATV.

32. Gloves are worn not only for protection, but also for ____________________

33. Children under 16 should always have adult ____________________

34. Low ____________________ help prevent the feet from slipping off the footrests.

35. The inner liner of the helmet is designed to absorb ____________________

Source: 4-H 555, All Terrain Vehicle

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
All-Terrain Vehicles

ATV Action

Fill in the blanks using the following words.

adult sized  comfort  heels  operators
safety  all-terrain vehicle  double  helmet
passengers  shock  ankles  force
highways  prevented  six-hundred  boots
goggles  low-pressure  recommendations  supervision
goggles  responsible  trails  collapse
manufacturers  width  gloves  illegal
riding pants  appropriate-sized

1. ATVs are equipped with ___low___ - ___pressure___ tires.
2. Riding gear worn to protect the eyes. ___goggles___
3. An ATV is 50 inches or less in ___width___.
4. The inner liner of a helmet will slowly ___collapse___ during a hit.
5. In most states, it is ___illegal___ to ride on public roads.
6. Children under 16 should never ride ___adult___ - ___sized___ ATVs.
7. Wearing protective gear enhances ___safety___.
8. ATV stands for ___all___ - ___terrain___ - ___vehicle___.
9. The outer shell of the helmet reduces the ___force___ of impact.
10. Follow the age/size ___recommendations___.
11. Gloves offer ___protection___ from scratches and abrasion.
12. Follow the age/size recommendations adopted by the ___manufacturers___.
13. Many accidents could have been ___prevented___.
14. A passenger can interfere with the ___operator’s___ control.
15. It is best to ride on ___trails___.

In this activity you will:

- learn recommendations for safely riding an all-terrain vehicle.
- learn common riding gear for personal safety.

Fill in the Blanks—Key

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
16. Stay off public highways when riding ATVs.

17. Constantly watch for hazards when riding.

18. Worn to protect the feet, ankles, and lower legs. boots

19. The weight of the ATV is six hundred pounds or less.

20. ATVs were designed for off-road use only.

21. Never ride double on an ATV.

22. Protective gear for the hands. gloves

23. Never ride on the street.

24. Worn to protect the head from a serious blow. helmet

25. Well-dressed riders wear these over their shirt for added protection. chest protectors

26. By following the safety guidelines many accidents can be prevented.

27. Carrying passengers can cause the operator to lose control.

28. Over-the-calf ATV boots offer the best protection for the ankles.

29. Worn to protect the legs from scratches and burns during riding. riding pants

30. ATV riders are responsible for their actions.

31. Always ride an appropriate sized ATV.

32. Gloves are worn not only for protection, but also for comfort.

33. Children under 16 should always have adult supervision.

34. Low heels help prevent the feet from slipping off the footrests.

35. The inner liner of the helmet is designed to absorb shock.

Source: 4-H 555, All Terrain Vehicle

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Healthy/Safety
Bicycles
Rules of the Road

Match the sign or signal with the definition in the center column. Each word is used only once.

In this activity you will:
• learn to recognize road signs found on the streets of your neighborhood.
• learn important hand signals that should be used anytime you ride on the road.

Bike crossing
caution
caution sign
left turn signal
railroad crossing
right turn signal
slow
stop light
stop sign
yield

Source: 4-H 522, You and Your Bicycle, and 4-H 523, Caring For Your Bicycle
Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Bicycles
Rules of the Road
Match the sign or signal with the definition in the center column. Each word is used only once.

**Matching—Key**

In this activity you will:
- learn to recognize road signs found on the streets of your neighborhood.
- learn important hand signals that should be used anytime you ride on the road.

Source: 4-H 522, You and Your Bicycle, and 4-H 523, Caring For Your Bicycle

Developed by: Dee Jepsen, Extension Associate, Ag Eng./Health/Safety
**Bicycles**

**Maintaining Your Wheels**

Read the story and insert the correct word in the blank. Use words from the list below only once.

<table>
<thead>
<tr>
<th>air dry</th>
<th>bearings</th>
<th>grease</th>
<th>kerosene</th>
</tr>
</thead>
<tbody>
<tr>
<td>maintenance</td>
<td>replaced</td>
<td>studied</td>
<td>washed</td>
</tr>
</tbody>
</table>

Joe was riding his bicycle one sunny afternoon, when he noticed it was becoming hard to operate. He had just received the bike for his birthday a few months ago and was puzzled by the problem. Joe decided to ask his father for help. His dad told him that an important part of owning a bike is ______________. After looking at the bike, Joe decided the problem was with the ______________. His father told him that they should be cleaned and lubricated. Taking his father’s advice, Joe began to work. First he ______________ each piece as he removed it from the bike. Next, Joe placed each piece on clean paper in the order he removed it. Then he ______________ all of the parts with ______________ and a stiff brush. Joe allowed the pieces to ______________ for about 30 minutes. Next he ______________ the worn parts and repacked the ball bearings in fresh ______________. Finally Joe finished the job by putting every piece back in the correct order. After cleaning up Joe hopped on his bike. It handled like new!

Source: Ref. 4-H 525, Your Bicycle Community

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Bicycles
Maintaining Your Wheels

Read the story and insert the correct word in the blank. Use words from the list below only once.

- air dry
- bearings
- grease
- kerosene
- maintenance
- replaced
- studied
- washed

Joe was riding his bicycle one sunny afternoon, when he noticed it was becoming hard to operate. He had just received the bike for his birthday a few months ago and was puzzled by the problem. Joe decided to ask his father for help. His dad told him that an important part of owning a bike is **maintenance**. After looking at the bike, Joe decided the problem was with the **bearings**. His father told him that they should be cleaned and lubricated. Taking his father’s advice, Joe began to work.

First he **studied** each piece as he removed it from the bike. Next, Joe placed each piece on clean paper in the order he removed it. Then he **washed** all of the parts with **kerosene** and a stiff brush. Joe allowed the pieces to **air dry** for about 30 minutes. Next he **replaced** the worn parts and repacked the ball bearings in fresh **grease**. Finally Joe finished the job by putting every piece back in the correct order. After cleaning up Joe hopped on his bike. It handled like new!

Source: Ref. 4-H 525, Your Bicycle Community

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Bicycles
The Serious Cyclist

Read each statement and determine if it is true or false. Circle the letter T for true or F for false.

TF 1. If you ride when it is dark, you must have a taillight or red reflector and a headlight visible for 500 feet.
TF 2. You may always ride in either direction on a one-way street.
TF 3. A person riding a bike must obey the same traffic laws as a person driving a car.
TF 4. For a right turn extend your right arm, bent at the elbow with your hand pointing up.
TF 5. Slow bikers should ride in the opposite direction as traffic is moving.
TF 6. Pedestrians always have the right-of-way at crosswalks.
TF 7. All bicycles must have a bell or horn.
TF 8. A round yellow highway sign means stop.
TF 9. A flashing red signal light means be careful.
TF 10. A red sign with eight sides always means yield.
TF 11. It is safe for two people to ride on a bicycle.
TF 12. Bicycle drivers are required by law to give the proper signal before turning.
TF 13. Bicycles are not allowed on expressways.
TF 14. When riding with others you should travel two side-by-side.
TF 15. A stop sign means stop, yield right-of-way, and wait until it is safe to go.
TF 16. When you turn a corner on your bicycle, you should signal with your foot.
TF 17. Emergency vehicles never have the right-of-way at intersections.
TF 18. Bicycles are allowed on sidewalks.
TF 19. Carrying packages on your bicycle with you is not safe.
TF 20. Before you go on a long trip, it is a good idea to inspect your bike to be certain it is working properly.

Source: 4-H 522, You and Your Bicycle; 4-H 523, Caring For Your Bicycle; 4-H 524, Mastering Bicycle Skills; 4-H 525, Your Bicycle Community
Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Bicycles
The Serious Cyclist

Read each statement and determine if it is true or false. Circle the letter T for true or F for false.

1. If you ride when it is dark, you must have a taillight or red reflector and a headlight visible for 500 feet.
2. You may always ride in either direction on a one-way street.
3. A person riding a bike must obey the same traffic laws as a person driving a car.
4. For a right turn extend your right arm, bent at the elbow with your hand pointing up.
5. Slow bikers should ride in the opposite direction as traffic is moving.
6. Pedestrians always have the right-of-way at crosswalks.
7. All bicycles must have a bell or horn.
8. A round yellow highway sign means stop.
9. A flashing red signal light means be careful.
10. A red sign with eight sides always means yield.
11. It is safe for two people to ride on a bicycle.
12. Bicycle drivers are required by law to give the proper signal before turning.
13. Bicycles are not allowed on expressways.
14. When riding with others you should travel two side-by-side.
15. A stop sign means stop, yield right-of-way, and wait until it is safe to go.
16. When you turn a corner on your bicycle, you should signal with your foot.
17. Emergency vehicles never have the right-of-way at intersections.
18. Bicycles are allowed on sidewalks.
19. Carrying packages on your bicycle with you is not safe.
20. Before you go on a long trip, it is a good idea to inspect your bike to be certain it is working properly.

Source: 4-H 522, You and Your Bicycle; 4-H 523, Caring For Your Bicycle; 4-H 524, Mastering Bicycle Skills; 4-H 525, Your Bicycle Community
Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
In this activity you will:

• learn to recognize the various parts of a bicycle.

Bicycles
Putting It All Together

Identify each of the numbered bicycle parts.

1. handlebar grips
2. chain guard
3. reflector
4. chain
5. kickstand
6. tire rim
7. saddle
8. crank bearings
9. rear fender
10. saddle post
11. handlebars
12. front wheel bearings
13. handlebar stem
14. front fender
15. tire valve
16. baggage carrier rack
17. fore bearings
18. frame
19. coaster brake and rear wheel bearings

Source: 4-H 522, You and Your Bicycle

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Bicycles
Putting It All Together

Identify each of the numbered bicycle parts.

1. handlebar grips
2. handlebars
3. handlebar stem
4. fore bearings
5. front fender
6. front wheel bearings
7. tire rim
8. tire valve
9. frame
10. saddle
11. saddle post
12. baggage carrier rack
13. rear fender
14. reflector
15. coaster brake and rear wheel bearings
16. chain
17. kickstand
18. crank bearings
19. chain guard

Source: 4-H 522, You and Your Bicycle

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
In this activity you will:

• learn terms used to identify common symptoms and injuries.
• learn basic first aid treatments for quick reaction to injuries.

Fill in the Blanks

Fill in the blanks using the following words.
abradion bruise dressing emergency frostbite
help hypothermia thermal infection ippecac
nosebleed poison prevention splinter
sprain sterile stress third
tick
hospital ice oil

1. Use ____________________ to remove a tick from the scalp.
2. A serious degree of burn is ____________________.
3. A type of wound caused by rubbing or scraping is an ____________________.
4. Leaning forward is one way to treat a ____________________.
5. Safety or ____________________ is the key to stopping injuries.
6. Too much sun exposure can cause heat ____________________.
7. Something clean and without germs is said to be ____________________.
8. A small piece of wood beneath the skin surface is a ____________________.
9. Stumbling, slow speech, jerky movements, and blue skin are signs of ____________________.
10. A ____________________ is an injury to the soft tissue around a joint.
11. Use a sterile ____________________ to protect a wound from further injury or infection.
12. ____________________ burns are caused by moist or dry heat.
13. Anything you eat, drink or breathe that can cause illness or death is a ____________________.
14. When someone is poisoned, syrup of ____________________ may be used to cause vomiting.
15. Always call for ____________________ in an emergency.
16. A person choking on a piece of food is an example of an ____________________.
17. A way to treat teeth injuries, bruises, and insect stings is to put ____________________ on the injured area.
18. A ____________________ is an injury where the skin is blue or purple, painful, and swollen.
19. An insect that attaches itself to the skin surface is a ____________________.
20. Signs of a wound ____________________ are redness, warmth, swelling, and pain.
21. In an emergency, a person should go to a ____________________.
22. ____________________ is used to remove a foreign body from the ear.
23. An injury caused by exposure to too much cold is called ____________________.

Source: 4-H 352, Safety in Everyday Living
Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
**First Aid**

**Quick Response**

Fill in the blanks using the following words.

- abrasion
- bruise
- dressing
- emergency
- frostbite
- help
- hypothermia
- thermal
- infection
- prevention
- splinter
- third
- tick
- nosebleed
- poison
- sterile
- stress
- tweezers
- hospital
- ice
- oil
- prevention

1. Use **tweezers** to remove a tick from the scalp.
2. A serious degree of burn is **third**.
3. A type of wound caused by rubbing or scraping is an **abrasion**.
4. Leaning forward is one way to treat a **nosebleed**.
5. Safety or **prevention** is the key to stopping injuries.
6. Too much sun exposure can cause heat **stress**.
7. Something clean and without germs is said to be **sterile**.
8. A small piece of wood beneath the skin surface is a **splinter**.
9. Stumbling, slow speech, jerky movements, and blue skin are signs of **hypothermia**.
10. A **sprain** is an injury to the soft tissue around a joint.
11. Use a sterile **dressing** to protect a wound from further injury or infection.
12. **Thermal** burns are caused by moist or dry heat.
13. Anything you eat, drink or breathe that can cause illness or death is a **poison**.
14. When someone is poisoned, syrup of **ipecac** may be used to cause vomiting.
15. Always call for **help** in an emergency.
16. A person choking on a piece of food is an example of an **emergency**.
17. A way to treat teeth injuries, bruises, and insect stings is to put **ice** on the injured area.
18. A **bruise** is an injury where the skin is blue or purple, painful, and swollen.
19. An insect that attaches itself to the skin surface is a **tick**.
20. Signs of a wound **infection** are redness, warmth, swelling, and pain.
21. In an emergency, a person should go to a **hospital**.
22. **Oil** is used to remove a foreign body from the ear.
23. An injury caused by exposure to too much cold is called **frostbite**.

**Fill in the Blanks—Key**

In this activity you will:

- learn terms used to identify common symptoms and injuries.
- learn basic first aid treatments for quick reaction to injuries.

Source: 4-H 352, Safety in Everyday Living

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Rope

Tying It All Together

Find the words hidden in the word search. Words can be across, down, diagonal, or even backwards.

- bowline
- manila
- breaking strength
- nylon
- granny knot
- hackamore
- rope
- halter
- sheepshank
- hitch
- slip knot
- kink
- splice
- knot
- tackle
- lariat
- twist
- loop
- wire rope
- hemp

Source: 4-H 540, Rope

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Rope
Tying It All Together
Find the words hidden in the word search. Words can be across, down, diagonal, or even backwards.

bowline  manila  breaking strength  nylon  granny knot
hackamore  rope  halter  sheepshank  hitch
slip knot  kink  splice  knot  tackle
lariat  twist  loop  wire rope  hemp

Source: 4-H 540, Rope

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Healthy/Safety
Lawn Care
Lawn Mower Lock-Up

Help Chris Clover put the lawnmower in a safe spot so you can play safely in the yard.

Puzzle

In this activity you will:

- learn where to store a lawn mower away from children.
- learn that keeping lawn mowers and other tools indoors helps protect equipment from weather damage.

Start Here

Garage

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Lawn Care
Lawn Mower Lock-Up
Help Chris Clover put the lawnmower in a safe spot so you can play safely in the yard.

Puzzle—Key
In this activity you will:
• learn where to store a lawn mower away from children.
• learn that keeping lawn mowers and other tools indoors helps protect equipment from weather damage.

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Lawn Care

Mower Message

Decode the important secret message about lawnmowers below! Write the letter for each symbol using the decoder at the bottom of the page.

- Learn a common danger to youth.

\[
\Omega \approx \zeta \sqrt{\int \leq \zeta \partial \dagger \pi}
\]

\[
\approx \dagger \partial \quad \approx \sqrt{\partial \leq \zeta \pi}.
\]

Decoder

\[
\approx \partial \leq \sqrt{\pi \zeta \zeta}
\]

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
**Lawn Care**

**Mower Message**

Decode the important secret message about lawnmowers below! Write the letter for each symbol using the decoder at the bottom of the page.

- in this activity you will:
  - learn a common danger to youth.

\[
\Omega \approx \varsigma \sqrt{\int} \leq \varsigma \partial \dagger \pi
\]

\[
\text{lawn mowers}
\]

\[
\approx \dagger \partial \| \approx \sqrt{£} \partial \dagger \leq \varsigma \pi.
\]

\[
\text{are dangerous.}
\]

---

**Decoder**

\[
\approx \| \partial £ \Omega \int
\]

A D E G L M

\[
\sqrt{\leq} \dagger \pi \varsigma \varsigma
\]

N O R S U W

---

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Woodworking
Measuring Up

Use the words below to complete each statement. Each word is used only once. The circled letters spell an important word for your woodworking projects. Unscramble the letters to reveal the important word.

bench grinder  chisel  clamps  coping saw
hardwoods  miter box  rip saw  safety goggles
shrinks  softwoods  trunk  veneer

1. __ __ __ __ __ __ __ __ __ have needle-like or scale-like leaves. Some examples are pine or cedar trees.
2. Wear __ __ __ __ __ __ __ __ __ __ __ __ __ when using electric saws.
3. The __ __ __ __ is divided into many parts. This is where most of the wood comes from we use.
4. __ __ __ __ __ __ __ __ __ __ __ __ __ have broad, flat leaves. Some examples are oak, maple, and cottonwood trees.
5. A __ __ __ __ __ __ __ __ __ __ __ __ __ is used to cut wood at 45 and 90 degree angles.
6. Wood __ __ __ __ __ __ when water within it evaporates into the air.
7. __ __ __ __ __ __ __ __ __ __ __ __ __ teeth are shaped like chisels. They cut like a group of chisels in a row.
8. __ __ __ __ __ __ are used to hold wood pieces together while you work.
9. A __ __ __ __ __ __ __ __ __ __ __ __ __ is used for cutting curves in wood.
10. A tool that is used for removing unwanted strips of wood is called a __ __ __ __ __ __ __ __ __ __ __.
11. __ __ __ __ __ __ __ __ __ __ __ __ __ is used for sharpening woodworking tools. They come in many shapes and sizes.
12. Plywood is made by gluing together three or more thin layers of wood called __ __ __ __ __ __ __ __ __ __ __.

The important word is: __ __ __ __ __ __ __ __ __ __ __ __ __

Source: 4-H 560, Working with Wood and Tools; 4-H 561, Wonderful World of Wood; 4-H 562, Building Bigger Things
Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Woodworking
Measuring Up

Use the words below to complete each statement. Each word is used only once. The circled letters spell an important word for your woodworking projects. Unscramble the letters to reveal the important word.

bench grinder    chisel    clamps    coping saw
hardwoods       miter box  rip saw    safety goggles
shrinks          softwoods  trunk    veneer

1. **S**o**f**t**w**o**o**d**s** have needle-like or scale-like leaves. Some examples are pine or cedar trees.
2. Wear **s**a**f**e**t**y **g**o**g**g**l**e**s** when using electric saws.
3. The **t**r**u**n**k** is divided into many parts. This is where most of the wood comes from we use.
4. **H**a**r**d**w**o**o**d**s** have broad, flat leaves. Some examples are oak, maple, and cottonwood trees.
5. A **m**i**t**e**r** b**o**x** is used to cut wood at 45 and 90 degree angles.
6. Wood **s**h**r**i**n**k**s** when water within it evaporates into the air.
7. **R**i**p**s**a**w teeth are shaped like chisels. They cut like a group of chisels in a row.
8. **c**l**a**m**p**s** are used to hold wood pieces together while you work.
9. A **c**o**p**i**n**g**s**a**w** is used for cutting curves in wood.
10. A tool that is used for removing unwanted strips of wood is called a **c**h**i**s**e**l**.
11. **b**e**n**c**h**g**r**i**n**d**e**r** is used for sharpening woodworking tools. They come in many shapes and sizes.
12. Plywood is made by gluing together three or more thin layers of wood called **v**e**n**e**r**.

The important word is: **m**e**a**s**u**r**e**m**e**n**t**s**

Source: 4-H 560, Working with Wood and Tools; 4-H 561, Wonderful World of Wood; 4-H 562, Building Bigger Things
Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Woodworking
Tools of the Trade

Label the tool using the parts listed beside it.

**Identification**

In this activity you will:

- learn two important tools for woodworking projects.
- recognize the various parts of each tool.

---

**Wood Chisel**

- bevel
- bevel edge blade
- cutting edge
- handle
- head
- ferrule
- shoulder

**Hand Saw**

- back
- blade
- handle
- heel
- teeth
- toe

---

Source: 4-H 561, Wonderful World of Wood; 4-H 562, Building Bigger Things
Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Woodworking
Tools of the Trade

Label the tool using the parts listed beside it.

In this activity you will:
- learn two important tools for woodworking projects.
- recognize the various parts of each tool.

**Wood Chisel**

- bevel
- bevel edge blade
- cutting edge
- handle
- head
- ferrule
- shoulder

**Hand Saw**

- back
- blade
- handle
- heel
- teeth
- toe

Source: 4-H 561, Wonderful World of Wood; 4-H 562, Building Bigger Things

Developed by: Dee Jepsen, Extension Associate, Ag Eng./Health/Safety
Electricity
Plugging It Together

Complete the crossword puzzle using the words listed below.

time switch  element  general purpose circuits  size
remove  twelve  contact switch  plug
grounding  small appliance circuits

Across
1. The most common type of electrical connection is the __________.
4. An electrical outlet should be placed on every __________ feet of wall space.
7. These supply outlets where portable appliances are used most often.
8. This type of switch works like a doorbell push button.
9. The __________ of the wire determines the amount of electrical current that can flow through the wire.
10. This switch works like an alarm clock.

Down
2. These service lights all over the house. __________
3. __________ means permanently connecting to moist earth with a conductor of sufficient size.
5. Fuses contain a short, fine piece of wire or metal strip inside called the __________.
6. __________ the fuse before working on a circuit.

Source: 4-H 534, Working With Electricity
Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Electricity
Plugging It Together

Complete the crossword puzzle using the words listed below.

- time switch
- element
- general purpose circuits
- size
- remove
- twelve
- contact switch
- plug
- grounding
- small appliance circuits

**Across**

1. The most common type of electrical connection is the __________.

4. An electrical outlet should be placed on every __________ feet of wall space.

7. These supply outlets where portable appliances are used most often.

8. This type of switch works like a doorbell push button.

9. The __________ of the wire determines the amount of electrical current that can flow through the wire.

10. This switch works like an alarm clock.

**Down**

2. These service lights all over the house. __________

3. __________ means permanently connecting to moist earth with a conductor of sufficient size.

5. Fuses contain a short, fine piece of wire or metal strip inside called the __________.

6. __________ the fuse before working on a circuit.

---

**Crossword—Key**

In this activity you will:

- learn important concepts for electrical connections.

---

Source: 4-H 534, Working With Electricity

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Healthy/Safety
Tractors
Tractor Tips

Complete the crossword puzzle.

1. Most accidents occur in the _____ industry.
2, 3. _____ and _____ are the primary type of tractor-related accidents.
4. No _____ riders!
5. Tractors are not ______. They have an important job to do on the farm.
6. Stay away from a _____ shaft at all times.
7. What is the cause of most agriculture injuries?

Source: 4-H 550, Safe Operation of Agricultural Equipment
Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety
Tractors

Tractor Tips

Complete the crossword puzzle.

In this activity you will:

- learn the cause of most agricultural accidents.

1. Most accidents occur in the _____ industry.
2, 3. _____ and _____ are the primary type of tractor-related accidents.
4. No _____ riders!
5. Tractors are not _____. They have an important job to do on the farm.
6. Stay away from a _____ shaft at all times.
7. What is the cause of most agriculture injuries?

Crossword—Key

Source: 4-H 550, Safe Operation of Agricultural Equipment

Developed by: Dee Jepsen, Extension Associate, Ag Eng/Health/Safety