Valley Christian Academy

SAFETY PLAN

General Safety & Metalworking

Instructions:

- Complete the test sections of this booklet individually
- Read the information provided and using that information, complete the questions that follow. Once the questions have been completed, STOP, and have the teacher check your work.
- Complete the test sections of this booklet individually. STOP. Have the teacher initial your test once you have earned 100% accuracy.

TOOLS AND MATERIALS SAFETY

Compressed air Occupational Health and Safety Regulation (WCB) states that compressed air should not be used to clean clothing, except in carefully controlled circumstances (e.g., where the pressure is limited to 10 psig), or for cleaning off equipment if someone could be exposed to the jet of air or to the material it expels. Use a vacuum cleaner to clean clothes and the shop area.

Condition of tools Only use tools that are in good working order. If a tool is dull, broken or out of adjustment, give it to your instructor or ask for permission to fix it.

Material handling Back injuries are common among people who work in shop areas, so handle large and/or heavy materials with care using proper lifting techniques. Also make sure that you don't run into other people when you are moving things, and ensure that all large and/or heavy objects are safely and securely stored. Ask for help if materials are heavy.

Protect your hands Most accidents in school workshops involve students. hands. To prevent injuries, adhere to the following rules:
a) keep your hands behind or to the side of the blade when using a cutting tool. **Never in front of the blade.**
b) do not use your fingers to test tools for sharpness and
c) place your hand near, but not on, an object when testing for heat.

Secure your work If the object you are working on is stable, it is less likely to slip and cause an injury; so use the vice or clamp on your workbench to secure the object. Never hold stock with one hand while trying to cut, chisel or drill it with the other hand.

Sharp objects Do not carry sharp objects such as nails, chisels, etc., in your pockets or your mouth! Carry them with the pointed end facing downward.

Use tools as intended Using tools improperly can lead to frustration, injury of self or damage to the tool, e.g., hammering with a wrench, prying with a chisel, or using files without handles. Take the time to get the right tool for the job.

Hands are the most vulnerable part of the body.

Eyes and ears also need protection.

Ask when you are not sure!

Dress safely using the appropriate protection.

Safety devices must always be used as intended.

UP!

TOOLS AND MATERIALS SAFETY QUESTIONS

Name: _____ Date:_____ Class: _____

1. What should you do with a tool that is dull, broken or out of adjustment?

2. What part of your body is most likely to be injured if you have an accident?

3. Why is it important to secure the object you are working on?

4. What could happen if you use the wrong tool for the job?

a.

b.

5. What kind of hazards should be avoided when moving large or heavy objects around the shop?

a.

b.

6. You should never carry sharp things in your _____

or your_____.

7. What does the *Occupational Health and Safety Regulation* (WCB) say about using compressed air?

a.

b.

8. What does the acronym HEADS UP! stand for?

TOOLS AND MATERIALS SAFETY TEST

Name: _____ Date:_____ Class: _____

1) What should you do with a tool that is dull, broken or out of adjustment?

- a) Put it back and grab another one
- b) give it to your instructor or ask for permission to fix it
- c) use it anyways
- d) leave it on the table

2) What part of your body is most likely to be injured if you have an accident?

- a) Hands
- b) Face
- c) Eyes
- d) Feet

3) Why is it important to secure the object you are working on?

- a) So it does not fall down
- b) So no one takes it on you
- c) So it is less likely to slip and cause an injury
- d) So you can leave it until next class

4) What is the main type of hazard that should be avoided when moving large or heavy objects around the shop?

- a) Dust in the eyes
- b) Leaving the object in the middle of the floor
- c) Running into other people
- d) Electrical cords

5) You should never carry sharp things in

- a) your tool bag
- b) your tool box
- c) your car
- d) your pocket

6) What does the *Occupational Health and Safety Regulation* (WCB) say about using compressed air?

- ◯ a) should not be used to clean clothing
- ◯ b) should not be used to clean off equipment
- ◯ c) both a and b
- ◯ d) neither a or b

7) What does the acronym HEADS UP! stand for?

H_____

E_____

A_____

D_____

S_____

UP!

WORKSHOP SAFETY

Accidents Immediately report all accidents or injuries to your teacher so that proper treatment can be given and the dangers removed or dealt with.

Behavior Workshops are hazardous environments. Adopt a calm, careful attitude at all times. Walk, don't run, avoid pushing, bumping or startling others, and don't throw things.

Clothing Dressing appropriately for the job is a very important consideration when working in a shop area. Tuck in loose clothing, wear pants, push up long sleeves, remove all jewelry and tie back long hair to prevent them from getting caught in machinery. Wear sturdy, protective shoes and use the protective gear provided, i.e., eye and hearing protection. Students wearing high heels or sandals will not be permitted in the shop.

Emergencies Know what to do in an emergency! Be familiar with all emergency equipment in the shop, including fire extinguishers, power shut off buttons, fire blankets, first aid kits, and eye wash stations.

Eye protection Eye protection must be worn at all times except in the drafting room.

Housekeeping Clutter and spills pose unnecessary hazards. Tripping, slipping, bumping into things, dropping things off messy work surfaces. So keep the floor and work areas clear and clean, store your tools, materials and projects away safely and securely, and keep aisles and exits free of obstructions at all times.

Mental condition Most accidents occur when people are tired, rushed or under the influence of alcohol or drugs, so think SAFETY. If you are tired, stop and rest. If you are rushed, slow down. If you are under the influence of alcohol or drugs. DO NOT WORK in the shop area.

Personal responsibilities When working in a shop environment, be aware of the risks your work may pose to others, especially when using equipment such as arc welders, compressed air, and grinders. If you see something dangerous or consider your work environment to be unsafe, report it so that it can be fixed. If you feel unsafe about a particular activity, consult with your instructor before proceeding. Conduct regular safety checks on yourself, your material and your tool.

Working conditions Set up your work area so that it is well-organized, well-lit, and adequately ventilated. To prevent unnecessary strain, make sure that you are in a comfortable working position.

WORKSHOP SAFETY QUESTIONS

Name: _____Date:_____Class: _____

1. How should you behave while in the workshop?

2. What kind of accidents can be caused by a cluttered work place?

3. How should you dress while working in the workshop?

a.

b.

c.

d.

e.

4. When is eye protection required?

5. What are three conditions necessary in a good working environment?

a.

b.

c.

6. Why is it important to report all accidents?

a.

b.

7. What should you do if there is a serious accident or other emergency?

8. Most accidents happen to people who are _____, _____ or_____.

9. What are three things you can and should do to keep yourself and your classmates safe?

a.

b.

c.

WORKSHOP SAFETY TEST

Name: _____ Date: _____ Class: _____

1. Which of the following is **not** the proper way to behave in the workshop?

- a) Calm and careful attitude at all times
- b) Walk
- c) Pushing others
- d) don't throw things

2. Tripping and slipping can be caused by?

- a) cluttered work place
- b) wood placed on the wood rack
- c) tools put away
- d) watching where you walk

3. Which of the following is **not** the correct way to dress in the shop?

- a) wear pants
- b) push up long sleeves
- c) loose clothing
- d) remove all jewellery and tie back long hair
- e) protective shoes

4. When is eye protection required?

- a) in only the drafting room
- b) in the complete shop
- c) everywhere except the drafting room

5. What is **not** one of the three conditions necessary in a good working environment?

- a) well-organized
- b) coffee machine
- c) well-lit
- d) adequately ventilated

6. Why is it important to report all accidents?

- a) so that proper treatment can be given
- b) dangers removed or dealt with.
- c) both a and b
- d) neither a or b

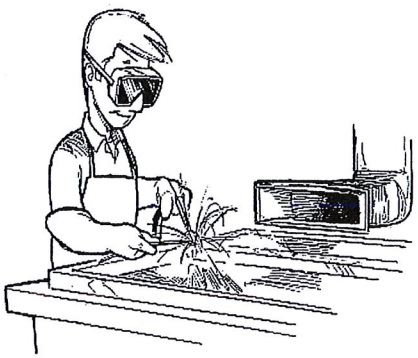
Over →

7. Most accidents happen to people who are

- a) alert and careful
- b) tired or rushed
- c) working alone in their area
- d) just coming into the shop

8. What is **not** one of the three things you can and should do to keep yourself and your classmates safe?

- a) be aware of the risks your work may pose to others
- b) If you see something dangerous or consider your work environment to be unsafe, report it so that it can be fixed
- c) If you feel unsafe about a particular activity, consult with your instructor before proceeding
- d) leave materials and tools laying around



OXY-ACETYLENE SAFETY QUESTIONS

• You must be trained and authorized before you are allowed to use the oxy-acetylene equipment.
• Ensure acetylene cylinders are kept upright at all time.
• When setting up oxy-acetylene equipment, never use grease or oil to lubricate the fittings. Oil and grease are very flammable in the presence of oxygen.
• Vapours or fumes from solvents, fuels or other flammable liquids can be explosive. Never weld a container that has held flammables unless it has been steam cleaned or is filled with water or an inert gas.
• Always watch for gas leaks by listening to or brushing the connections with soapy water.
• Open the cylinders slowly, one full turn for oxygen and half a turn for acetylene. This releases pressure gently into the system and lets you shut the cylinders off quickly if there is a problem at start up.
• Always wear leather gloves, leather jacket, leather apron and approved welding goggles. Make sure anyone who watches or helps also wears proper protective gear.
• Make sure your work area has effective local ventilation. Galvanized metal, brass or bronze emit toxic fumes when heated. Respiratory protection may also be required.
• Be aware of the location of the hoses are all times.
• Purge with acetylene. Light the acetylene first with a striker (not matches or lighter), then add oxygen. This will ensure that there is no mixed gas in the lines that could burn back up inside.
• Mark recently welded work "Hot" or guard it to prevent it from being contacted.
• Make a habit of feeling for heat before you grab hold of anything. Vices, bricks, or tools can give a serious burn even though they may not look hot.
• The oxy-acetylene flame burns at about 3000°C. Always watch where you put the tip and only set the torch down in a proper holder so it doesn't fall.
• When finished, turn off the torch valves, turn off the cylinder valve at the cylinder, then go back to the torch and bleed both lines.

Hands are the most vulnerable part of the body.

Eyes and ears also need protection.

Ask when you are not sure!

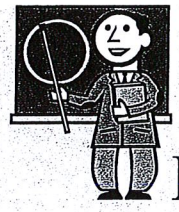
Dress safely using the appropriate protection.

Safety devices must always be used as intended.

UP!

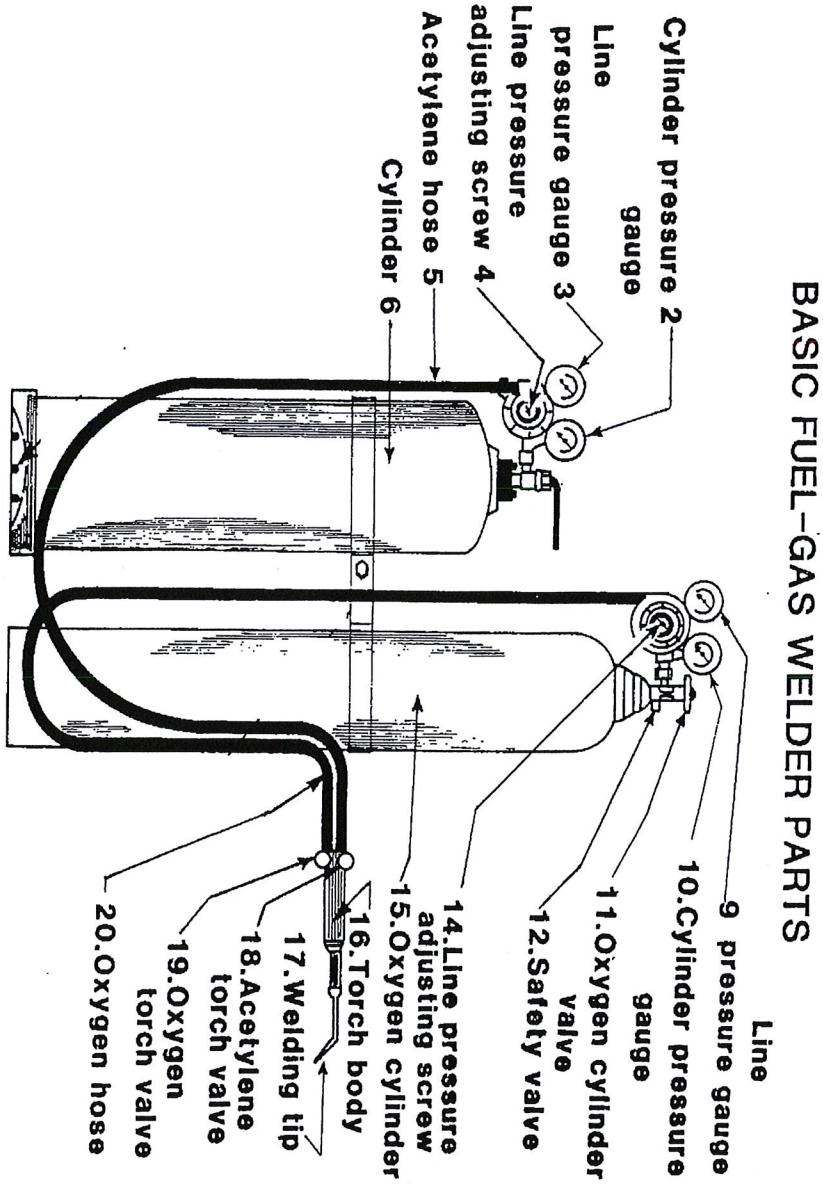
Parts – Oxy/Acetylene Welder

Student Name:_____ **Term: 1 2 3 4** **Mark: / %**



Instructions:

Using the diagram given below, memorize the different parts of the piece of equipment. Once you know them all, have your teacher give you a verbal test on the names of the parts.



OXY-ACETYLENE SAFETY TEST

Name:_____ Date:_____Grade:_____

1. What is the danger in using grease or oil to lubricate welding fittings?
   - ○ a. Oil and grease are very flammable in the presence of oxygen
   - ○ b. It will make the fittings to loose
   - ○ c. It will stop the gas from flowing
2. Describe at least two ways of checking for leaks on gas welding equipment.
   - ○ a. Use a lighter buy the fittings
   - ○ b. brushing the connections with soapy water
   - ○ c. by listening to
   - ○ d. a and c
   - ○ e. b and c
3. How far should you open the tank valves?
   - ○ a. half full turn for oxygen and one turn for acetylene
   - ○ b. one full turn for oxygen and one full turn for acetylene
   - ○ c. one full turn for oxygen and half a turn for acetylene
   - ○ d. quarter turn for oxygen and half a turn for acetylene
4. What protective equipment should always be worn when working with oxy-acetylene welding equipment?
   - ○ a. leather gloves
   - ○ b. leather jacket
   - ○ c. leather apron
   - ○ d. approved welding goggles
   - ○ e. all of the above
5. What extra danger exists when welding brass, bronze or galvanized metal?
   - ○ a. emit toxic fumes when heated
   - ○ b. they will burn
   - ○ c. they will explode
   - ○ d. they will turn green in color

over →

MIG WELDING SAFETY QUESTIONS

Name:_____ Date:_____ Grade:_____

• Mig welding can burn or shock you! Wear protective clothing to protect exposed skin from welding splatter and UV rays, and wear leather gloves (without holes) to protect against burns and shock.
• Use screens to protect others from flash.
• Do not weld in wet conditions or while wearing wet clothing. Water is a good conductor and could cancel out the protective qualities of your clothing and gloves.
• Always wear an approved Mig welding helmet with a no. 10 lens or darker. The light from Mig welding is bright enough to damage your eyes permanently. Gas welding goggles or sunglasses are not good enough. Do not watch the arc when someone else is welding and make sure they don't watch you work unless they also have a helmet on.
• Wear clear eye protection when brushing or grinding your welds.
• Ensure that cables will not interfere with your work.
• Mig welding makes a lot of smoke. Make sure you have effective local ventilation to clear away the fumes.
• Make a habit of feeling, not touching, for heat before you grab anything. Vices, tools or steel near your weld can give a serious burn even though they may not look hot.
• Vapours or fumes from solvents, fuels or other flammable liquids can be explosive. Never weld a container that has held flammables unless it has been steam cleaned or is filled with water.
• Mark hot work "Hot" or guard it so it can't be contacted.

Hands are the most vulnerable part of the body.

Eyes and ears also need protection.

Ask when you are not sure!

Dress safely using the appropriate protection.

Safety devices must always be used as intended.

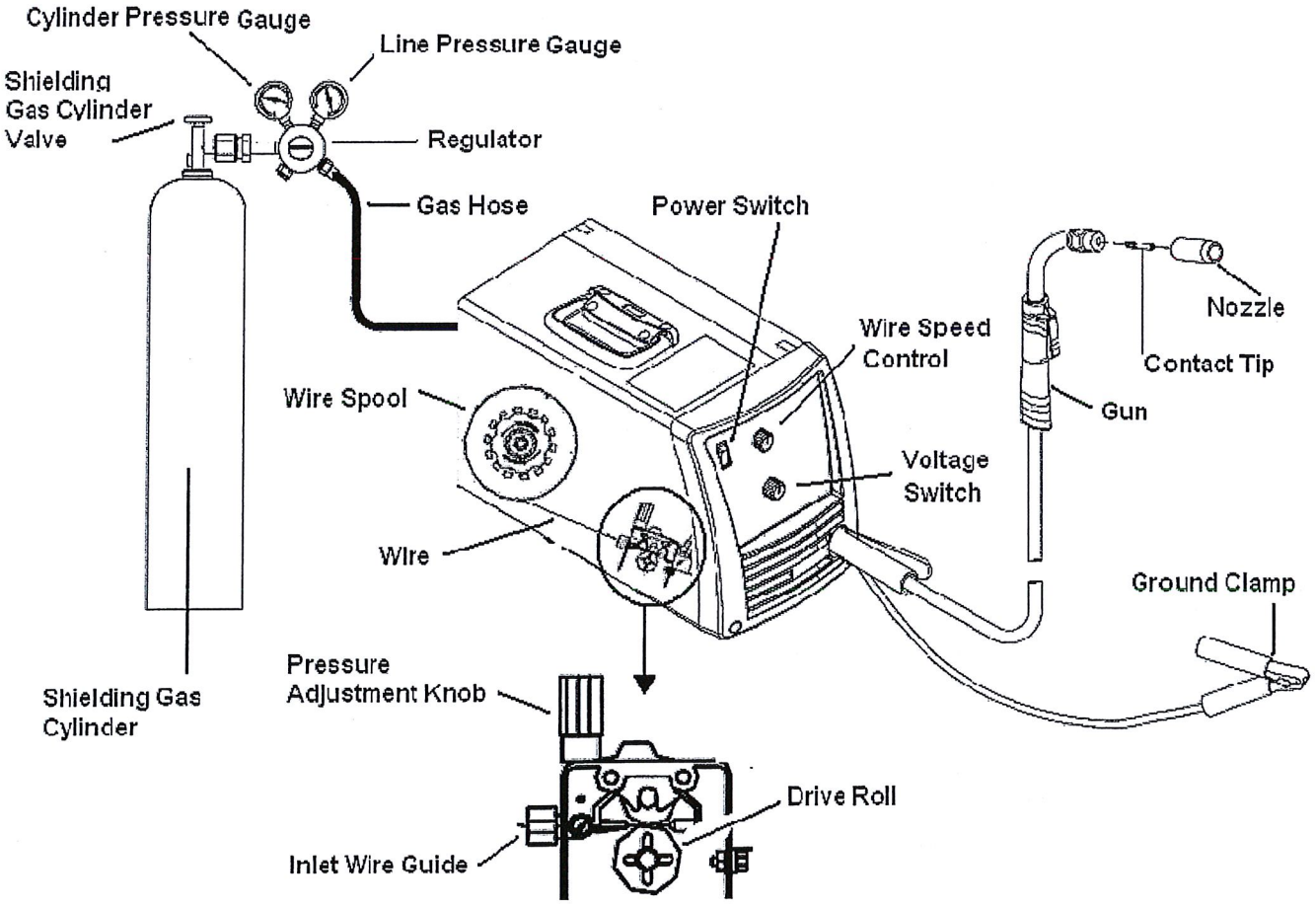
UP!

Parts – Mig Welder

Student Name:_____ **Term: 1 2 3 4** **Mark: / %**

Instructions:

Using the diagram given below, memorize the different parts of the piece of equipment. Once you know them all, have your teacher give you a verbal test on the names of the parts.



MIG WELDING SAFETY TEST

Name:_____Date:_____Grade:_____

1. When Mig welding, your clothing must protect you against what four potential hazards?
   - ◯ a. welding splatter
   - ◯ b. UV rays
   - ◯ c. Burns
   - ◯ d. shock.
   - ◯ e. All of the above

2. Why is it dangerous to Mig weld in wet conditions?
   - ◯ a. Water is a good conductor and could cancel out the protective qualities of your clothing and gloves.
   - ◯ b. Water will make your welds weak
   - ◯ c. Water will cause the welder to overheat

3. Do gas welding goggles or sunglasses provide enough eye protection for Mig welding?
   - ◯ a. No
   - ◯ b. Yes

4. Clear eye protection must be worn when?
   - ◯ a. welding
   - ◯ b. brushing or grinding your welds.

5. Why is it important to have lots of ventilation when Mig welding?
   - ◯ a. Mig welding makes a lot of smoke and you need to clear the fumes away
   - ◯ b. So that you do not get hot
   - ◯ c. It keeps the metal from melting
   - ◯ d. It protects you from the welding flash.

6. In addition to the material you are welding, what else can get hot enough to burn you?
   - ◯ a. steel near your weld
   - ◯ b. Vices tools
   - ◯ c. Both a and b
   - ◯ d. Neither a or b

OVER →

Drill Press Safety Questions

Name_____ Date_____ Class_____

1 Tie long hair back.

2 Remove all strings and/or jewelry that could get caught in the drill press.

3 The material you intend to drill must be held in the drill vice or be clamped to the drill table. This will prevent it from spinning around and hurting you if the drill bit were to catch as it went through.

4 Be sure to 'centre punch' hard materials like metals before you drill them. The punch mark will prevent the drill bit from slipping around as you try to start the hole.

5 Set appropriate drill speed for the drill bit.

6 Make sure the chuck key is out of the chuck every time you go to start the drill.

7 If you are drilling a series of holes or are in a rush to get onto the next job, slow down to make sure the bit is clear of the stock before you move it. If you do move the stock when the bit is still in the hole, you could break the bit.

8 Set up your operation to avoid drilling into the vice or table. Put some scrap wood under your work, or position it in the vice so that the bit will come through in the centre or at the side of the vice.

Hands are the most vulnerable part of the body.

Eyes and ears also need protection.

Ask when you are not sure!

Dress safely using the appropriate protection.

Safety devices must always be used as intended.

UP!

Drill Press Safety Questions

Name_____ Date_____ Class_____

1. Why is it important to secure the material you plan to drill on the drill press?

2. How do you prevent the bit from slipping off target and possibly breaking when drilling hard materials like metal?

3. What 3 things should you check each time you are about to start the drill press?

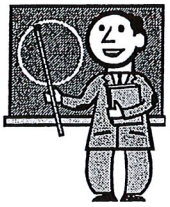
4. What could happen if you move the stock before the bit is completely clear

5. How can you avoid making unwanted holes in the drill press vice?

6. Why do you need to tie long hair back and remove jewelry and/or strings when working around the drill press?

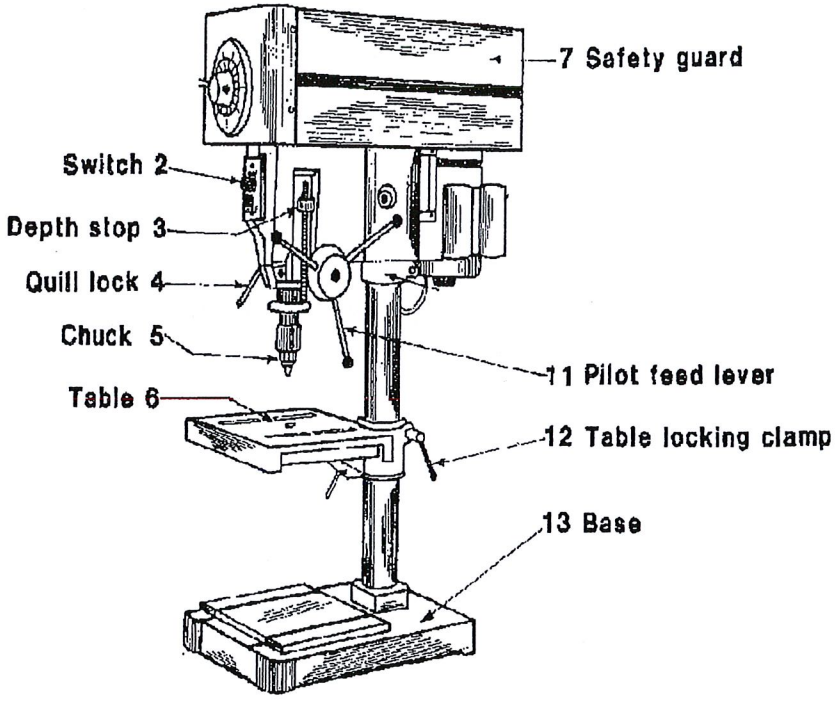
Parts – Drill Press

Student Name:_____ **Mark:** / 10 %



Instructions:

- Below you will find a diagram of a drill press. Study the diagrams and when you feel that you know the names to all the parts, have your teacher give you a verbal quiz on the different parts.



Drill Press Safety Test

Name_____ Date_____ Class_____

1. Why is it important to secure the material you plan to drill on the drill press?
   - a) This will prevent the material from spinning around and hurting you if the drill bit were to catch as it went through.
   - b) So the bit doesn't drill all the way through.
   - c) This will prevent the drill from moving across the floor while drilling.

2. How do you prevent the bit from slipping off target and possibly breaking when drilling hard materials like metal?
   - a) Drill into the work a little bit and then back out and do it over again.
   - b) Centre punch
   - c) mark the work with a pencil showing where you want to drill.
   - d) Clean the material with oil first.

3. What of the following is not what needs to be check each time you are about to start the drill press?
   - a) Drill speed
   - b) chuck key is out of chuck
   - c) Is the dust collector is turned on.
   - d) material is clamped securely

4. What could happen if you move the stock before the bit is completely clear of the hole?
   - a) You could drill the hole in the wrong spot.
   - b) You could break the bit.
   - c) You will not be able to turn the drill press on again.

5. How can you avoid making unwanted holes in the drill press vice?
   - a) Use only spade bits.
   - b) Use only twist drill bits.
   - c) Only drill halfway through the wood.
   - d) Put some scrap wood under your work

6. Why do you need to tie long hair back and remove jewelry and/or strings when working around the drill press?
   - a) So they do not get in the way of you seeing the drill bit.
   - b) So they do not get caught in the drill press.
   - c) So they do not leave marks on your material.
   - d) So they do not get caught in your apron.