Instruments
Notes from Virginia Lakeman's experience

The Woodwinds

Flute

Holding:-

- Right hand thumb under the 3rd key from the end of the middle joint.
- Right hand little finger on the 'balancing key', the closest key on the foot joint to the connection. There are a few notes where this is not held down.
- Left hand resting on the hand bone supporting the index finger, between the keys that the index and middle finger control.
- The chin rest against the chin so that none of the bottom lip is covered by the flute.
- The angle should be such that the right hand is at least 30 degrees out from the plain of the shoulders to get the best sound.
- If the head is upright then the blow hole should be parallel to the floor and flat as should the flute. A slight bend of the neck to the right will allow the flute to be angled down.
- The right arm must not be behind the back rest of a chair.

Dynamics

- The size of the mouth hole should be more open for a loud sound with more air behind it or the sound will go sharp. Conversely to play soft the mouth hole needs to be made smaller.

Tone

- The air stream should be directed down by pulling in the bottom lip to produce a richer tone in the low register, and directed up by putting the bottom lip forward for high sounds.
- Like singing and all wind instruments the tone can be improved by making a large air space in the head.
- Vibrato, done by changes in air speed, gives the tone more 'life' for long notes etc.

Tonguing

- The tongue should work from just above the front teeth.

Things that can go wrong with the instrument

- Springs on the wrong side – keys won't shut when they should. A crochet hook is a useful tool.
- The keys are stiff and won't move. Either the flute is bent – look along it. Or the flute needs a service – oiling. Use a needle and the thinnest oil lubricant such as trumpet valve oil and run the needle over the small gaps in the rods or take it apart and clean and lightly oil the internal rods. OR a key has become bent – have it repaired. OR the foot joint screw to the roll bar has come undone – pull that joint apart and re tighten the screw. NOTE:- if screws of any type come undone at any time then a small dob of nail polish will fix it.

- Some keys leak air and won't produce the right pitch. Either adjust the action screws with a very tiny screw driver. Or have torn pads replaced.
- A pad has fallen out. A visit to the repairer may be necessary, but you could try putting it back. First put the pad in place and make sure that it sits as it previously did in the key, then hold the flute so that the key remains closed and is on the bottom. Hold a match to the metal of that key briefly. The heat should melt the glue still on the pad or in the key and fix the pad back in place. Clean the key and try it out.
- The tone isn't clear in any register. Check the head joint cork. Replace if it can be pulled out too easily. Note:- a head joint is tapered, so corks must be removed and replaced from the wide end which joins to the middle key joint.
- The flute is very flat. Probably the student has turned the small screw cap on the end of the head joint and moved the cork. Check this with the line on the cleaning rod when placed inside the head joint. The line should be in the very centre of the blow hole. If not move the cork by the required amount. Loosen the screw cap, leaving it on, and push gently perpendicularly against a wall or similar until the line on the cleaning rod is in the middle.

Clarinet

Mouthpiece

- No matter what model of clarinet the mouth piece that comes with the instrument is usually unsatisfactory past the early beginning stages for which they are designed.
- The mouthpiece reed combination makes a big difference. The choice is ultimately individual.
- The reed should be positioned so that a fingernail thickness of the mouthpiece is visible above it when held up to eye height.

Reed

- Reeds should be kept flat, preferably in a reed case.
- Chipped or split reeds will usually produce squeaks. Mouldy reeds are unhygienic.
- Students should have at least two that have been broken in.
- A new reed will sometimes be improved by rubbing the angled face on a piece of flat paper. This closes off the fine capillaries in the bamboo.

Classical / Jazz

- Classical Clarinet playing does not use vibrato or bent notes. Jazz playing uses both. The mouthpiece for Jazz has a wider gap at the reed tip than a Classical mouthpiece. The wider gap generally requires a softer grade reed and more bottom lip strength from the player.

Issues

- The long keys can become bent into each other. Simply bend them back gently.
- The long keys don't close properly in the 'coupling' situation. If the cork is missing it will need replacing, but if not the key work can be bent gently until the pads close properly again.
- Squeaks –
    - Lip squeaks – ask are your teeth on top?
    - Reed squeaks – the reed may be slightly sideways from the ideal position - refit. Or the reed may have splits and chips – replace. OR the mouthpiece may be chipped – replace it.
    - Finger squeaks – check the right hand finger positions. A hole that is only partially covered will squeak.
    - Key work squeaks – perhaps the top and bottom finger joints connecting rod system is not straight so the right hand keys will not close properly. OR pads are worn and torn – have them replaced. OR the long keys are not seating properly – see above.
- Wooden clarinets require oiling. If there is a rainbow coloured glint in the pores of the wood the instrument does not need oiling. Never over oil. To oil put no more than 3 drops of clarinet bore oil on a brush and work the brush around the inside only of each piece. When finished leave the clarinet on its stand. You could put paper down, but it shouldn't drip if you have used only 3

drops. Don't leave in a hot car. Don't leave together – always put it away, except after oiling. DO NOT get oil on the pads.

- All clarinets should be dried out after use. Take care that the small protruding tube behind the register key hole is not damaged. Do not pull cloths with too much force. If cloths become stuck you may need to take the instrument to a repairer.
- A neck strap that attaches to the thumb rest is a good idea for beginners.
- Passages requiring the use of little fingers need careful planning in some contexts. Three keys are duplicated for both little fingers. One of the right hand keys has no duplicate.

Characteristics

- The clarinet over blows at an octave and a fifth using a register key, in fact because it acts like a closed pipe at one end it produces a sound very close to a square wave because only every odd numbered harmonic is produced.
- Throat notes are note great sounds and are hard to play in tune. The holes around the top of the instrument are needed to make it chromatic, but are really rather 'false'. The adjustment of how high the key opens may improve the intonation.
- The 'break' at Bb – B on the 3rd line is hard for beginners to get over.
- The low register is in F. The upper register is in C.
- It is good to begin students on clarinet even if they want to play saxophone eventually as they will be able to play both. It is easy to go to saxophone after clarinet, but not very easy to go the other way.

Oboe

General

- The oboe is pitched in C. (Non transposing.)
- The natural scale is C major.
- Fingerings are very like the recorder, including the note F.
- The index finger key Left Hand has a 'speaker' hole that should be covered or uncovered according to the note being played.
- There is a 'speaker' key for the thumb of the Left Hand.
- Tonguing in the roof of the mouth or by touching the reed.
- Sections:- upper and lower key joints (joining lever) and bell (also has a lever connection to the lower key joint) both with cork adjustments (also necessary to stop key noises.)

Reed

- A thin double reed
- attached to a 'staple' - a conical brass tube – usually with waxed thread and/or wire
- wrapped in cork
- this is placed in a metal lined hole at the top of the instrument
- Lips are drawn in over the top and bottom teeth
- Soak the reed in water prior to use
- Moderately expense to replace reeds. ($10 - $15)
- Advanced players often make their own reeds.
- Water on the reed is noisy.

Issues

- The small reed makes it hard to push air through the instrument, especially on poor quality student models. This puts strain on the heart and can have adverse physical effects. (Students born with heart defects should not take up the oboe.)
- The tone is quite 'squeaky' because of the conical bore. The loudest overtone is an octave and a 5^{th} above the note being played and is louder in volume than it.
- Complex key work makes chromatic playing easy, but can cause difficulty in playing if not adjusted correctly.
- High notes are hard to play well, as are the low notes – middle C and lower.
- Student model oboes frequently come without the low Bb pad and key, though usually with the hole to put the key work over.

Bassoon

General

- Pitched in C
- Natural scale is F major
- The bass instrument of the woodwind family.

Reed

- Large double reed
- Soak in water prior to use
- Lip pressure only – the lips are not wrapped around the teeth. The amount of lip on top and bottom of the reed makes a difference to the ease of playing – even certain pitches.

Sections

- Crook with speaker hole – Summer and Winter length crooks. Tone can be affected by the crook – always dry out as best as possible by safely flicking to keep it clean.
- Upper key joint (Left hand holes and keys)
- Butt – a section with two internal air columns connected by a metal U shaped tube. (Right hand holes and keys) This is the most important section to dry after playing. Use a pull through. Both the upper and lower key joints join to the butt.
- Lower key joint (Left hand thumb keys) – joined in some way with the Upper key joint to maintain the correct angle.
- Top (bell)
- Many of these sections have joining levers covered with cork. Hold safely out of the way while connecting.
- Joints have cork which should be greased.
- Note two levers have posts that go through the timber section (where there is no internal hole) to transfer movement to a key on the other side.
- Seat strap or neck straps can be used.
- Right hand grip – can be used either up or down – allows the right hand a relaxed grip.

Issues

- When the reed is old D and Eb (3^{rd} line & space respectively) are the first notes to be out of tune.
- Having a reed sufficiently played in for a performance but not so old that intonation of the tell tale notes is an issue.
- The left hand finger span is only possible for students with long fingers. There are small children bassoons at last entering Australia.

Brass instruments

General – all

- Members:-
  - Common Orchestral:- trumpet, French horn, trombone, tuba
  - Common Brass band:- cornet, euphonium of different sizes, trombone, tuba – all players read from treble clef transposed parts – transposed for Bb or Eb according to size.
  - Flugal horn is frequently used for Ballads in Jazz because of its mellow sound.
- Mouthpiece
  - Trumpet, trombone & Tuba – use cup shaped mouthpieces of successively larger sizes. Individual instrument mouthpieces come in different sizes of cup.
  - French horn uses a small funnel shaped mouthpiece to allow the player to pitch the higher harmonics easily.
  - The speed of the buzzing lips determines the pitch.
- Tubing
  - From shortest to longest:- trumpet, trombone, French horn, tuba.
  - Instruments in pitch order:- trumpet, French horn, trombone, tuba.
  - Trombone uses a slide to extend the tubing this needs to be greased with slide cream then kept moist by spraying water from a squirt bottle that gives a fine mist.
- Valves
  - Piston valves for:- trumpet, tuba
  - Rotary valves for:- French horn and the trigger action of a bass trombone's valve. Rotary valves are delicate – take apart only if absolutely necessary.
  - All valves need oiling with very light oil. For piston valves, remove the valve to oil. For Rotary valves insert the oil either down the tube or at the opening if there is one.
- Bell
  - The flare of the bell makes a difference to the tone. French horns have the largest flare.
- Use the harmonic series and the ability to add lengths of tubing to play chromatically.
  - All but the French horn uses the lower notes of the harmonic series. The French horn mainly uses notes from further up the harmonic series where the harmonics are closer together (easy to pitch the wrong harmonic).
- Fundamental or 'pedal' notes are not easy for most players on most brass instruments.
- The taper of the bore makes a difference to the tone. Eg. The cornet (gradually tapering bore) has a more mellow tone than a trumpet (straighter bore)
- Multiphonics is the technique of playing one note while singing another through the tube producing two notes or if the pitch relation allows for beats a third note may sound.
- Transpositions

    - The name of the instrument eg trumpet in Bb indicates the transposition.
    - French horns transpose down a 5^{th} from the printed part.
    - Trombones and tubas in orchestras are considered concert pitch instruments and written accordingly.
    - Trombones and tubas in brass bands read from transposed treble clef parts according to the name of the instrument, or their harmonic series when no tube extensions are used.
- The spit valves
    - needs to cover the holes well.
    - Condensation is a real issue in metal piping. (Humans have a 14% increase in moisture content between breathing in and out.) All brass instruments require emptying from time to time. (Many times in a single long piece.)
    - The French horn needs to be taken apart to empty.
    - Water bubbling in the tube makes an obvious noise.
- Bathing brass instruments
    - Take apart
    - Use a brush
    - Bath in warm water with washing up detergent
    - Allow to dry
    - Oil the valves, and put cream on the slides (valve slides and tuning slide)
    - Reassemble and make sure that all valves are put in the correct slot (valves are usually numbered) and in the right direction. Piston valves will click in place but they can click in backwards. Check by blowing air through the instrument. If there is great resistance to your blow, then you have probably put the valve in backwards. Suggest that you put the valves in one at a time starting with the nearest.