Consider teaching a default set of PAWS variables. For example, lane 3, full hair, an eight-pound cat on the stick, and 50 mph. Experiment adjusting tone colors before dynamics. For example, play with a robust, focused sound you can hear through the door compared with a whispered, airy sound that stays in the room. Use modeling to demonstrate a wide range of possibilities and break elements down technically.

# Bow Games:

* Thumb Bumps
* Pronation--bow melts
* Kansas/Colorado (Plains/Mountains)
* Rowing--Angle
* Up Like a Rocket, down like the rain.
* Gates
* Stew
* Dirty Doggy Scrub, Scrub

*For more bow games, William Starr, Phyllis Young, Hamann & Gillespie, etc. + Butz Achieving Musical Success in the String Classroom (2019).*

# Possible checklist or Assessment options:

*General Tone Goals: Tone is clear, resonant, and beautiful. (Bow placement, weight, and speed were proportional to each other.)*

* Volume is appropriate to setting and music (Loud to soft, blended with others)
* Bow is halfway between the bridge and fingerboard (or slightly closer to the bridge)
* Bow stays on one track (parallel to the bridge, bow does not travel unintentionally towards bridge or fingerboard while playing)
* Stick is slightly bent downwards toward hairs and remains stable (Maintain consistent weight)
* Speed of bow/amount of bow is appropriate for the music and the weight of bow
* The sound begins with bow ON the string, especially in ensemble settings
* Bow is in appropriate place on string: (frog, balance point, middle, tip—bow distribution)

# Trouble-shooting issues with tone:

*Tone issues may be resolved by addressing technique, equipment, and musical demands.*

**Technique:** Technique affecting tone includes issues with posture and body format, position of instrument, bow hold, bow arm, balancing PAWS variables, bow strokes, beginning from the string, bow distribution, tonalization (includes playing in tune and PAWS), and tension.

**Posture and Position:** Sit or stand tall, facing f holes toward the audience with violinists and violists strings parallel to the floor so that the sound arcs out of the instrument. If you tilt all of your orchestra members' seats towards the audience and move bassists’ instruments to face the audience, this will instantly improve your ensemble’s tone quality and projection!

**Release Tension:** Tension anywhere in the body can be heard in the tone. For instance, a young student had once carefully released tension from common locations such as hands, limbs, and torso yet there was still tension in the sound. In spring, when the weather warmed, we found the answer! Leah wore sandals and we saw that she curled her toes when she played. She released tension in her toes and her tone was beautiful! Work from the ground up or the core to extremities to ensure tension is released.

# Equipment Issues

**Rosin:** The bow requires rosin to create friction between the hair and the string. Insufficient rosin will create a glassy tone. Too much rosin and will appear as excessive white residue on the strings and fingerboard. Finding a rosin ritual that sustains a healthy tone is important.

**Bow Hair:** Additionally, the quality and quantity of bow hair affect tone. Bow hair needs to be replaced when there is not enough friction created to produce tone.

# Musical Demands

**Left Hand Activity:** Tone is often compromised with increased left hand requirements such as number of notes or playing in higher positions. For number of notes, work to lead with the right hand. For higher positions, bring the bow towards the bridge and use a faster bow speed. Focusing too much on left hand issues or playing music that is too challenging technically can negatively impact tone.

**String Colors:** There are small adjustments that have to be made between strings due to their thickness and response time. Use more weight and slower bow on lower sounding strings versus less weight and fast bow on higher sounding strings. This is also true across instruments with the thick bass strings requiring a slower bow and thin violin strings requiring faster bow.

**Extreme Tempi:** If you are playing faster, off the string notes, issues can include aligning right and left hand, practicing string crossings and shiftings, not being in the correct part of bow for the specific bow strokes, or letting your bow travel too high above the strings (too much vertical motion and not using enough horizontal motion).

The table shows common tone issues with possible solutions:

|  |  |
| --- | --- |
| Tone Issue | Strategies |
| Sound is small and not projecting.  | 1. Posture and Position of Instrument: Sit or stand tall, facing F holes face audience violinists and violists strings are parallel to floor so sound arcs out of instrument.
2. Tonalization includes playing in tune and PAWS.
	1. The left hand needs to be in tune so that an open string rings in sympathetic vibrations
	2. The instrument must be in tune
	3. Check PAWS: bow placement (lanne 2-3), bow is straight (angle), bring stick towards hairs (weight), and use more bow (speed).
 |
| Bow is “skidding” or “floating” across the string, sometimes with some silent spots | Add Rosin and/or bring the bow stick towards the hairs so there is more bow weight. |
| Squeaks and/or sound fades out | Bow should be parallel to the bridge at a 900 angle and stay in one lane.  |
| “CrrCrrCrr” sound | Too close to bridge and/or less weight and more bow speed. Balance PAWS. |
|  Sound is tight, tense, or bound. | Release tension from your body\* Story about Leah |
|  Tone has sudden surges in volume and clarity | Bow Distribution |
|  Tone is dull, twangy or drops in pitch every time bow leaves the string | Need to replace old strings |
|  Tone is muted even with PAWS adjustments | Sound post placement |
|  Tone has a buzz or clap  | Open seams or crack in instrument |