

Musical Reference Framework

Rhythm Studio | Composition Engine 2.0 • 29 October 2026 • Version 1.0

A practical, traceable bridge between the uploaded Trinity sight-reading examples and a new, phrase-aware composition engine. **This is a reference framework, not a deployed application update.**

Protected recovery	Current Composition Lab	This deliverable
Rhythm Studio 3.7.9, untouched	Separate prototype v0.3	Reference PDF + editable Markdown + machine-readable JSON

1. Evidence: what is available

The supplied scans comprise flute grades 1–8; oboe grades 1–8 with additional grade 7/8 examples; clarinet grades 1–6 and 8; saxophone grades 1–5 plus separate grade 1 technical exercises. Bassoon and some higher saxophone/clarinet grades have not been supplied.

Evidence boundary: These are primarily monophonic printed exercises. They directly support examination of pitch contour, rhythmic vocabulary, written articulation, dynamics, phrase shapes and labelled styles. They do **not** reveal the author’s intended accompanying chords or allow reliable numerical claims about the frequency of melodic intervals without careful full transcription.

The grades describe the **examples in these particular publications**, not a verified current Trinity syllabus or universal rules for every exercise.

2. Grade-by-grade writing framework

Grade	Observed in the provided scores	Proposed design response
1	Short tonal exercises; crotchets, minims and semibreves; simple endings. Individual examples are often in 2/4 or 4/4.	Make a complete, singable short phrase with minimal available pitches. Use purposeful endings; never substitute random chord tones for melody.
2	The publications introduce 3/4 and simple ties and slurs; longer spans across bar lines and more continuous contours appear.	Plan an arc that continues across bars; distinguish tied notes from slurred rearticulations. Keep rhythmic complexity subordinate to line.
3	Quavers appear prominently alongside longer notes; slurred pairs and small motivic shapes are visible in multiple exercises.	Shape quaver figures as motifs or passing motion, not arbitrary note streams. Use phrase-level balance and meaningful rests.
4	The introductory notes name staccato, crescendo and diminuendo; scores show rhythmic contrast, articulations and expressive shaping.	Make articulation and dynamics reflect the musical gesture; avoid stochastic dots, slurs or crescendos.
5	The publications introduce semiquavers and 6/8; examples combine quicker figures with longer structural notes and phrase returns.	Differentiate structural tones from fast connective figures; preserve cadential intention and thematic identity.
6	3/8 and dotted values are highlighted; examples contain denser figurations, register contrast and intentional dynamics.	Make compound and short-metre rhythm audible and grammatical; use register with intent and consider breathing/technical flow.
7	Triplets are introduced; oboe source additionally mentions accelerando and 9/8. The material presents extended, shaped phrases.	Give triplets a rhythmic role rather than inserting them as decoration; keep high-level phrase pacing clear.
8	Changing time signatures and duplets are expressly noted; examples use advanced rhythmic, registral and chromatic writing.	Maintain motif and harmonic identity through metre changes; control chromatic approaches and climactic pacing.

Representative score locations: Flute G1 p1, G3 p1, G5 p1, G8 p1; Clarinet G1 p1, G4 p1, G8 p1; Oboe combined volume p1, p8, p15, p18, p21; Saxophone G2 p2–4 (style examples) and G5 p4–5 (rock, funk, swing).

3. Instrument identity and transposition

Instrument	Source-derived coverage	Composition/notation safeguards (proposed)
Flute	Grades 1-8	Use comfortable, teacher-selected written pitches and instrument range as hard restrictions. Vary register and breath group length with learner level; long rapid passages require intentional phrasing. Consider how low-register material projects in an ensemble; do not reward extreme register merely to create excitement.
Oboe	Grades 1-8 in combined file plus G7/G8 additional	Respect teacher-selected playable notes and breath/embouchure demands. Allow expressive sustained tones and stepwise curves; do not impose constantly running notes. Avoid automatically assigning long, dense phrases without breath opportunities.
Clarinet	Grades 1-6 and 8; no grade 7 file	Treat the written part as B-flat transposing when scoring concert pitch; maintain written note restrictions separately. Consider register breaks and fingering practicality when choosing leaps; do not assume all same-size intervals are equally idiomatic. Use instrument-specific registers as soft preferences, subject to teacher note selections.
Saxophone	Grades 1-5, including classical and jazz-style exercises, plus separate G1 technical studies	Keep instrument transposition explicit (E-flat alto/baritone vs B-flat tenor/soprano) rather than treating a generic saxophone staff as concert pitch. Separate classical, swing, jazz waltz, rock, blues, and funk melodic/rhythmic models from their backing arrangements. Use articulation and rhythmic placement to establish style, not only backing sound.
Bassoon	No source PDFs supplied; provisional instrument principles only	Do not claim source-derived grade data until bassoon examples arrive. Require bass-clef notation and teacher-selected playable pitch range. Check breath, register and phrase feasibility before integration.

Do not confuse: The original saxophone source is labelled “Saxophone”; an E-flat alto part and a B-flat tenor part require **different written transpositions**. User-selected written notes remain inviolable in each part. The current source scans are insufficient to infer hard fingering limits for all instruments.

4. Separate stylistic grammars

Style	Source basis	Proposed generative distinction
Classical Tonal	All supplied instrument groups	Clearly shaped phrases; Functional harmonic direction as proposed (not directly visible in monophonic scores)
Swing	Saxophone Grades 1-5 jazz-eligible examples	Create idiomatic swing phrasing rather than merely swinging quavers in playback; Use offbeat articulation, varied onset and phrase punctuation without rigidly applying a classical cadence
Blues	Saxophone Grade 2 ex. 11, Grade 4 ex. 14, Grade 5 ex. 17	Use blues-compatible tones and phrasing; Treat blue notes as purposeful expressive tones, not random chromatic events
Rock	Saxophone Grades 2-5 (rock-labelled examples)	Recognisable rhythmic cells; Coherent repeated patterns with contrasting endpoints
Funk	Saxophone Grade 5 ex. 15/20	Rhythmic cells and rests define groove; Syncopated accents and controlled repetition
Jazz Waltz	Saxophone Grades 2-5 jazz-eligible examples	Make 3-beat phrase grouping audible; Allow melodic anticipation/delay while conserving the metre

The saxophone PDFs include labelled blues, swing, rock, jazz waltz and funk studies. For these, the melody and articulation must establish the style. Simply exchanging the accompaniment sound does not count as a stylistic composition engine.

5. Compose the phrase before individual notes

1. Interpret Brief

instrument/part → grade-oriented difficulty → specific allowed written notes → metre → number of bars → style → rhythm choices → harmony options

- Do not alter user selections silently; Convert written/sounding pitches explicitly; Reject impossible combination with a constructive explanation

2. Plan Phrase

section landmarks → cadence targets → one peak or focal area where appropriate → rest/breath plan → motivic identity

- Phrase sense above bar-by-bar randomness; Variation between phrases

3. Plan Harmony And Bass

functional harmonic roles → inversions → bass line → harmonic rhythm → cadence

- Voice leading evaluated across transitions; **IIb** means first inversion of **ii**, not a flat-II chord; Avoid a bass pedal sustained accidentally under unrelated chords; Simplify harmony for constrained note pools

4. Plan Motif And Contour

motif definition → limited returns → deliberate intervals → rise/fall profile

- Balance steps/repetitions/leaps; Thirds not overselected just to satisfy a feature; No numeric motif target copied across all styles

5. Realise Notes And Rhythm

original note events → articulation/slurs where appropriate → written notation for each part

- Within allowed notes and metre; Rhythmic figures serve phrase; Non-harmonic tones have context-sensitive approach/resolution; Breathing and fingering considered

6. Evaluate And Select

best among candidates → evaluation reasons → reproducible seed → deterministic diagnostic fingerprint

- All hard constraints pass before scoring; Reject severe local awkwardness even if total score is high; Listen/review against same input and seed; Do not deploy without musical approval

6. Harmony and melody: correcting the known problems

Inversions and bass movement

Treat **IIb** in the UK first-inversion notation as **ii6**, for example Dm/F in C major, *not* a Neapolitan bII chord. Compare I-ii6-V-I against I-ii-V-I while preserving the same melody, key, and rhythm. Check both the played bass pitch and smooth voice leading. An A pedal through Am → F/A can work intentionally, but should not appear through accidental scoring convenience.

Motifs and featured intervals

A motif should be recognizable as a musical idea, with controlled return or transformation. The prototype's previous "nine featured interval appearances" is not a musical goal. Start with a review hypothesis of one to two recognizable motif returns in an eight-bar phrase, and at most a few prominent appearances of a chosen interval; neither number is a Trinity-derived measurement or an absolute limit.

Movement and cadence

Do not over-reward stepwise motion or repeated thirds. Choose an interval because it shapes a phrase; allow leaps, reversals and recovery. Plan structural notes before decoration. Cadences may use 7-1, 2-1 or 4-3 melodic motion as appropriate, without imposing the same ending on every style. In an eight-bar tonal phrase, the approach to the final tonic should sound prepared, not just match the final chord.

7. Quality gates: hard before soft

Any candidate that violates allowed pitches, bar durations, transposition, chosen parameters, harmonic feasibility or seed reproducibility is rejected. Only valid phrases receive musical preference scores. A severe local defect, such as an obviously unprepared cadence, should not be concealed by an impressive aggregate score.

- Each event respects the specified metre; bar durations sum exactly, including rests and ties.
- Every written pitch is among the user-selected written notes for its individual part.
- Pitch/transposition mapping is valid between written instrument part and concert-pitch harmonic plan.
- If user selects identical melody for multiple transposing instruments, intended sounding pitches align.
- No silently substituted chord quality, inversion, change frequency, style, or grade setting.
- Harmonic path can be realised within available notes; otherwise propose a simpler compatible plan.
- Cadential bass and melody must not contradict intended harmony on structural beats unless expressly styled as suspension/anticipation.
- Reproducible seeded generation must return the same events and review metrics.

8. Acceptance tests for the next Composition Lab branch

Test	Situation	Musical acceptance criterion
A01	G1-style four-bar flute phrase; few permitted pitches; simple values.	A complete audible shape and credible ending; no extra notes invented to satisfy harmony.
A02	G3-style phrase using quavers.	Quaver runs have direction and return/contrast, not arbitrary pitch changes each eighth note.
A03	G5-style example with semiquavers and/or 6/8.	Faster motion connects structural tones and phrase pacing remains clear.
A04	C major, I -> ii6 (Dm/F) -> V -> I vs root-position ii.	Bass pitches C-F-G-C in the former, audible inversion in playback, and no accidental flat-II interpretation.
A05	Repeat earlier 8-bar problematic A minor to F/A transition, same rhythm/seed.	Reject accidental static A bass when melody/harmonic direction feels weak; allow only intentional pedal treatment.
A06	Characteristic third requested in eight-bar phrase.	Third appears as meaningful motif where useful; it does not occur nine times or suppress steps and contrasting intervals.
A07	Eight-bar tonal phrase with clear final tonic.	Approach to final chord is audibly prepared by melody and bass; test at least two alternative legitimate cadences.
A08	Oboe/clarinet/saxophone phrase at two difficulty settings, with instrument note restrictions.	No impossible notes; phrase lengths and leaps are appropriate to selected range and breathing pattern.
A09	Same rhythmic brief, compare classical vs swing vs funk.	Melody and articulation reflect style; accompaniment swap alone is not accepted.
A10	C concert melody scored for flute, B-flat clarinet, E-flat alto sax.	Sounding pitches/harmonies align while written notes and key signatures reflect instrument.
A11	Three ensemble parts with independent melodies.	Each part respects allowed notes and aligns on harmonic changes, but is not mechanically identical unless requested.
A12	Generate 25 candidates for one seed-range; include a bad cadence candidate.	Hard failures rejected first; obvious musical flaw not hidden by a high aggregate score.

9. Professional listening review

Every generated result should have: engine version; seed; key; concert and written pitch; instrument/grade reference; permitted notes; chosen metre, rhythm and style; chord/inversion plan; notes/bass; audible playback; bar-level criticism; and a decision to accept or reject. Keep ratings secondary to the reviewer's explanation of why the phrase works or fails.

Ask: Is the melodic shape memorable? Does the bass make sense? Are unusual intervals justified? Do rests and rhythmic figures support the phrase? Does the cadence genuinely complete the thought? Would a professional musician feel comfortable using this with a student?

10. Release and implementation policy

Do not touch Rhythm Studio 3.7.9. First, implement this reference JSON in a separate Composition Lab branch. Build a fixed-seed A/B harness for four- and eight-bar phrases, then audit transposition and timing independently of music quality. Iterate on professional listening feedback before replacing the legacy engine. Keep the baseline available for instant recovery.