Linking SNAP 2006 to the Curriculum
Linking SNAP to Music

Numeracy is the ability to effectively use the mathematics required to meet the general demands of life at home and at work and for participation in community and civic life. Numeracy is a fundamental component of learning across all areas of the curriculum. The role that teachers of music play in the development of numeracy includes teaching students specific skills and providing them with opportunities to select, use, evaluate and communicate mathematical ideas in a range of situations. In music, numeracy skills of varying complexity are required in all learning areas of the Stage 4 syllabus.

Numeracy skills required in music and assessed in SNAP

Performance and Composition

- Counting, number patterns and working mathematically as assessed in SNAP 2006 are widely used in performance and composition, as students must understand note values and their relation to each other, and be able to calculate the number of beats per bar for different time signatures in order to read, perform and notate music successfully.
- Students also require competence in working with simple fractions in order to understand the function of the dot and calculate the value of dotted notes.
- Reading music notation involves the ability to interpret information from graphs and diagrams, particularly as conventional musical notation is essentially an extended graph (with pitch plotted on the vertical axis and duration of notes on the horizontal). Similarly, playing from guitar tablature and chord windows relies on the student’s ability to interpret diagrams of guitar strings and frets.
- In Stage 4 composition students may be asked to graph a series of sounds by devising symbols which show the pitch, dynamics, duration and timbre of the sounds, as well as interpreting the graphic notation of other composers.

Listening

- The aural component of the syllabus requires skills of spatial perception, an understanding of proportion and the ability to present information in diagrams and drawings. When listening to discern the structure of a piece of music, students are required to perceive the form of the music in their mind as they listen and to identify changes in music material. Students may be required to ‘map out’ the different sections of music using a diagram or some form of graphic notation to convey visually what they have heard.
- Students are often required to read, interpret and analyse information presented in tables, graphs, diagrams, drawings, charts and timelines. Fundamental concepts (such as the names of notes and rests, their notational symbols and relative durations, and the relation between the different simple and duple time signatures) are frequently presented in table form, while diagrams are widely used to demonstrate features of instrument construction.
- Students may also be asked to present their research into periods of music history, composers or performers in the form of a timeline.

The syllabus referred to is Music Years 7–10 Syllabus, Board of Studies, June 2003
Question 15
This question requires students to interpret a musical notation chart to identify the 4 bar rhythm pattern which contains 16 beats.

Teaching strategies
In teaching about rhythm patterns students need to recognise the duration and different lengths of sounds and silences that occur in the music.

- Say, then clap, students’ names and suburbs. Listen for the different note lengths/syllables in the words.
- In groups have students develop a composition using their names and the names of their suburbs. Use a variety of body percussion such as clicking fingers or slapping chests and vocal sounds such as humming to perform their ideas. When they are comfortable with their composition, add movements to echo the sound. Have them write down their compositions using graphic notation.
- Have students repeat using the words ‘short’ and ‘long’ to identify the different sounds, eg Jess-i-ca (short-short-long).
- As a class activity, draw a music note tree to show the relationship between the different notes. Label and write note lengths as each level of the tree is completed. Use fractions and multiplication to reinforce the relationships.
  eg A quaver is $\frac{1}{2}$ the note length of a crotchet.
  A semibreve is 4 times the note length of a crotchet.

- Display a variety of $\frac{2}{4}$, $\frac{3}{4}$ and $\frac{4}{4}$ rhythm patterns on an overhead or whiteboard.

Students use body percussion (clicking fingers, clapping hands etc) to beat out the different 4 bar rhythm patterns shown. Have students explain the number of beats in 2 rhythm patterns.

- Divide class into pairs to compose their own 4 bar rhythm patterns for their partner to clap and notate.
- Each pair chooses one of the 4 bar rhythm patterns to develop a 16 bar rhythm pattern. Experiment with different variations of the 4 bars, such as repeating bars, performing a mirror image of the rhythm, rearranging the order of the notes, etc.
- Students should notate and perform their 16 bar composition for the class.

Syllabus reference
4.1 performs in a range of musical styles demonstrating an understanding of musical concepts
4.2 performs music using different forms of notation and different types of technology across a broad range of musical styles
4.5 notates compositions using traditional and/or non-traditional notation
4.12 demonstrates a developing confidence and willingness to engage in performing, composing and listening experiences
Question 38
This question requires students to interpret different line graphs and select the most suitable graph to match the given information.

Teaching strategies
Reading information in a graph is an important skill in music. The most common form of notating music, the 5-line staff, is a form of graph.

In teaching about pitch and how it is shown using staff notation, the 5-line staff can be simplified into a line graph.

- Have students make a list of sounds with a high pitch and sounds with a low pitch.
- Listen to a melody which uses only 3 notes. Using grid paper, students plot the notes in the order they are played.
- Repeat, using the same 3 notes but vary the length of the notes. Students devise a method of graphic notation which shows both the pitch and the duration of the notes.
- Discuss the students’ methods of notating, by asking questions such as:
  ~ What information is represented vertically on your graph?
  ~ What information is represented horizontally on your graph?
  ~ How did you show that notes were of different lengths?
- Play different notes on a keyboard and have students describe the pitch of each note.
- Play a variety of short compositions/melodies on a keyboard in which the pitch ascends, descends, is static/repeats, moves by steps and leaps. Have students represent the shape and direction of each melody using graphic notation to show the way the melody moves, the melodic contour.
- Students describe the shape and direction of the compositions, using their simple pitch diagrams, eg The melody moves by small steps, wide leaps etc.
- Have students use a pitch diagram to create their own short melody in which the pitch ascends, descends, repeats or moves by steps or leaps. Students sing or play their melodies on an instrument. They can use body percussion such as clicking fingers, slapping thighs or chest, or clapping to accompany their example. Students perform their compositions on a keyboard.
- Introduce the 5-line staff to show how the position of a note on the staff shows how high or low the pitch will be. Go to www.sfskids.org and visit The Music Lab. Click on the Pitch section to listen and view examples of how notes played on a keyboard relate to the staff.
- Introduce crotchets, minims and quavers to show how the duration of different notes is represented on a 5-line staff. Go to www.sfskids.com and visit The Music Lab. Click on the Basics section and find out about how music is written down.

Syllabus reference
4.2 performs music using different forms of notation and different types of technology across a broad range of musical styles
4.5 notates compositions using traditional and/or non-traditional notation
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Question 17

This question requires students to identify a pattern made by reflecting a tile and draw the next tile in the pattern. The tiles follow an ABAB pattern.

Teaching strategies

In teaching about structure in music, students need to recognise the repetitive patterns and the different forms used in music, including monothematic, binary, ternary and rondo form.

- Play a short rhythmic pattern to the class.

\[ \begin{array}{c|c|c|c|c|c} \end{array} \]

- Have students repeat the pattern in turn, going around the class, each time varying the pattern by playing a different instrument or varying the tone colour.

- Describe and compare the different rhythmic patterns.

- Repeat with a different rhythmic pattern, this time the students echoing the pattern by changing the pitch.

\[ \begin{array}{c|c|c|c|c|c|c} \end{array} \]

- Use the same pattern as an example of call and response. Play the pattern again to the students, this time they improvise an answering phrase, using the same number of beats.

- Experiment with different answering phrases. Notate and perform for the class.

\[ \begin{array}{c|c|c|c|c|c|c} \end{array} \]

- Listen to music written in binary form (AB). Identify the two contrasting melodies and label as A and B. Many Australian ballads could be used as examples.

- Listen to *Beethoven’s 9th Symphony*, written in ternary form (ABA). Students identify the two contrasting melodies, then identify where A repeats, to create the ABA pattern.

- Students create their own melodic pattern in ternary form (ABA) by writing a short phrase (A), creating an answering phrase (B), then repeating the first phrase to finish (A). Notate and perform for the class.

Syllabus reference

4.4 demonstrates an understanding of musical concepts through exploring, experimenting, improvising, organising, arranging and composing

4.5 notates compositions using traditional and/or non-traditional notation

4.8 demonstrates an understanding of musical concepts through aural identification and discussion of the features of a range of repertoire