# Levels 9/10 Dance Activity

## Laban Effort Actions Dance Sequence

### Introduction to Numeracy in Dance

Dance students undertake tasks to make and respond to choreography and performance. Students use their bodies in a variety of ways to understand and communicate an intention, and to understand how choreographers manipulate the elements of movement to express ideas. There are at least four aspects of mathematics that can be related to dance: spatial exploration, rhythm, structure, and symbolisation (Watson, 2005). People learn about shape by physically interacting with it. Kinaesthetic and musical sensitivities are joined together in the rhythms of dance. Abstract representations of structure, such as permutations, combinations, graph theory, and groupings, are manifested in many traditional dances. Dancers and choreographers seek notations to convey the complexities of dance, so that its communication and preservation do not depend on a continuous line of teachers.

Key elements of dance that may involve numeracy are:

* Space: three-dimensional shapes and pathways
* Time: duration, speed, and metre
* Dynamics: the range of force and flow in combination; height applied to execute a movement or sequence
* Relationships: spatial awareness and spatial organisation
* Form: the shape or structure of a dance according to a preconceived plan

The potential use of dance to motivate mathematical ideas lies in the relationship between movement, mind, and memory, and develops through experience and the senses. Dance students explore skills, concepts, and ideas kinaesthetically. That is, they use their bodies to explore their world and communicate ideas to others. Dance students develop skills that are “transferable across learning contexts and support development of literacy and numeracy capabilities” (Australian Curriculum, Assessment and Reporting Authority, n.d.). A range of ways that students can embody transferable numeracy concepts in Dance Levels 7 to 10 can include:

* Using spatial skills when planning and analysing relationships between body and space to communicate an intention
* Considering mathematical concepts alongside choreographic aspects, such as using explicit mathematical language to articulate the thinking that underpins bodily performance of time, space, dynamics, level, direction, dimension, shape, plane, angles, and pathways
* Extending and developing patterns through manipulation of groupings of symmetry and asymmetry
* Extending and developing patterns through manipulation of group structures in unison, contrast, and canon
* Using physical tools (i.e., the body) to experiment with tempo, momentum, duration, acceleration, and deceleration

Students acquire knowledge and skills in numeracy throughout their lifespan. In Levels 7 to 10 Dance, students continue to apply and develop their numeracy capabilities. For example, students use their knowledge of patterns and sequences to explore and develop dance forms such as binary (A, B), ternary (A, B, A), rondo (A, B, A, C, A), theme and variation (A, A1, A2, A3, etc.), and palindrome (A, B, C, B, A) to convey choreographic intentions. Students can use their understanding of geometric properties to determine the area of the performance space and to explore concepts such as positioning and locating when designing floor patterns and pathways. Students extend their knowledge of measuring time when choreographing to music. In doing so, they also employ algebraic thinking, such as recognising and analysing patterns in music (melodic, rhythmic, etc.) or analysing the rhythmic pattern of a piece of music and determining how to manipulate the dance element of time. Students also use timelines when studying changes in dance styles over time. By incorporating these mathematical concepts, students are able to make and respond to dance works.

### Developing Numeracy Understanding in Dance

Dance is deliberate, planned movement for aesthetic purpose and/or to express or convey meaning. Dance cannot be engaged with at any level without understanding the embedded mathematics in action (Beck & Sellars, 2018). While dancing, learners explore and understand numeracy concepts in an embodied manner; thus, dance is an embodied way of experiencing numeracy. Barbour (2011) acknowledges the body as “a place to store knowledge, a place to extract knowledge from, and a place to exhibit knowledge. And that exhibition is revealing the organized integrated mind/body/spirit” (p. 94). Numeracy concepts and vocabulary can be developed through dance by understanding and embodying the language of mathematics through body actions, such as quarter/half/whole turn, 90/180/360 degree turn, right angle pathway, left/right direction, large/small shapes, fast/slow use of time, or increasing/decreasing effort.

Systematic methods of dance notation have been developed and refined throughout history. The first device to be considered a true notation system was found in Cervera, Catalonia (now part of Spain): Manuscripts from the 15th century featured the first use of signs to represent and record popular dances (Hutchinson Guest, n.d.). Dance notation involves methods such as graphic symbols and figures, path mapping, numerical systems, and letter and word notations. In more contemporary methods, dancers are able to notate movement qualities in addition to the movements themselves. Laban’s (1956) systematic method of notation of expressive movement provides a structure for planning, teaching, and assessing dance/movement experiences (Davis, 1995). A quality of movement—for example, light or strong—can be used to describe the effort involved. The expressiveness of each Laban Effort Action indicates the extent of time, space, force, or flow used by the dancer in a movement or sequence (Davis, 1995).

Dancers use their bodies to expressively represent shapes and groupings. They also use shapes to notate body actions. Although dance curricula do not include overt references to positioning and locating, these skills are essential and implied in dance notation (e.g., when drawing a dance map to plan choreography in a space). Notating dance on paper or on devices helps learners to recognise and understand elements of dance when they see them. Dance instruction based on notation-use can assist in recognition abilities, integration of the recognition skills needed for development in dance, and early skills in performing movement (Warburton, 2000).

Dancers embody numeracy in a number of ways. They experience rhythmic patterns, which may be metered or free form. When using Western music to assist to convey and choreographic intention, dancers often experience repeating patterns (e.g., 2/4 or 3/4). However, concepts of time and metre are used very differently throughout the world. Dance can be discussed with reference to units of time such as seconds, minutes, and/or hours. For example, a certain section of a dance may be assigned a time (e.g., 30 seconds, 16 beats) into which the choreographed movements must fit. Dancers kinaesthetically monitor each other’s timing in group works, and can respond to each other in improvisation. For example, dancers gradually increase from a walking tempo to a running tempo by cueing off each other. Dancers and choreographers also manipulate time to assist in expressing their choreographic intention in group works. Combinations of the same/different movements at the same/different times result in choreographic devices such as canon (same movement one after the other), accumulation (1, 12, 123, 1234), unison (same movement or movements at the same time), and contrast (different movements at the same time).

## Lesson Plan: Laban Effort Actions Dance Sequence

In this lesson, students will explore the Movement Alphabet and Laban Effort Actions applying them to a dance sequence as students experiment through structured improvisation and through the creation of their own choreography. They will use explicit mathematical language to articulate their choreographic decisions about the elements of movement (Time, Space, Force, and Flow) and to understand how these elements can be combined to create Effort. Students will conduct embodied problem-solving by manipulating their bodies to create expressive movements, and will systemically use symbols to record these movements. Students will use mathematical language to articulate their thinking about how Time and Space can be notated to represent level, direction, speed, and duration. Students will explore and record variations in Time and Space combined with Force and Flow, resulting in Laban Effort Actions, which are a part of a systematic dance language used to express a choreographic intention.

Laban Movement Analysis is a language for observing and describing movement developed by Rudolf Laban. The categories are Body (articulation), Space (design), and Effort (quality). The most well-known aspect is the Effort theory. Effort pertains to qualitative aspects of movement, comprising Space (Direct/Indirect), Weight (Strong/Light), Time (Sudden/Sustained), and Flow (Free/Bound). Laban Movement Analysis and Labanotation involve symbols that are used in the conduct of movement research, choreography, and dance style analysis.

Note: Although the use of capitalisation of Effort and related actions may appear incorrect to our contemporary eyes, this is how Laban components are traditionally written and will be used in this lesson.

### Prerequisite/Corequisite Knowledge: Dance

Students need to have and/or will develop the ability to:

* Understand how the elements of dance can be manipulated to express a choreographic intent
* Use safe dance practices
* Make literal movements into symbols and symbols into literal movements

### Background Mathematical Skills and Understandings

Teachers of Dance are not expected to teach the mathematical knowledge and skills that students will draw upon when engaging with this activity. The students will have learnt and should be adept with the required mathematical knowledge and skills to complete the activity. According to the Victorian Curriculum: Mathematics, the required mathematical knowledge and skills should have been developed in earlier years of schooling, that is, by the end of Level 8.

For this activity, the background mathematical skills and knowledge are:

* Knowledge of patterns and symmetry/asymmetry, and ability to distinguish between symmetrical and asymmetrical patterns
* Knowledge of two-dimensional and three-dimensional shapes
* Ability to recognise and create symmetrical patterns, pictures, and shapes (with and without digital technologies)
* Ability to recognise, describe, and continue simple repeated patterns, and make qualitative comparisons between different repeated patterns
* Knowledge of and ability to use instruments to measure length and time in formal and informal units
* Ability to use simple scales, legends, and directions to interpret information contained in basic maps
* Experience in movement within spaces, and associated directional terminology

## Lesson Description

The teacher will facilitate a series of movement experiments. The teacher can decide how long the inquiry might take, based on students’ level of experience. In this lesson, there is a 20 to 30-minute Engage and Explore stage of structured improvisation to orient students to the systematic recording of Time and Space, a 45 to 60-minute Explain and Elaborate stage to explore Time and Space in relation to the eight Laban Effort Actions, and a 10 to 15-minute Student Evaluation stage.

### Stage 1: Engage and Explore

The introductory activity involves the development of a structured improvisation sequence. First, students find a performance area in which they can individually open into large shapes without touching other students. The teacher will direct this activity, asking students to estimate the amount of personal space required, monitoring for appropriate movement and location, asking students to adjust themselves where necessary, and reminding students of the importance of safe dance practices such as the use of peripheral vision when working in a performance space with others.

Once students have a defined designated performance space, the teacher will talk students through the following structured improvisation sequence. The students will respond to the following structured improvisation prompts:

1. In a standing position, let your head drop so that your chin moves closer to your upper chest, as though you are feeling very sleepy.
2. Slowly roll down (spinal roll) as if falling into a deep sleep.
3. Begin twitching your legs as if you were you experiencing a nightmare.
4. Move into a still position as you wake up suddenly.
5. Slowly turn your torso and then head around to look behind you.
6. Slowly reach out one arm.
7. Tap your arm around in the dark to find your bedside lamp and turn it on.
8. You see a bulge behind the curtain. You take three steps forward, reach out, and quickly open the curtain to one side with your arm.
9. You see that there’s nothing there and begin to feel very sleepy again.

The students will then repeat their sequence enough times to develop movement memory. The goal is for students to be able to recount their sequence in order to be able to document their movements using simple Labanotation, experiment with aspects of Space and Time, and employ Laban Effort Actions later in the lesson. It is up to the teacher to decide the overall length of the sequence. Some suggestions are:

* At a beginner level, each stage in the sequence should take two counts, for an overall sequence of 16 counts.
* At an intermediate level, each stage in the sequence should take four counts, for an overall sequence of 32 counts.
* At an advanced level, each stage in the sequence can take a different number of counts, for an overall sequence of more than 32 counts.

The teacher will then introduce students to the Labanotation method of representing Time and Space through the use of symbols:

1. Time consists of the duration of a movement, ranging from sudden to sustained. In Labanotation, time is notated in beats, where the beat is determined by music or by the dancer’s sense of rhythm in the absence of music, which is likened to musical beats.
2. Space consists of the pathways for movement, ranging from direct to indirect. In Labanotation, the shape of the symbol representing movement indicates the direction of the movement. Space also consists of levels: high, middle, and low. In Labanotation, the shading of the symbol indicates the level of the movement (see Appendix A for Labanotation symbols).

For further information to support the teacher, the following resources are useful:

* Language of Dance Centre: Labanotation symbols (see also Appendix A) <http://www.lodcusa.org/pages/about#Movement-Alphabet>
* The Dance Notation Bureau: Motif notation

<http://www.dancenotation.org/lnbasics/frame0.html>

* Language of Dance Centre: Other symbols http:/www.lodcusa.org/pages/about#Movement-Alphabet

### Stage 2: Explain and Elaborate

The teacher will facilitate a problem-solving activity where students create their own dance sequences by experimenting, trialling, and evaluating a combination of Space, Time, and Laban Effort Actions to best express an intention.

The teacher will list the eight Laban Effort Action words—Float, Punch/Thrust, Glide, Slash, Dab, Wring, Flick, and Press—and then facilitate a discussion in which students propose examples of the elements of movement from their own sequence.

When introducing the Laban Effort Actions: Student Template (Appendix B) to students, the teacher will facilitate a discussion of the eight Laban Effort Actions through the use of questioning. In the questions, the teacher should focus on the students’ notations, such as:

* When you slowly reached out your arm, was the Space (pathway) direct or indirect?
* What symbol(s) did you use to represent a slow arm gesture?
* Which Laban Effort Action do you think best describes the action of slowly reaching out your arm?

The teacher can also prepare some examples to demonstrate, per the Laban Movement Efforts video: <https://www.youtube.com/watch?v=OK-7QhORB9k>

Students will then work in pairs to discuss and determine the Time, Space, Force, and Flow required for each Effort Action in their sequence, and record their decisions in the Student Template (Appendix B). The teacher can then facilitate a whole-group explanation/sharing either informally (verbally as a means of formative assessment) or formally (submission of the Student Template for summative assessment).

Next, still in pairs, students will work together to explain to each other how:

1. Each element of an Effort Action can express an intention. For example, direct Space could express leadership.
2. Each combination of Space, Time, Force, and Flow can express an intention. For example, Slash could express rejection.

Students (still in pairs) will work together to reverse-engineer a movement phrase. Students will:

1. Begin by developing a choreographic intention.
2. Notate a sequence to express the intention.
3. Perform/embody the notated movement phrase.

To extend the activity, the teacher can ask students to explore patterning through the use of one selected choreographic device, to assist in expressing their choreographic intention. Choreographic devices that employ patterning include:

* Canon: the same movement one after the other (e.g., 1, 1, 1, 1,…)
* Accumulation: 1, 12, 123, 1234
* Unison: the same movement(s) at the same time
* Contrast: different movements at the same time
* Repetition: the same movements repeated: 123, 123, 123
* Retrograde: movements within a sequence presented in reverse order (e.g., 1234 becomes 4321)

If preparing students for VCE Dance, the teacher can direct students to conduct a comparison of Laban Effort Actions with the qualities of movement as defined in the VCE Study Design: swinging, sustaining, suspending, percussive, vibratory, and collapsing. Time permitting, the teacher can create groups of four students who work together to experiment with additional choreographic devices in adapting their existing movement phrases to assist in expressing their intention.

For further exploration, students can:

* Swap their own notation with a partner and dance their partner’s notated sequence.
* Experiment with group formations by working in small groups to learn and manipulate one student’s notated sequence.
* View dance sequences from music videos and notate phrases by pausing, rewinding, and reviewing the movements.

### Stage 3: Student Evaluation

The teacher will facilitate the presentation of students’ ideas to each other. Student presentations could be oral, a video via a file sharing drive, a physical presentation of a section of a dance work, or a fully rehearsed performance. The purpose of presenting ideas to each other is so that presenters have the opportunity to articulate their conceptualisation of expressive use of patterns to an audience, and that the audience has the opportunity to observe a variety of interpretations of expressive use of patterns. After each presentation and/or performance, the teacher will use questioning to facilitate student reflection focussed on the:

1. Ability to recognise patterns: manipulation of choreographic devices
2. Knowledge of Space: manipulation of direction and level
3. Knowledge of Time: manipulation of speed and duration
4. Knowledge of Energy: the combination of Force and Flow that results in an Effort Action

## Students will experience assessment as learning in notating the Time, Space, and Effort Actions manipulated to express their intention and the intention of others’ presentations.Table 1: Links to the Victorian Curriculum – Dance

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| Strand and Sub-Strand  (if applicable) | Content Description (Code) | Elaboration(s) |
| Explore and Express Ideas | Explore personal movement style by combining elements of dance and using improvisation and safe dance practice to develop new movement possibilities (VCADAE040)) | Developing a personal movement vocabulary by combining elements of dance to find new ways of moving, in response to a stated choreographic intention |
| Explore and Express Ideas | Manipulate combinations of the elements of dance and choreographic devices to communicate their choreographic intent  (VCADAE041) | Improvising with the elements of dance and analyse movement choices to reflect their individuality and to clarify their choreographic intent  Setting choreographic goals and developing their own movement vocabulary and style, for example, using problem-solving techniques to develop aesthetic qualities in movement sequences  Asking questions to evaluate use of elements, for example, how are the elements of space and dynamics are being manipulated in the student’s work to convey their ideas? |
| Respond and Interpret | Evaluate their own choreography and performance, and that of others, to inform and refine future work (VCADAR045) | Using feedback received from others to develop objective self-evaluation skills and assess success in communicating their choreographic intent  Recognising personal capabilities and identify the next steps needed to improve and refine choreography and performance  Providing feedback to other choreographers and performers |

## Table 2: Links to the 21st Century Numeracy Model (Goos et al., 2014)

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| Aspect of the Model | How This Aspect is Addressed by the Lesson |
| **Attention to Real-Life Contexts**   * Citizenship * Work * Personal and Social Life | In this lesson, students embody mathematical concepts such as space, shape, dynamics, and time. By exploring the relationship between the body, time, and space, and the Effort required to execute Laban Effort Actions to convey a choreographic intention, students are able to develop an understanding of personal connection to space and others within the space. Students are afforded experience in notating dance works, which is a transferable professional skill to other art forms, including animation and computer-generated imagery. |
| **Application of Mathematical Knowledge**   * Problem Solving * Estimation * Concepts * Skills | Students’ problem-solving skills are developed through improvising and choreographing patterns of movement and sequences to express a variety of intentions. Students apply mathematical knowledge and skills in using established symbols (i.e., Labanotation) to record Time and Space specifications in their notations. Students estimate the extent of their individual physical skills in executing movement vocabulary to express an intention. |
| **Use of Tools**   * Physical * Representational * Digital | Students use Labanotation as a representational tool. Students translate the physical movement of their bodies into representational notation and record their use/choice of Time, Space, Force, and Flow using a representational model. |
| **Promotion of Positive Dispositions**   * Confidence * Flexibility * Initiative * Risk | Student initiative is promoted through individual decision-making processes such as recognising, choosing, and notating combinations of Time, Space, Force, and Flow to express their choreographic intention. Through safe dance practices, students take calculated risks in determining the extent of their individual range of motion so that they can develop physical skills such as flexibility and strength. Students will develop confidence in numeracy by using real-world measurements and calculations as they work creatively with spaces and choreographic intentions, individually and collaboratively. |
| **Critical Orientation**   * Interpreting Mathematical Results * Making Evidence-Based Judgements | By interpreting others’ Labanotation, students employ mathematical thinking to analyse and evaluate the symbols in others’ dance works. Students make evidence-based judgements during this process and embody the symbols to convey choreographic intentions. |

## References

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