Ohio Standards Connection

Fine Arts: Dance

Connections, Relationships, and Applications

Benchmark A
Explain common issues, topics and problems that demonstrate the connections between dance, other arts areas and disciplines outside the arts.

Indicator 2
Select and research a theme or topic studied in another content area, and compose a dance to enhance understanding of the topic.

Lesson Summary:

How does the relationship between the five Platonic solids and Laban Movement Analysis® (LMA) impact dance-making practice? Through a series of theoretical discussions and movement explorations, students analyze spatial relationships embedded in fundamental solid geometry theory describing the five Platonic solids—tetrahedron, octahedron, cube, dodecahedron and icosahedron—studied extensively by the Greek philosopher Plato. Specifically, students focus on the planes and dimensions of octahedron, in relation to its faces (eight faces), vertices (six, each with four edges meeting), edges (12) and views of symmetry.

Through a second series of theoretical discussions and movement explorations, students examine the spatial relationships of planes and dimensions illustrated in the Dimensional Scale, a fundamental conceptual framework in Space Harmony as conceived by movement analyst Rudolf von Laban.

As students become increasingly aware of the interconnectedness of these two spatial relationship theories, as practiced in both mathematics and dance, they begin to create dance composition studies that produce new choreographic ideas.

Estimated Duration: 10 Lessons, 45 minutes each

Commentary:

In dance, one way to study movement concepts that exist in any dance genre, form or style is through Laban Movement Analysis® (LMA). This scientific approach to perceiving and analyzing movement that may become dance is defined as the body moving in space over time with effort.
The terms used in this lesson include:

- **The body** is considered the center of its kinesphere;
- **Place middle** is the center of support—the center of the body in spatial terms;
- **Kinesphere** is that **volume** or bubble of space that can be reached and moved through without changing the base of support.

Every time a person takes a step or shifts weight, a new kinesphere is formed. A person’s kinesphere can take on many sizes and shapes depending on the base of support. Because everyone’s body is different in both size and shape, everyone’s kinesphere varies slightly in size and shape.

There are an unlimited number of possible kinespheres an individual can create. However, in LMA, the focus and exploration are primarily on three different kinespheres, the octahedron, the cube and the icosahedron. This series of 10 sessions focuses on the use and exploration of the octahedron to develop new choreographic ideas in dance composition.

**How does the relationship between the five Platonic solids and Laban Movement Analysis impact dance-making practice?**

The kinesphere can be described, geographically, in terms of directions, levels and reach spaces (zones of action). These terms describe areas or locations within the kinesphere. Again, there are an infinite number of directions, levels and reach spaces. However, in LMA, 27 standard directions, three levels and three zones of action or reach spaces are described. In the study of the octahedron, six standard directions, three levels and three zones of reach space are explored and mastered.

To describe the body moving through space, Rudolf von Laban used other disciplines and metaphors to describe movement, including:

- Metaphors from musical harmony and music scales;
- Crystalline structures and forms found in nature;
- Classical Euclidean geometry’s fundamental polygons and polyhedrons such as Plato’s five solids (tetrahedron, octahedron, cube, dodecahedron and icosahedron).

In their study of the octahedron, students experience:

- Laban’s Space Harmony Dimensional Scale (six standard directions);
- Three levels (low, middle, and high);
- Three zones of action (central, peripheral and transverse).

The instructional strategy, Universal Design for Learning (UDL), includes small groups, recorders (as opposed to movers), symbols (as opposed to words), differentiation strategies and tiered lessons as needed. This lesson incorporates these modes of
Plato’s Octahedron: A Space Harmony
Perspective - Grade Nine

instruction and takes the traditional study of selected geometry concepts from the two-dimensional textbook to a three-dimensional embodiment of the selected concepts that can be transferred into three-dimensional choreographic ideas for dance composition studies.

Students do not need to know Plato’s five solids before beginning this lesson.

Pre-Assessment:
This assessment can be done individually, in small groups or as a whole-class discussion. Divide students into small groups of three to four students. Groups discuss each question, record individual responses on paper and select team reporters. As a whole class, record each group’s response variations and interpretations on a chalkboard or other visual aid. All answers are considered “understanding-in-process” and brainstorming responses. Compare and contrast similarities and differences in the responses to each question and among the full list of questions. Ask students to explain their responses to the questions. Use an attribute web, a list, a Venn diagram or concept map strategies, as needed. Refer to Attachment A, Pre-Assessment Plato and Laban Guide.

- Name the five regular Platonic solids. How are they alike?
- Who is Plato? What is his contribution to the study of geometry? What is his relationship to the five Platonic solids?
- What is movement analysis?
- Who is Rudolf von Laban? What is his contribution to movement analysis?
- Is there a relationship between the five regular Platonic solids and Laban Movement Analysis? Elaborate.

Scoring Guidelines:
Pre-Assessment is based on the student’s ability to manipulate and move in, around and through the pre-assessment activity verbally (individually, in small-groups, and whole-class discussion), and through individually written response. The pre-assessment is used to determine what students already know about Platonic solids and Laban’s movement analysis. Refer to Attachment A, Pre-Assessment Plato and Laban Guide.

Post-Assessment:
- Choreograph a two- to three-minute dance using Laban’s Dimensional Scale. Metaphorically, use the octahedron’s faces, vertices and edges in the choreographic plan.
- Share the dance with peers.
- Reflect on the effectiveness of combining the five Platonic solids and Laban’s movement analysis theory.
- Write a two-page paper that summarizes this choreographic approach.
Scoring Guidelines:
Post-Assessment is based on the student’s ability to manipulate and move in, around, and through the post-assessment activity verbally (individually, small-group, and whole-class discussion), through written response and movement exploration (octahedral dimensional scale).

Students should use specific content area vocabulary accurately. Evidence of learning and documentation will be assessed through a wide range of assessment tools including small-group discussion, large-group discussion, written format, movement and degree of movement articulation and dance composition studies that apply theoretical concepts of spatial relationship to new choreographic ideas.

Refer to Attachment B, Post-Assessment Rubric.

Instructional Procedures:
Session One: Pre-assessment—Platonic Solids and Laban Movement Analysis
1. Divide students into small groups of three to four students. Groups discuss each of the following questions, record individual responses on paper and select team reporters.
   - Name the five regular Platonic solids. tetrahedron, octahedron, cube, dodecahedron and icosahedron
   - How are they alike? Each is a polyhedron in which all the faces are alike, all the edges are alike and all vertices are alike. There are only five regular polyhedrons that enclose space: three with equilateral triangular faces– the tetrahedron, octahedron and icosahedron; one with square faces – the cube; and one with pentagon faces – the dodecahedron.
   - Who is Plato? What is his contribution to the study of geometry? What is his relationship to the five Platonic solids? Advanced studies of the five regular polyhedrons were an important part of Plato’s moral philosophy, and have come to be called the Platonic solids. History speculates Plato did not discover the five Platonic solids, although he and his followers studied them extensively.
   - What is movement analysis? Movement analysis is the scientific study of movement.
   - Who is Rudolf von Laban? What is his contribution to movement analysis? Rudolf von Laban was a research scientist, dancer and choreographer. He frequently stated, “Movement, when scientifically determined, forms the common denominator to both science and industry.” (Warren Lamb, The Laban Lecture) Laban was born December 15, 1879, in the Austro-Hungarian Empire (currently Bratislava, Slovakia, formerly Czechoslovakia) and died July 1, 1958. His significant contributions include forming schools of movement study throughout Europe and forming the Dance Notation Bureau in New York City with Irma Otte-Betz as founding director. Laban’s theories of movement qualities were the primary influences in the epic choreographic work, “The Green Table,” choreographed by Kurt Jooss. Modern industry uses Laban’s work in “movement
efficiency, “commonly referred to as Ergonomics®, to improve worker productivity. His influences are found in the arts, sciences, business community and industry. Laban Movement Analysis®, more commonly referred to as LMA, is a movement-based body of knowledge which includes Bartenieff Fundamentals® (movement patterns and sequencing), space harmony (study of the body in space) and effort-shape (the quality in which the body moves). The advanced study of LMA is used for professional development and research in a variety of disciplines and professions including:

a. Nonverbal communication experts who assist trial lawyers in selecting jurors sympathetic to their clients;
b. Action Profiling™ business applications that evaluate cultural patterns in movement such as fashion, customs, trends and relocation patterns;
c. Eastern and Western philosophies;
d. The sciences of math, anatomy and chemistry.

These areas of study often overlap and complement each other. This lesson focuses on one aspect of LMA Space Harmony’s Octahedron.

- Is there a relationship between the five regular Platonic solids and Laban’s movement analysis? Elaborate. Laban’s space harmony is grounded in planes, dimensions and other geometric terminology. The five Platonic solids provide visual templates for exploring movement scales and affinities including dimensional, A-B scales, and diagonal scales, among others. Geometry and movement are multidimensional and inform each other.

2. As a whole class, record each group’s response variations and interpretations on a chalkboard or other visual aid. All answers are considered “understanding-in-process” and brainstorming responses. Compare and contrast similarities and differences in the responses to each question and among the full list of questions. Ask students to explain their responses to the questions. Use an attribute web, a list, a Venn diagram or concept map strategies, as needed, to help summarize responses. Refer to Attachment A, Pre-Assessment Plato and Laban Guide.

3. To end the session, tell students to look for octahedron shapes in their homes.

   How does the relationship between five Platonic solids and Laban Movement Analysis impact dance-making practice?

Session Two – Exploring an Octahedron

4. Review Session One. Ask students to share the octahedrons they found in their homes. Help them identify features of the octahedrons.

5. Have students sit in a circle facing each other. Review attributes of the octahedron: eight faces, six vertices with four edges meeting on each one, 12 edges and views of symmetry. Record the information on the chalkboard or an overhead projector.
6. Have each student construct an octahedron using a template provided by the teacher. See Attachment C, *Plato and Laban Octahedron Template*. Students may work individually or in small groups. Students may offer suggestions, but cannot physically help their classmates construct individual octahedrons.

7. Bring the class back to the circle. Collect all materials. Place the octahedrons in front of you. Note that some students may be concerned that their models look different than other models or may not be as complete. Assure students that completing a perfect model was not the goal of the exercise. Just being able to manipulate the two-dimensional paper into a three-dimensional octahedron is a satisfactory result. Store the octahedrons in the room along a wall or window ledge until the next session.

8. Ask students if this was a challenging activity or if it was easy to do and why. Some students may have found this activity easy; others may have become frustrated. Ask them how they helped and supported each other.

9. Review the purpose of the session. Refer to Attachment C, *Plato and Laban Octahedron Template*.

How does the relationship between the five Platonic solids and Laban Movement Analysis impact dance making practice?

Session Three – Making an Octahedron

10. Return to the circle formation. Place some four-foot wooden dowels in the center of the circle. Ask students to determine the number of dowels needed to construct an octahedron. Have them state and then show the number of dowels needed to construct the edges of an octahedron. Ask how many connecters are needed to hold one octahedron together. Ask students if there are any other regular polygons, excluding the eight equilateral triangles, visible on the octahedron.

11. Ask two student volunteers to begin constructing the octahedron in the center of the circle for the class. A third student volunteer will serve as materials manager, retrieving additional sticks, as needed. Add more students to support the structure, as needed. Add students if the process is going along smoothly and there is a plan of action. The initial students must correctly solve or arrive at a solution that requires an additional student to simply support part of the octahedron or function in a specific role. This is an excellent exercise for students in how to give verbal directions, exercise individual and group patience skills and learn leadership and support roles in a group setting.

12. Finish constructing the octahedron.

13. Review the session. What went well? What didn’t go well? Why?
Session Four – Learning the Dimensional Scale

Today students learn Laban’s Dimensional Scale. Laban used metaphors from musical scales such as ascending or descending, widening or narrowing and simple or complex. This “movement scale” is the most fundamental. Movement scales can be performed on both the right and left sides of the body. For this session, the right is recommended. The sequential positioning of the body at each moment of the scale is:

- Rising—a long, lean, pencil-like shape reaching as high as possible above the head with the right fingertips, a long stretched shape;
- Sinking—a ball-like, tight shape, right fingertips curling tight;
- Closing—crossing the right arm and leg over the left side of the body;
- Opening—reaching, lengthening and stepping to the right;
- Retreating—reaching, lengthening and stepping back with the right side of the body;
- Advancing—reaching, lengthening and stepping forward with the right side of the body.

14. Using their right arms, students mirror the teacher as he or she demonstrates the Dimensional Scale with the following movement sequence:

- Rising and sinking—vertical (door);
- Closing and opening—horizontal (table);
- Retreating and advancing—sagittal (wheel);

This Dimensional Scale offers the dancer a movement scale through which he or she moves his or her body through three spatial planes—door, table and wheel.

- Secondary dimensions—door, table, table, wheel and wheel, door;
- Movement sequence—rise, lower, close, open, retreat and advance.

15. Perform the entire sequence in order. Repeat. Use motif notation symbols to write the sequence. See Attachment E, Motif Writing of the Dimensional Scale for the actual motif score.

Specific dancer counts are:

- One through eight—rising;
- Nine through 16—sinking;
- Two through eight—closing;
- Nine through 16—opening;
- Three through eight—retreating;
- Nine through 16—advancing;

Repeat in four-, two- and one-count dance phrase parameters.

16. Change and perform the new scale order, keeping dimensions together. For example, count the sequence horizontal, three through four; vertical, one through two; sagittal five through six; then sagittal, five through six; vertical, one through two and horizontal, three through four.
To close this session, divide the class in half. Have students take turns observing and performing the sequence. Observe and respond to student performances.

**Homework:**
Practice and review Attachment D, *Dimensional Scale.*

**Session Five – Using the Dimensional Scale for Dance-Making**
17. Have students sit together in an open circle. Provide an overview of this session. Lead the warm-up by doing the dimensional scale on eight counts, four counts, two counts and one count with the right side leading.
18. Have the students find partners to share and learn their dimensional scale movement sequences. Encourage them to use their compositional knowledge of space, facing and timing in the new duets.
19. Allow time for students to practice their motif notations so they can perform the duets during the next class session.
20. Review the purpose of the session. Are there one or two kinespheres in the duet? Do partners share the same kinesphere? Is there a common front (audience) in the duet? Is there a common front in an octahedron? Ask how they might begin to integrate elements of the dimensional scale into current choreographic ideas to develop dance composition studies.

**How does the relationship between the five Platonic solids and Laban Movement Analysis impact dance-making practice?**

**Session Six – Clarifying the Dimensional Scale for Solo and Duet Dance-Making**
21. Have students sit together in an open circle. Provide an overview of the session. Lead the warm-up by doing the dimensional scale on eight counts, four counts, two counts and one count with the right side leading.
22. Students share the dimensional scale as solos and duets.

**Instructional Tip:**
Have two duets perform simultaneously, sequentially or in canon.

23. Bring the big octahedron, the one constructed from dowels, into the dance space
24. Have one dancer share his or her movement sequence. Ask students what they see as the dancer performs next to the octahedron. Is the dancer moving through the planes of vertical, horizontal and sagittal (V-H-S) efficiently? If not, how can the dancer gain accuracy? Can students clearly see a primary and secondary octahedron or kinesphere?
25. Review purpose of the session. Ask how the relationship between the five Platonic solids and Laban’s movement analysis impacted the dance-making practice during this lesson.
Session Seven – A Day to Make and Review Dance Making Ideas
26. Have students sit together in an open circle. Provide an overview of the session. Lead the warm-up by doing the dimensional scale on eight counts, four counts, two counts and one count with the right side leading.

27. Have students continue to choreograph and practice their dances alone or with partners. Ask them how they will refine their dance studies using ideas culled from Laban’s dimension scale and Plato’s ideas about planes and dimensions as depicted in the five Platonic solids.

28. Have students write brief summaries entitled, “Today in dance I…”

Instructional Tip:
Students may choose to individually construct an octahedron from paper, toothpicks, clay and dowels, compose a solo/duet/small group dimensional scale study or to notate solo/duet/small group Dimensional Scale study. A small group may opt to ‘yarn-in’ the planes on the class octahedron (yellow H, blue V, red S), or examine books addressing Laban’s work.

Session Eight – Practice New Dances, Remember Lineage
29. Have students sit together in an open circle. Provide an overview of the session. Lead the warm-up by doing the dimensional scale on eight counts, four counts, two counts and one count with the right side leading. End with a structured improvisation based on the scale.

30. Have students continue to make, practice and clarify movement ideas constructed as individual or partner dances using Laban’s dimensional scale.

31. Discuss and review pre-assessment Questions One, Two and Three. See Attachment A, Pre-Assessment Plato and Laban Guide.

32. Review the purpose of the session.

Session Nine – Share Dances Choreographed
33. To begin class, sit together in a circle. Provide an overview of the session. Lead the warm-up by doing the dimensional scale on eight counts, four counts, two counts and one count with the right side leading. End with a structured improvisation based on the scale.

34. Provide fifteen minutes for a final practice session.

35. Have each student share his or her dance choreography with the class.

36. Discuss the choreography shared in class and connect to pre-assessment Questions Four, Five and Six. See Attachment A, Pre-Assessment Plato and Laban Guide.

37. Review the purpose of the session.
Session 10 – Predictions

38. To begin class, sit together in a circle. Have students discuss the following questions.
   - If you could ask Laban a question, what would it be?
   - Laban lived from 1879 to 1958. If he was alive today and researching and exploring the science of movement, what tools would he have available to him that he did not have during his lifetime?
   - Discuss your thoughts about the interrelationships that exist between the five Platonic solids, Laban’s space harmony dimension scale and dance-making. How does knowing about these spatial theories inform dance-making? To what degree will you integrate this information into your choreography?
   - Do you think computers, technology and the advancement of science have affected Laban’s work in a progressive way? LabanWriter, athletic movement efficiency, ergonomics
   - How might you apply this unit of study to geometry class? Would Plato approve of the application? Do you?

39. Have students test Euler’s formula to see if it is true for the octahedron: V+F-E=2 (vertices + faces-edges=2).

Differentiated Instructional Support:

Instruction is differentiated according to learner needs, to help all learners either meet the intent of the specified indicator(s) or, if the indicator is already met, to advance beyond the specified indicator(s). Some students may need to repeat the Dimensional Scale dance phrase patterning numerous times to begin to feel kinesthetically, their new movement possibilities. Slowing down the teacher-directed instructional process to assist students as they physically explore than accurately arrive at each new location in the Dimensional Scale will allow those with varying physical perceptions of the Dimensional Scale to eventually perform the Scale in unison.

- Individually, students may choose to construct octahedrons from paper, toothpicks, clay and dowels.
- Individually, students individually may compose solos, duets or small-group dimensional-scale studies.
- Students may notate solo, duet or small-group dimensional-scale studies.
- A small group may opt to “yarn-in” the planes on the class octahedron using yellow yarn for horizontal, blue yarn for vertical and red yarn for sagittal.
- Students may do additional study about Laban’s work.

Extensions:

- Extend the theoretical content into real-world applications, e.g. stability/instability; in architectural design and molecular structures.
- Develop individual, duet, small-group and whole-class problem-solving skills. Vary roles played in cooperative-learning circles: leader, team player, observer, critic, builder and partner.
Plato’s Octahedron: A Space Harmony Perspective - Grade Nine

- Broaden connections between geometry, dance and movement disciplines. Does movement exploration help mathematics students understand geometric concepts? Can students provide personal examples to support responses? Can movement be used as a learning tool in all academic curricula? Why or why not? Does scientific study help choreography students understand the space-harmony concept? Can students provide personal examples to support responses? How can various modes of inquiry and documentation, including performance, written and oral responses, help students understand the octahedron and dance-making practice?
- Vary roles played in cooperative learning circles: leader, team player, observer, critic, builder and partner.
- Invite students to respond to ethical issues to sharpen critical and creative thinking. For example, scientists often transfer and apply other researchers’ and scientists’ findings to their own work. Is this practice ethical? Does it compromise or manipulate the original theory, application and body of knowledge? Can a scientist successfully maintain the integrity of the transferred and applied work to his work? Students should provide examples to support their answers.
- Tell students to look at the issue from a choreographer’s perspective. Choreographers often use transfer and apply other choreographers’ ideas to their own choreographic practice. Is this practice ethical? Does it compromise or manipulate the original theories, applications and bodies of knowledge? Martha Graham, Doris Humphrey, George Balanchine, Mark Morris and Rennie Harris are well-known choreographers who have used this approach. Can a choreographer successfully maintain the integrity of the transferred and applied work in his or her own choreography? Students should provide examples to support their answers. What are the pros and cons of transferring findings in scientific inquiry? Students should give specific examples of past and current scientific research using the theories or practices of at least two significant scientists in positive or negative scenarios.
- Have students imagine Plato’s response to Laban’s use of geometry’s fundamental polygons in his movement analysis theory. Would the response be favorable? Students should provide specific examples using concepts from the lesson to support their responses. Would Plato find the two areas similar or different, and why? Students should support their responses with specific examples.
- As a geometry student, determine if movement exploration facilitates a deeper holistic (mind-body) understanding of this specific geometric concept. Provide specific personal examples to support a response. Can movement be used as a learning tool in all academic curricula? Why or why not? Explain.
- As a choreography student, decide if scientific study facilitates a deeper holistic (mind-body) understanding of this specific Space Harmony concept. Provide specific personal examples to support a response.
- How can various modes of inquiry and documentation (performance, written and oral responses) facilitate a deeper (more informed) understanding of the octahedron? Dance making practice? Explain.
Homework and Home Connections:
See Instructional Procedure, Session Four. Students need to physically practice the Dimensional Scale. They might wish to try the Dimensional Scale using dance composition skills including retrograde (backwards), or inverted once the original phrase is mastered.

Interdisciplinary Connections:
Content Area: Mathematics
Standard: Geometry and Spatial Sense Standard
Benchmark E: Draw and construct representations of two- and three – dimensional geometric objects using a variety of tools, such as straightedge, compass and technology.

Constructing an octahedron with dowel rods is one way to illustrate this dimensional geometric object. Physically moving through the Dimensional Scale is another representation.

Benchmark F: Represent and model transformations in a coordinate plane and describe the results.

Transforming Space Harmony’s Dimensional Scale into dance choreography is one way to illustrate coordinate planes. Its description is visually and kinesthetically portrayed as the dance unfolds.

Standard: Mathematical Processes Standard
Benchmark A: Formulate a problem or mathematical model in response to a specific need or situation, determine information required to solve the problem and choose a method for obtaining this information and set limits for acceptable solution.

Using the octahedron physically embody the Dimensional Scale spatial point sequence of spatial points.

Benchmark E: Use a variety of mathematical representations flexibly and appropriately to organize, record and communicate mathematical ideas.

Using Laban’s theory of space harmony and the five Platonic solids theory, students, either alone or with partners, create original choreography depicting planes, edges and vertices.

Benchmark H: Locate and interpret mathematical information accurately, and communicate ideas, processes and solutions in a complete and easily understood manner.

Interpret Laban’s movement analysis theories of space harmony and embed Plato’s ideas about solid geometry to create and perform choreography access to a diverse audience.
Materials and Resources:
The inclusion of a specific resource or references to particular choreographers or works of dance in any lesson formulated by the Ohio Department of Education should not be interpreted as an endorsement of that resource or any of its contents, by the Ohio Department of Education. The Ohio Department of Education does not endorse any particular resource, choreographer or work of art. The Web addresses listed are for a given site’s main page; therefore, it may be necessary to search within that site to find the specific information required for a given lesson. Please note that information published on the Internet changes over time; therefore, the links provided may no longer contain specific information related to a given lesson. Teachers are advised to preview all sites before using them with students. Note: Some Web sites contain material that is protected by copyright. Teachers should ensure that any use of material from the Web does not infringe upon the content owner's copyright.

For the teacher: chart paper, markers, overhead projector, overhead markers, chalkboard, chalk, dowel sticks, eagle-eye hooks, (to be placed one on each end of each dowel prior to lesson) toothpicks, clay, glue, scissors, pencils, student dry-erase board and marker, pencil, blank paper

For the student: paper, erasers, pencils

Vocabulary:
- cube
- dance-making
- Dimensional Scale
- dodecahedron
- edge
- equilateral triangle
- face
- icosahedron
- Rudolf von Laban
- octahedron
- Plato
- Platonic solid
- polygon
- polyhedron
- regular polyhedron
- tetrahedron
Technology Connections:
- Computers are used for word processing and for Internet research.
- Web sites on Plato, formally known as Aristotle and Rudolf von Laban are plentiful for Internet research strategies.
  - www.altavista.com (Search for Laban’s Dimensional Scale.)
  - www.intelligentstage.com/laban/laban.html
  - www.limsonline.org (Laban/Bartenieff Institute of Movement Studies)
  - www.dancenotation.org (Dance Notation Bureau)
- Teleconferencing provides another way for students to gather information and interact with resource people.

Research Connections:


**Resources:**


**Attachments:**

Attachment A, *Pre-Assessment Plato and Laban Guide*
Attachment B, *Post-Assessment Rubric*
Attachment C, *Plato and Laban Octahedron Template*
Attachment D, Laban’s *Dimensional Scale*
1. Name the five Platonic solids. How are they similar?

2. More specifically, what is an octahedron? What are its attributes? How many faces, vertices and edges are in an octahedron?

3. Who is Plato? What is his contribution to the study of geometry? What is his relationship to the five Platonic solids?

4. What is movement analysis?

5. Who is Rudolf von Laban? What is his contribution to movement analysis?

Name: ___________________________________________ Period: _________
**Attachment B**

**Post-Assessment Rubric Guide**

*Bloom’s levels of Higher Order Thinking Skills;**

**Renzulli’s Creative thinking Areas: fluency, elaboration, visualization, Intuition and originality.**

<table>
<thead>
<tr>
<th>Bloom’s Levels of Higher Level* and Creative Thinking**</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Verbal and Written Responses</strong></td>
<td>Strong evidence of analysis and synthesis levels; creative thinking.</td>
<td>Evidence of application and analysis levels with aspects of creative thinking</td>
<td>Does not go beyond comprehension and application levels. Limited creative thinking.</td>
<td>Does not go beyond knowledge and comprehension levels.</td>
</tr>
<tr>
<td><strong>Plato Attributes of Octahedron Verbal and Written Responses</strong></td>
<td>Several additional and varied resources regarding Plato’s work; relevant detail in responses verbal/written (faces, edges, vertices); information supports thesis.</td>
<td>Some additional and varied resources regarding Plato’s work; some relevant detail in responses verbal/written (faces, edges, vertices); ideas and information clear.</td>
<td>Some additional resources but no variety of resources regarding Plato’s work; limited detail/clarity in movement phrase (faces, edges, vertices); obvious gaps in information/movement phrase.</td>
<td>No additional resources in Plato’s work; incomplete product; lack of detail; movement sequence lacks clear organization.</td>
</tr>
<tr>
<td><strong>Dimensional Scale Movement and Performance</strong></td>
<td>Highly skillful performance of movement phrase (dimensional scale).</td>
<td>Skillful performance of movement phrase (dimensional scale).</td>
<td>Basic to limited skill in movement phrase (dimensional scale).</td>
<td>Very limited if any skill in movement phrase (dimensional scale).</td>
</tr>
<tr>
<td><strong>Knowledge</strong></td>
<td>Understands all lesson concepts.</td>
<td>Understands most lesson concepts.</td>
<td>Grasps some lesson concepts.</td>
<td>Little or no evidence of understanding lesson concepts.</td>
</tr>
</tbody>
</table>

Name: ___________________________________________  Period: __________
Attachment C
Plato and Laban Octahedron Template
attachment D – laban’s dimensional scale