



“Dances for an Expanding Universe”

Lesson Summaries

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*“Watch the stars, and from them learn. To the Master's honor all must
turn, each in its track, without a sound, forever tracing
Newton's ground.” - Albert Einstein*



The Kennedy Center

The Stop & Go Structured Improvisation - Summary Sheet

Warm-ups #1 – #4

Establishing the Space Bubble (a.k.a. Kinesphere)

- Students define their kinesphere, using the tips of their fingers and stretching their arms out and away from their bodies.

Creating Shapes to Communicate Ideas

- Students need to develop a beginning movement vocabulary that enables them to speak with their bodies or communicate ideas with different shapes.

The Stop & Go Dance

- Students self-direct the creation of a simple dance. It combines the dance concepts of shape, level, pathway, and locomotion through space.

Choosing Shapes (Motifs) to Communicate Specific Ideas

- Students develop the ability to represent an idea with a specific chosen body shape. The body shape chosen should reflect the important aspects or the essence of the idea.

The Lesson - The Stop & Go Dance with Curriculum Integration

- The Stop and Go Dance is a structured improvisation[^] that connects the dance concepts and structure with the curriculum concept.

[^]A structured improvisation is an unplanned sequence of movement that follows a set of rules or boundaries.

- The students place themselves in the space, spread out, and use all the available space. They start and end the dance in one of the motifs (shapes) that they memorized and practiced.
- Use music or some other type of aural cuing, when the music, clapping, or beat stops the students stop or freeze into a different motif (shape).
- Students chose secondary concepts related to the theme. For each secondary concept, they create a specific body shape or motif that represents that concept.
- Each time the aural cue is started the students move, each time the aural cue is stopped the students chose one of the motifs to demonstrate and freeze in that shape.
- The motifs can be further developed by choosing specific locomotor skills, levels, and pathways for each concept.

Student Reflection

Dance Questions

- What level did use for your shapes? What locomotor skills did you use?
- What did you do to help you have control of your shape and keep it still?

Curriculum questions

- What choices did you make to show me a major feature of the sky?
- Why did you make that choice? What was your thinking?

The Gravity Dance Improvisation – Summary Sheet

Preparation

Materials

- Rope sections for each pair of students- 6 foot lengths
- Music

Preface the Lesson

Check for Prior Knowledge

Review Background Information

- The Law of Universal Gravitation & Newton's Law of Inertia

Warm-ups #1-#3

Walking Through the Space

- All movement activities require students to have a basic awareness of how they are using the space both as an individual and as a member of the entire group.

The Moving Wall

- Increase the students' awareness of space by decreasing the amount of available space.

Straight and Parallel lines & Circles and Arcs

- Introduce the concept of pathways and prepare students for circle and arcing pathways.

Student Reflection

- *“How can the group improve upon moving through the space with each other?”*
- *“What is most challenging about moving through the space?”*

The Lesson - Gravity Dance Improvisation

Teacher Demonstration of Gravitational Attraction

- Demonstrate that gravity increases as distance decreases.

Student Pairs

- Allow the students to experience the increase in gravitational attraction as distance decreases.

Teacher Demonstration of Four Outcomes between Inertia & Gravity

- Illustrate four possible results of inertia and gravitational attraction interacting with each other.

- Outcome #1 - Inertia Wins
- Outcome # 2 - Inertia and Gravity in Balance
- Outcome # 3 - Gravity Wins
- Outcome # 4 – Gravity Disrupts Inertia and Gravity in Balance

Student Pairs and Trios of the Four Outcomes between Inertia & Gravity

- Further demonstrate and elaborate on the four outcomes, clarify any misunderstandings, and show the students they can successfully complete the outcomes independent of the teacher's involvement/participation.

Choreography

- Students decide on the sequence in which they will arrange the four outcomes.

Student Reflection

- *“What order of outcomes did you see your classmates use?”*

Teacher Demonstration of the Gravity Dance Improvisation

- Demonstrate how the outcomes can be sequenced together in a structured improvisation.

Student Pairs and Trios: Gravity Dance Improvisation

- Students create their own structured gravity dance improvisation.

Whole Group: Gravity Dance Improvisation

- Variations

Student Reflection

Dance Questions

- *How did you transition from one outcome to the next?*
- *What did you notice about the dance improvisation? (What did you think or see?)*
- *How did the music change the dance improvisation?*
- *What movement choices did you make? Why?*

Astronomy Questions

- *Where do you see examples of inertia and gravity at work in the universe?*
- *What are the results of these forces acting on masses in the universe?*

Our Solar System / Theme and Variation – Summary Sheet

Preparation

Materials

- Planet photographs
- Planet factoid handout
- Astronomy glossary
- Elements of Dance handout
- Music—Teacher’s or student’s choice

Preface the Lesson

Check for Prior Knowledge

Review Background Information

- Use the photographs and the glossary in the packet as a prompt to stimulate the discussion and provide an opportunity for students to brainstorm astronomy vocabulary terms.

Warm-up

Name Game

- Establish movement motifs and use the movement motifs to communicate ideas relating to astronomical vocabulary words.

Demonstration: Model the Name Game

- Demonstrate your understanding of an astronomical vocabulary term by creating a motif that conveys that understanding.

Small Groups: Name Game

- Each individual in the group is responsible for creating a motif for an astronomical vocabulary term word of their choice.

Student Reflection

- *“Why did you decide to use a large movement and shape for Jupiter”* Student reply could be, *“Jupiter is the largest planet in the solar system and I wanted to show you that idea”*

The Lesson – Solar System Theme and Variations

Teacher Demonstration—Solar System Themes

- Demonstrate the creation of a motif inspired by one of the solar system’s planets’ characteristics or qualities.

Small Groups—Solar System Themes

- Student teams work on creating a movement motif based on an interesting characteristic or fact about the planet using the photograph and/or the planet factoid handout. The motif choreographed for this part of the lesson should have at least two main ideas, be 20 to 50 seconds in length, and communicate accurate science and/or literary information.

Student Reflection

- *“What did you notice about the motifs presented?”*
- *“Explain why you made the choices you did?”*

Teacher Demonstration—Introduce the Elements of Dance

- Illustrate how a variation of a motif can be created using the elements of dance.

Small Groups—Varying the Theme with the Elements of Dance

- Having seen the demonstration by the teacher, the student teams work on creating variations.

Student Reflection

Dance Questions

- *What elements did you work with or change from the original motif?*
- *If you keep working on the motif or the variation, is there anything you would change?*
- *What happened to the variation when we added the music or spoken word?*

Astronomy Questions

- *What did you think were the most interesting or intriguing characteristics of the planet or astronomical phenomena you worked with? Why?*