Lesson Plan:
Moving Through the Periodic Table

Grade Level:
7th Grade

Subject Area:
Science

MSCCRS:
P.7.5C.4 Predict the properties and interactions of elements using the periodic table.

Art Form:
Dance

MSCCR Creative Arts Standards:
DA:Pr5.1.7a Apply body-use strategies to accommodate physical maturational development to technical dance skills.

Enduring Understanding:
Dancers use the mind-body connection and develop the body as an instrument for artistry and artistic expression.

Essential Question:
What must a dancer do to prepare the mind and body for artistic expression?

Duration:
2 hours - (2) one-hour classes

Materials:
Body

Objectives:
TLs will explain the groups in the periodic table through a dance.

Vocabulary:
Alkali metals
Alkaline Earth metal
Transition metals
Metalloids
Non-metals
Halogens
Noble gases
Rare earth elements

Ballet
Soft movements
Hard movements

Lesson Description:

1. TTW review the different groups of the periodic table. TLs can use their notebooks to help them remember the qualities and characteristics of each group.

2. TTW then explain that he/she will divide the class into groups of 4, and each group will be given a group from the periodic table. Each group will eventually create a ballet dance to represent that group in the periodic table.

3. TTW allow the students the opportunity to learn a ballet dance through a YouTube video that gives some pointers on how to dance in the style of ballet. Make sure students are spaced appropriately so as to not harm one another as they move. Also, it may be best to allow students to mirror the instructor rather than trying to convert movements to left and right. Students will likely be a little turned around as they begin to learn the dance, but that is okay.

4. TTW replay the video several times...as many times as necessary (7:34 - 8:14) and allow the class to practice. The choreography is less than a minute long. TTW give students the opportunity to experience success and a deeper understanding of ballet. TTW use positive words of encouragement as students work toward mastery of the movements.

5. TTW then break the learners into six groups (six element metals) in order for the students to create their own group dances utilizing the techniques the instructor on the video used. TSW work in their groups to create a dance representative of a group of elements such as alkali metals, alkaline earth metals, transition metals, metalloids, non-metals, halogens, noble gases, or rare earth elements. TSW utilize ballet and other movements that may not be indicative of any specific genre. TT may want to cut up a periodic table and allow groups to blindly select a theme for their dance or simply assign the themes from the start.

6. Keep in mind that each group should be able to justify the movements they choose to represent the elements they are dancing about. TTW ask, “why did you choose this movement?”

7. TLW create and practice their dance, TTW give the students roughly 30 minutes to do so using music that is assigned by the teacher. **The teacher will need to review the options given in the recommended resources prior to class.

8. The next day, TLW perform their dance in front of the class.

9. TTW ask, “What must a dancer do to prepare the mind and body for artistic expression?”

10. TLs will respond.

Recommended Resources:

- Ballet tutorial: https://www.youtube.com/watch?v=o-QA_AQNhm8
- Periodic table - make sure each group has a copy of one of these.
    - https://sciencenotes.org/wp-content/uploads/2017/02/KidsPeriodicTable2017.pdf
    - https://sciencenotes.org/periodic-table-118-elements/
- Period Table Music/Video: https://youtu.be/k_9KTww6DiU
    - 47 minutes long
    - TT may want to allow students to create choreography to this music or at least become familiar with the content. Notice some pieces are lengthy.
        - Alkali Metal (4:10 - 7:31)
        - Alkaline Earth (7:40 - 10:22)
        - Transition Metal (10:28 - 21:14)
        - Lanathanoids (21:14 - 30:14)
        - Metalloids (34:50 - 38:20)
        - Non-Metals (38:25 - 41:20)
        - Halogens (41:25)
- Another option is to allow students to use classical music- *The Greatest Hits of Yo-Yo Ma*: https://youtu.be/qrdj2wplBWM
- Another option, *The Goat Rodeo Sessions (Yo-Yo Ma, Stuart Duncan, Edgar Meyer, Chris Thile) | Musicians At Google*: https://youtu.be/u0nsxCsJgdg ***The conversation at the end has content that is not really appropriate for K-12 students.
- https://www.youtube.com/watch?v=O7EcT5YzKhQ The Goat Rodeo Sessions on NPR.

Extended Learning Activities:

TLs could perform their dances at the end of the year program.

Assessment Strategies:

***Journal**	TSW write a personal response following a dance experience and share photos or drawings about the experience of learning and choreographing a dance. Diagrams of proposed choreography are also acceptable submissions.
***Student Dance Portfolio**	TSW add to an existing dance portfolio of purposeful

	collection of significant work. It should be carefully selected, dated, and presented to tell the story of the student's achievement or growth within science. Any submission to the dance portfolio should include a personal reflection about why a piece was chosen and what it shows about his/her growing skills and abilities. Google Docs can even be utilized to organize these materials. TS may want to submit a video recording, photographs, class notes, special recognition, peer conference notes, journal recordings, etc.
***Observation**	TTW walk around the classroom and observe the students as they work to check for evidence of student learning. In doing so, TTW record an anecdote, any private conferences with students, keep track of any existing checklists and/or rubrics.
***Self-Assessment**	TTW give students the opportunity to consider the quality of their own learning and performance. The students can give feedback as an individual and in collaboration with others. TSW want to acknowledge the curricular objectives, benchmarks, and other specified criteria. This assessment can only be used as a formative assessment, but it gives students the responsibility of identifying competencies and challenges in their own work. It also gives students the opportunity to devise appropriate strategies for improvement. Students can set personal goals, check progress toward reaching those goals and compare work to a given rubric.

Sources:
N/A

Tips:
N/A

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