Dance Geometry:

Shapes of Adelaide Festival Centre

Learning Resource:
Creative activities for the classroom

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ABOUT THE RESOURCE

This Learning Resource is designed for Year 1-6 students and teachers of

- Mathematics
- The Arts – Dance

Activities suggested in this resource connect to the Australian Curriculum – Version 9:

Mathematics through Algebra, Measurement and Space strands as well as The Arts (Dance) through Exploring and Responding, Developing Practices and Skills, Creating and Making, and Presenting and Performing strands.

Information and links correct at time of publication.

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DANCE GEOMETRY

BODY, SPACE and TIME are the three components that you need to consider when generating a new dance. This resource is designed to provide inspiration to teachers to use maths and geometry to inspire movement creation with your students.

Some planning is beneficial, but always leave space for the unexpected creative acts that young people bring to the space. Balance the process of creating with clear boundaries and free exploration to scaffold the activities for yourself and young dancers.

BODY

Activity one

This activity can be completed individually or in groups of two, three or as a class.

Divide your students accordingly and ask them to complete the following tasks:

1. Go for a walk around the school yard and identify 3 different geometric shapes and draw them onto a piece of paper for reference. Do you know what the shape is called? How many sides and angles does it have?
2. Once you have your shapes, trace each of them in the air with a body part (i.e. finger, foot, elbow, nose!).
3. Imagine yourself as a 2D version of each shape on a page and recreate them on the floor.
4. Now recreate your shapes off the floor in 3D: can you move around the space and stay in shape?
5. Recreate each shape with the other people in your group.

Activity two

This activity is more complex and can either be student or teacher led depending on your class group.

Teacher led: Teachers choose some shapes being studied in class for students to create as well as the transitions to use when moving from one shape to another.

Student led: Students choose their own shapes and transitions.

1. Create 4 different shapes using your body.
2. Add a transition to move between the four shapes created in Step one. Examples of transitions include jumping, melting, or kicking from one shape to the next.
3. Divide the class in two so that one half is completing Step two while the other half watches.
   Ask the students watching to share their observations about how the shapes and transitions differ between students and how the shapes students are creating represent their two-dimensional geometric counterparts.
4. Finally, ask your students to reflect on what it felt like to become the shape. Was there a specific section of the shape they were focusing on? Did the shape change when moving through the space and if so, how?

SPACE

The activities that follow allow students to express themselves away from their desks and without an audience. Your sessions can be an invitation to take physical shapes from your surroundings and explore their abstract concepts when moving through space.

Complex shapes and patterns can be achieved and celebrate group cohesion. These activities will encourage students to move through the space and to reflect on the shapes and patterns that emerge when doing so.

Activity one

Think about how a group of people can stand in a circle without having to draw the circle on the floor as a reference. With this in mind, ask your students to complete the following:

1. Name a few different shapes and have the class stand in each of these shapes; how did they go coordinating themselves?
2. Once in position, explore ways in which you can vary the way you create the shape without it losing its form. For example, can you:

    a. Change its size to make it bigger or smaller?

    b. Invert it so it's now upside down?

    c. Multiply it so there are 3 or 4 versions of the shape?

    d. What other variations can you come up with?

Activity two

To set up for this task, choose some of the geometric shapes you're learning about in class, and draw them out using tape on the floor of the classroom. Be sure to leave a metre or two of space between each shape so you can easily move between shapes.

Then complete the following tasks:

1. Create a movement or dance sequence for each shape and allow students the time to familiarise themselves with the dance move associated with each shape.
2. Give students a moment to think about how they want to move to the next shape – this should be improvised – then instruct them to move to the next shape using that movement.
3. Alternatively, draw some lines (straight and curvy) between each shape to add travelling movements each child can adapt when moving along the lines.

This activity can be run in a circuit so that there are numerous variations of the one dance phrase, or it could be run in a follow the leader format where one student decides the movement, and everyone else has to copy.

This process-based activity could stand alone, or you can use it to develop variations of a dance phrase that are rehearsed and stitched together to develop a longer dance.

Once students remember the dance sequences, remove the shape outlines from the ground and observe how, if at all, new variations of movement and transitions appear.

Activity three

The trajectory between two points in space create a line.

Travelling patterns can include moving the whole group in one direction down the line or going one at a time. In Dance, this is called a floor pattern and has the capacity to expand or contract to fit different spaces.

1. Choose two points in the space close to each other – create a travelling dance phrase that takes you from point A to point B.
2. Then move the two points further away from each other and try the same dance moves travelling further between point A and point B.
3. Observe how time and distance changes when the points are further apart using the number of steps, or the number of counts taken as measuring tools. Do you need to take more time, expand the moves into giant leaps or add in some extra steps?

TIME

Timing can get quite complex in dance because we are polyphonic beings! With so many moving parts – arms, legs, head, feet, hands, spine – there are lots of dance movements that can mean our lower body is holding one rhythm while the upper body accents another rhythm.

There is a lot of fun to play with when using our bodies as percussion to illustrate the rhythms and silences that align with movement and stillness. Popular music is generally conducted in a 4/8 or 8/8 timing (a time signature in music) where there are four or eight beats or counts per bar.

A waltz or something with three beats to a bar is also great to play with – perhaps using the down, down, up movement sequence that waltz music guides us to.

Activity one

This activity will help you develop familiarity with counting out beats in a bar of music before you add your dance sequences.

1. Start a base pattern for your rhythm by counting out four beats using either a thigh slap, clap, right-hand click and left-hand click; that is, one move for each beat: 1 (thigh slap), 2 (clap), 3 (right-hand click), 4 (left-hand click).
2. Ask students to decide on an order in which these four sound making moves will be used. Practice the order you create until there is fluency between the beat and sound making movement.
3. Once Step two has been mastered, replace one of the beats with a beat of silence/stillness and see how the pattern changes with each bar of four. Again, practice this version until it is fluent.
4. Finally, add some half counts or beats to create syncopated rhythms. (A half beat is like the 'and' count between each beat). Again, practice this version until it is fluent.
5. Divide the class into three groups and assign one of the patterns practiced in Steps two to four to each of the groups. Count each group in to start together.

If you're feeling confident, try it in a canon style, where one group starts on beat 1, another group starts on beat 2 and the final group starts on beat 3.

Do you hear the rhythmic variations that occur in both the non-canon and canon versions? What does this look like visually?

Activity two

Divide the class into two groups.

Group one: Begin the clapping/thigh slapping/clicking sound score created in Step two of the previous activity.

Group two: Recreate the dance sequence moves developed in Activity two of BODY.

Alternatively, walk around the imagined lines in Activity three of SPACE as a class while clapping/thigh slapping/clicking out the sound score created in Activity one of TIME.

You could divide your class into three groups to have the three different sound scapes created in Activity one of TIME while walking around the imagined lines.

Activity three

You can also play with time by recreating the same choreographed movements to songs that are slower or faster in tempo.

On some applications like Spotify or YouTube you can select the playback speed to be a different rate, which helps when you are trying to go slower while learning the counts of a song, or you could just change the vibe and create a challenge for students.

Songs without words are a better choice as they retain the opportunity for the student's expression to evolve.

1. Choose two or three difference songs from this Spotify list created by choreographer Tanya Voges that differ in tempo (faster or slower) and length.
2. Ask your students to recreate the dance sequence moves developed in Activity two of BODY to each of the songs you choose.
3. How, if at all, does the dance sequence change as a natural consequence of the change in tempo or even mood of the song?