CHOREO GRAPH ACTIVITY #1: WHAT'S MY ANGLE?

Students explore and classify different types of angles by acting them out with their bodies, searching for them in the world, and then creating an animated dance move using rotational angles in Choreo Graph.

LEARNING GOALS
1. Students will use their bodies, manipulatives, and classroom objects to create and classify right, acute, obtuse and straight angles.
2. Students will describe and explore rotational angles visually and kinesthetically.

PREP
Instructor should have foundational knowledge of Choreo Graph app. For review go to:
noticing.nysci.org/apps/choreo-graph/choreo-graph-overview/
This activity was adapted from noticing.nysci.org/lesson/create-a-dance-move/ and may be referenced for more information.

MATERIALS
• Chart or pictures of right, obtuse, acute and straight angles.
• Large image of protractor with degrees.
• Sharable hinged rays (manipulatives) made out of paper or card stock (two arrows attached with a brass fastener, see included cut outs.)
• iPads with Choreo Graph app.
• Picture dictionary (Spanish-English version supplied.)

KEY VOCABULARY
• acute
• right
• obtuse
• straight
• complementary angles
• supplementary angels
• rotational angle
• degree
Choreo Graph Activity 1: Introduction to Angles

GETTING STARTED

Use your body!
• Encourage students to use their bodies to make angles (i.e. arms, legs, bending at their waist, etc.).
• In pairs, have students take pictures of their partners on their iPads using their bodies to demonstrate different angles. Have them name the angles.

Guiding Questions:
• What would a right angle look like with your arms?
• Can you show an acute angle with your legs?
• Can you show me a straight angle?
• What about an acute angle that becomes an obtuse angle?

Angle Hunt
With iPads in hand, have students go on an Angle Hunt to find acute, right, obtuse and straight angles around them. This could be done indoors or out on a playground. The goal is for students to notice that angles are all around them and to give them the opportunity to define and classify what they see.

Guiding questions:
• What is an angle?
• Where can you find examples of angles around the room? Can you point them out?

TIP: Getting outside and going for a walk might be a way for students to open up, be more comfortable speaking, pointing things out, and a way to get them more engaged in seeking out math in their world.
**Choreo Graph Activity 1: Introduction to Angles**

*Share and Present*

Students will share their pictures from *Use your body!* and *Angle Hunt* activities with each other. Encourage students to sort their photos into categories and/or describe the types of angles they created and found. Students can use the Sentence Frames for Using Math Language to describe their angles.

**GOING DEEPER: MATH TOOLS AND TALK**

Building on what kids explored in their kinesthetic angle activities, use paper angle manipulatives and a large protractor to invite students to consider acute, obtuse, right, straight and rotational angles. This will allow you to discover if any misconceptions need to be addressed after the previous activities. It will also allow children to think more deeply about the angles they will be designing with in Choreo Graph.

1. Display or draw examples of each type of angle (see below)
   — acute, obtuse, right, straight, complementary, supplementary

![Diagram of angles]

2. Have students say the names and definitions aloud with you.
3. Introduce the term *rotational angle* as an angle in which one or both rays move to form a different angle. Show students an example on the protractor and an example with the body. Use the paper angle manipulative to show rotational angles (with degree markers on the protractor display).
4. Have students use their paper angle manipulatives to create various types of angles on the protractor display (“Show an acute angle,” “Show a straight angle,” “Show an acute angle becoming an obtuse angle,” etc.)
Choreo Graph Activity 1: Introduction to Angles

**Sentence Frames for Using Math Language**

1. A right angle is ________ degrees. Here is an example of a right angle.
2. An acute angle is ____________ degrees or (less / more). Here is an example of an acute angle.
3. An obtuse angle is ____________ degrees or (less / more). Here is an example of an obtuse angle.
4. A straight angle is ________ degrees. It looks like a ________________.
5. I created a rotational angle in my dance moves. It moved from a ________ angle into a ___________ angle.

**Dance it out!**
Encourage students to discover angles and the concept of rotation through the movement of their bodies while dancing. Students will shift from focusing on single angles to multiple angles in a sequence and rotational angles.

1. Turn on music to dance to or watch a “how to” video of a popular dance. If time allows, have a mini dance party where students can take turns taking pictures of their partner doing a move.
2. Afterwards, have students sketch out, act out, or share their favorite dance move that includes angles and rotational angles explored.
Choreo Graph Activity 1: Introduction to Angles

DIGITAL DESIGN IN CHOREO GRAPH

Animate Your Favorite Dance Move Using Rotational Angles
Students will dissect photographs of their partner into component parts, assemble them, and animate them to create dance moves in Choreo Graph. Limbs in the app can be separated at their joints to create pivot points for movement.

Students should explore the in-app tools (toggle on/off grid and angles features) to see how they can help them create angles in their dance move.

Share and Present
Students will share their “favorite dance move” created in Choreo Graph. Encourage students to use math terms to describe how they made their animation. Students can use the Sentence Frames for Using Math Language to help them describe their angles.

QUESTIONS FOR UNDERSTANDING
- How is an acute angle different from a right angle?
- How are the measured degrees of a right angle related to the degrees of a straight angle?
- Can you show an acute angle that becomes an obtuse angle?

EXTEND YOUR LEARNING
- Record a video of your friend showing rotational angles. Use the words you learned to describe the angles they are making.
- Create an art project, such as a collage or mosaic, using different types of materials that highlight angles.
- Create an angle dance and write an angle song, using the sentence frames as a guide. Record a video of yourself or a friend doing the dance.
**TIP:** Create paper manipulatives of hinged rays made out of paper or card stock (two cut-out arrows attached with a brass fastener). See template here.