Change Your Angle

In this lesson, students will use the Finch Robot 2.0 to draw and identify scalene, isosceles, and equilateral triangles. They will also identify angles as right, obtuse, or acute. Students will create triangles across the 3 levels in the FinchBlox app.

Materials

- Finch Robot 2.0
- Android or iOS device with FinchBlox app
- Marker (Broadline Washable Markers or Crayola Paintbrush Markers- Recommended by BirdBrain)
- Paper (construction, printer, butcher, poster, or chart paper)

Standards

- NY-4.MD.1, NY-4.MD.5, NY-4.MD.6, NY-4.G.1, NY-4.G.2a
- TEKS 111.16 (b) (6) (B), TEKS 111.16 (b) (6) (C) , TEKS 111.16 (b) (7) (D)

Student Objectives

- I can use the Finch Robot 2.0 to draw triangles with specific angle requirements.
- I can identify and name triangles based on their angle size (right, obtuse, acute).
- I can use a protractor to measure and label angles.
- I can use a ruler to measure and label the sides of a triangle.

Procedure

1. Review necessary vocabulary and concepts at the beginning of the lesson. Vocabulary may include:
    - Triangle: A shape (polygon) that forms when three straight lines meet. It has 3 straight sides and 3 angles. The three angles always add up to 180°.
    - Angle: a geometric shape that is formed wherever two rays share a common endpoint.
    - Right Angle: An angle that measures 90°

    - Acute Angle: An angle that measures less than 90°
    - Obtuse Angle: An angle that measures greater than 90°
2. After students have reviewed these concepts, have students program the Finch Robot to draw a triangle in level 1 or 2. When students have drawn their triangle, have them use a protractor to measure the angles of the triangle. Students should label the angles, identify the angle type, and identify the type of triangle. Students should also use their ruler to measure and label the lengths of the sides.
3. Once students have a good understanding of creating triangles with the finch and being able to identify the characteristics of the triangles and angles they created, they can then move on to the level 3 task.
4. In level 3 of the FinchBlox app, have students use the movement blocks to program the finch to create either acute, obtuse, or right triangles. Have students use the protractor to measure the angles and verify that they meet the requirements of their chosen or assigned triangle. These angles should be labeled. Students should also use a ruler to measure and label the sides. Then, have students identify the triangle as isosceles, scalene, or equilateral.
5. If students are having trouble creating their triangles, encourage them to keep manipulating the movement blocks they code to troubleshoot and find a solution.
6. Have students share their findings with their peers. Discuss the challenges of manipulating the code to create the desired angles.

Extension Activity

- Challenge students to program Finch to draw their triangles with lights and music. Students can take this a step further and program different light and music accompaniments for different angle and triangle types.
- Have the students complete this activity in the BirdBlox app with more advanced coding options.