## Math Live - Triangles: Assessment Task

Grade: 6 Strand: Shape and Space (3-D Objects and 2-D Shapes) Outcome: 4

| SPECIFIC LEARNER OUTCOME - Space and Shape (3-D Objects and 2-D Shapes) |  |
| :--- | :--- |
| SS 4 | Construct and compare triangles, including: |
|  | - scalene |
| - isosceles |  |
| - equilateral |  |
| eright |  |
| e obtuse |  |
| e acute |  |
| in different orientations. |  |

## PROCESSES <br> Communication (C), Connections (CN), Mental Mathematics and Estimation (ME), Problem Solving (PS), Reasoning (R), Technology (T), Visualization (V) <br> C, PS, R, V

## EVIDENCE the student has achieved the outcomes

## Each student will

- Recognize that the sides of a triangle may be different lengths.
- Describe equilateral, isosceles, and scalene triangles according to the number of equal sides.
- Classify triangles according to their side measures.
- Construct models of equilateral, isosceles, and scalene triangles.
- Demonstrate that the length of the sides will determine whether or not three line segments can form a triangle.


## TEACHER NOTE

- In this assessment task, students will be asked to demonstrate their understanding of equilateral, isosceles, and scalene triangles. They will create models of each type of triangle using straws and then draw and label these models. Students then prove one of their models is an isosceles triangle, without measuring, by comparing the relative lengths of each side of their model. Students also provide an example of three line segments that cannot form a triangle.
- Watch for students who have the misconception that the third side of an isosceles triangle must be longer (or shorter) than the other two equal sides. Students should understand that either case is possible.

- Materials required: straws (not flex straws), scissors, rulers (optional), coloured pencils, pipe cleaners or tape, one sheet of $81 / 2 \times 11$ white paper per student.
- Students should be able to demonstrate that three straight line segments may not always form a triangle. Students are not expected to articulate the rule: the sum of the lengths of the two smallest sides must be greater than the length of the longest side in order to form a triangle $a+b>c$

- Students can also use pipe cleaners to attach their pieces of straws together.
- Early finishers can draw and decorate a sail they would like to make.

The grade 2 class is constructing triangular sails for boats to be used in studying buoyancy in science. You have been asked to work with a grade 2 student to create models using straws of possible triangular sails.

1. Use drinking straws to build a model of each type of the following triangular sails: equilateral, isosceles, and scalene.
2. Trace and label each model on the paper provided.
3. Explain to your grade 2 partner how you know you have a model of each of the three types of triangles. Write your explanation below.
4. For each triangle you traced, colour any sides that are of equal length the same colour.
5. Without using a ruler, how could you prove one of your models is an isosceles triangle? Use words and pictures to show your thinking.
6. Model, then draw, an example of when 3 lengths of straw cannot form a triangle. Label your drawing.

## Math Live - Triangles: Scoring Guide

|  | Constructs and describes triangles <br> Questions \#1, \#2, \#3 and \#4 | Develops a strategy to prove a triangle is isosceles <br> Question \#5 | Demonstrates knowledge that three line segments may not always form a triangle <br> Question \#6 |
| :---: | :---: | :---: | :---: |
| Wow! | Accurately constructs and describes triangles according to the number of equal sides | Proves a triangle is isosceles by comparing the relative lengths of the three sides | Clearly illustrates a meaningful example of three line segments that do not form a triangle |
| Yes |  | Proves a triangle is isosceles by measuring each of the three sides and comparing these measures | Illustrates a specific labeled example of three line segments that do not for a triangle |
| Yes, but... | Partially constructs triangles and/or only writes the side measures of specific examples of each type of triangle | Proves a triangle is isosceles by visually estimating the lengths of the three sides | Provides a specific unlabeled example of three line segments which will not form a triangle |
| No, but... | Inaccurately constructs triangles and/or incorrectly describes them according to the number of equal sides | Correctly or incorrectly describes an isosceles triangle with no strategy to prove that two sides are the same length | Provides an incorrect example by drawing three line segments that will form a triangle |
| Insufficient / Blank | No score awarded due to insufficient evidence of student learning based on the requirements of the assessment task | No score awarded due to insufficient evidence of student learning based on the requirements of the assessment task | No score awarded due to insufficient evidence of student learning based on the requirements of the assessment task |

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You could put the straws together so you can see which is longer or shorter.
(1) $\square$

(2)

Two are the same and I is different = isosceles
8. Model, then draw, an example of when 3 lengths of straw can not form a triangle. Label your drawing.

6. Model, then draw, an example of when 3 lengths of straw can not form a triangle. Label your drawing.


CREATING TRIANGULAR SAILS - Student Assessment Task
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4. For each triangle you traced, colour any sides that are of equal length the same colour.
5. Without using a ruler, how could you prove one of your models is an isosceles triangle. Use words and pictures to show your thinking.

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a) no strategy described
b) Misconception, the two equal sides are not necessarily shorter than the third side in an isosceles triangle
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