**Supplementary Activity**

**Unit 3 Investigation 2**

**The Triangle Inequality**

**Can any three lengths be the sides of a triangle? Use this activity to find out.**

Open the file at <http://tube.geogebra.org/material/simple/id/2882905>.

1. Move the Blue, Green, and Orange sliders to form 5 different triangles, and enter data in the chart below.

2. Then move the sliders again to find 5 situations when the triangle does not exist and enter data in the chart.

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| --- | --- | --- | --- | --- | --- |
| Column 1 | Column 2 | Column 3 | Column 4 | Column 5 | Column 6 |
| Blue + Green | Orange | Green + Orange | Blue | Blue + Orange | Green |
| **Examples where triangle exists** | | | | | |
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| **Examples where triangle does not exist** | | | | | |
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3. Use data from the table to make a conjecture about what must be true if the three lengths form a triangle.

Hint: Compare Column 1 (Blue + Green) with Column 2 (Orange),

Column 3 (Green + Orange) with Column 4 (Blue), and

Column 5 (Blue + Orange) with Column 6 (Green).

State your conjecture here:

4. Test your conjecture with other examples. What did you find?