

Anticipation-Reaction Guide: Mathematics Sample

Before reading: Think about whether you agree or disagree with each statement written below. Tell why or why not.

During reading: Look for evidence that supports or presents a counterargument for each statement. Write your evidence in the Evidence column and record the page number where you found it.

| Statement | Reader's Opinion | Evidence | Page | Discussion | Reader's Conclusion |
|--|--|---|--|--|--|
| 1. A triangle could have one right, one obtuse, and one acute angle. | <i>I disagree because I think it would have too many degrees.</i> | <i>A right angle has 90 degrees. An obtuse angle has more than 90 degrees. An acute angle has less than 90 degrees. A triangle has 180 degrees.</i> | <i>Small-group activity, textbook page x</i> | <i>Our activity showed that my guess was correct. A right angle plus an obtuse angle would be more than 180 degrees already, even without the acute angle.</i> | <i>A triangle cannot have one right angle, one obtuse angle, and one acute angle because the sum of the angles would be more than 180 degrees.</i> |
| 2. A quadrilateral could have three obtuse angles and one acute angle. | <i>I disagree because I think the three obtuse angles would have too many degrees.</i> | <i>An obtuse angle has more than 90 degrees. An acute angle has less than 90 degrees. A quadrilateral has 360 degrees.</i> | <i>Textbook page x</i> | <i>I change my opinion because I saw the examples in the book with 100 degrees for each obtuse and 60 degrees for the acute angle. It is kind of like the one above, but a quadrilateral has 360 degrees, not 180 degrees.</i> | <i>A quadrilateral could have three obtuse angles and one acute angle as long as the sum of their measurements equals 360 degrees.</i> |
| 3. A triangle could have three acute angles. | <i>I disagree, because I think it would not be enough degrees.</i> | <i>An acute angle is less than 90 degrees. A triangle has 180 degrees. 180 divided by 3 = 60 degrees.</i> | <i>Small-group activity, textbook page x</i> | <i>I change my opinion because I saw that a triangle can have three angles less than 90 degrees. In fact, an equilateral triangle has three 60-degree angles.</i> | <i>A triangle can have three acute angles as long as their sum is 180 degrees.</i> |

After reading: Discuss how the evidence relates to your opinion. State your conclusion about the statement, using the text evidence.

TEKS information on the next page.

Mathematics TEKS

Grade 6:

- (6) Geometry and spatial reasoning. The student uses geometric vocabulary to describe angles, polygons, and circles. The student is expected to:
- (B) identify relationships involving angles in triangles and quadrilaterals;

Below are some sample statements (and corresponding TEKS) that could form the basis for Anticipation-Reaction Guides in grades 7 and 8.

Grade 7:

- (2) Number, operation, and quantitative reasoning. The student adds, subtracts, multiplies, or divides to solve problems and justify solutions. The student is expected to:
- (C) use models, such as concrete objects, pictorial models, and number lines, to add, subtract, multiply, and divide integers and connect the actions to algorithms;

SAMPLE STATEMENTS for an ANTICIPATION-REACTION GUIDE:

The difference of two positive integers is always positive.

The sum of two negative integers is always negative.

The product of two negative integers is always negative.

The sum of two integers is always greater than the original addends.

Grade 8:

- (10) Measurement. The student describes how changes in dimensions affect linear, area, and volume measures. The student is expected to:
- (A) describe the resulting effects on perimeter and area when dimensions of a shape are changed proportionally; and
 - (B) describe the resulting effect on volume when dimensions of a solid are changed proportionally.

SAMPLE STATEMENTS for an ANTICIPATION-REACTION GUIDE:

If the side lengths of a rectangle are doubled, the perimeter of the rectangle doubles.

If the side length of a cube is tripled, the volume of the cube triples.

If the area of a square is halved, the side length of the square is halved.

SOURCE: TEA, 2006.