**Activity 1.2.5 Translation Mapping Notation**

Access this dynamic GeoGebra activity by clicking on the following link: <http://tube.geogebra.org/student/mbm3qUaJP>

**How to Dynamically Modify and Translate Shape *While Completing the Activity***

* The **original shape (blue object)** can be modified by dragging any vertex and moving it to a different location.
* Use the **horizontal and vertical arrows** (along the *x*-axis & *y*-axis) to make a new shape identical to the blue one except for its position. change the translation vector.
* Use the tick box **"Show New Shape"** to see the overall distance and direction moved as a result of the horizontal and/or translation.
* Use the tick box **"Show Resultant Vector"** to see the overall distance and direction moved.
* Use the tick box **"Show All Vectors"** to see arrows between points in the original shape to corresponding points in the new shape.
* ***Translation Notation*** displays the **mapping rule** for the translation so you can see the effects of changes in the vector on the values of *h* and *k*.

The general form of the mapping rule is **(*x*, *y*) 🡪 (*x* + *h*, *y* + *k*)**

1. Alter the position of the **vertical arrow** and observe the changes to all shapes, vectors and values of *h* and *k* in the Translation Notation mapping rule.

What conclusions can you draw about the position of the Resultant Vector and the values of *h* and *k* in the mapping rule when the vertical arrow is moved?

1. Alter the position of the **horizontal arrow** and observe the changes to all shapes, vectors and values of *h* and *k* in the Translation Notation mapping rule.

What conclusions can you draw about the position of the Resultant Vector and the values of *h* and *k* in the mapping rule when the horizontal arrow is moved?

1. How can you change the value of *h*?
2. How can you change the value of *k*?
3. Is it possible to get the two shapes to coincide? How?
4. What do you notice about the vectors when you show all of them?
5. What happens when you change the shape by moving one or more of the vertices?