Good practices
PROG_203CD_EN

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Description of the problem / exercise: **Poly-Universe and GeoGebra - Derivation of small, medium, large triangles (squares) from each other**

One can also ask the question, how can each large, medium and small triangle or square be derived from each other and by which transformations? For example, consider the notation in Figure 1 to derive the medium from the large triangle. The large triangle AEH is rotated by 120° about D, and then reduced by ½ from point B to get the medium triangle BGF. Using GeoGebra's dynamic capabilities, we can do this spectacularly using two sliders. We adjust the sliders so that while on one the angle increases from 0° to 120°, on the other the ratio decreases from 1 to 0.5, Figure 2.

Figure 1

Figure 2

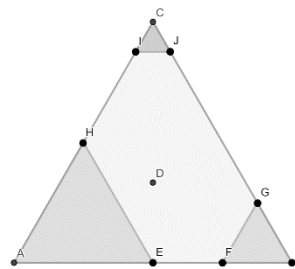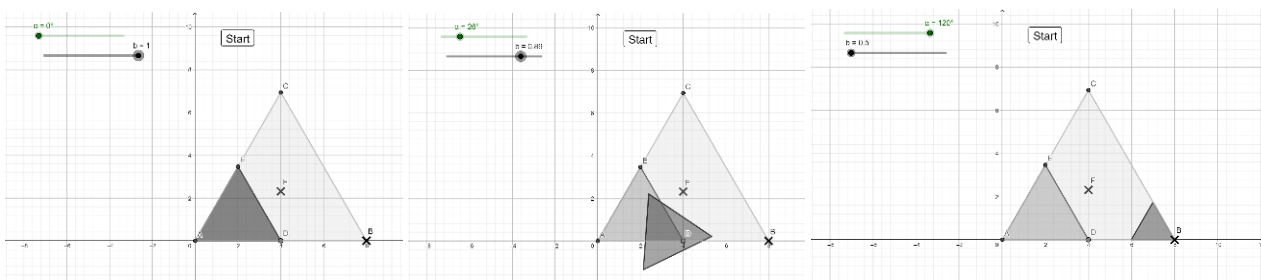https://www.geogebra.org/classic/phsusdky

- *Why this exercise is good:* The making of the above structures can provide numerous insights and points of connection. Mathematics: complex transformations GeoGebra: Simultaneous application of sliders

- *Which level is recommended:* Secondary school, teacher training (mathematics, IT)

- *School subject(s):* mathematics, IT, arts