# Good practices
PROG_202BC_EN

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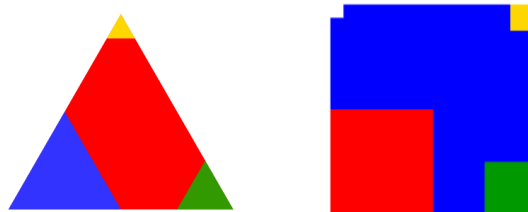
Description of the problem / exercise:
Representation of the Poly-Universe basic elements with GeoGebra

The basic Poly-Universe shapes of triangle, almost square (hereafter just square), almost circle (hereafter just circle) are easy to represent in GeoGebra. There are several ways to construct triangles and squares. One method uses only regular polygons and bisectors. Much more exciting is the other option, which starts from the basic shape and obtains the vertex shapes with enlargement from point, as shown in Figure. The large triangle (AEH) is obtained from the basic shape (ABC) with center A of ½ ratio, the medium (FBG) with center B of ¼ ratio, and finally the small triangle (IJC) with center C of 1/8 ratio by a similarity of centers. Thus, in just a few steps, the entire basic element can be constructed.
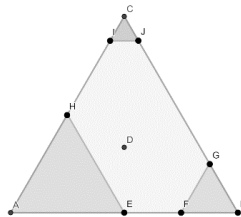
You can achieve the desired colored shapes by the settings of the triangles and squares (color → opacity → 100, style → line thickness →0). In the case of the square, the hole is also edited and then colored white.

https://www.geogebra.org/classic/kwevkxdj
https://www.geogebra.org/classic/zxkwzauf
https://www.geogebra.org/classic/tjdsgxkh

- *Why this exercise is good*: The edits above can provide countless outsights and points of connection. First of all, there are mathematical connections. We can talk about the properties of the enlarge from point for different proportions, the area of similar polygons.
- *Which level is recommended*: Upper primary school, secondary school (10-18 years)
- *School subject(s)*: mathematics, IT, arts