**Origami Polyhedral Globe**

Let’s make the polyhedral globe with modular Origami and think about the way to represent a sphere as a polyhedron. To begin, we take a world map that has been projected onto the surface of 10 squares and 8 triangles. (Separate PDF file.)

Steps:

1. Cut out the paper into 2 modified octagons.
2. Make folds and creases on the paper. (Noted as mountain folds and valley folds.)
3. Alternately combine the square faces.
4. Referring to an atlas, identify the north pole and south pole.
5. Draw lines on the Earth.

Equator (red color), Prime meridian (blue color)

1. Identify the main meridian for your country.

(e.g., Japan standard time meridian (JSTM)：135 degrees east longitude)

Let’s think about the benefits of polyhedral globe.

(Encourage students to consider this topic. Then introduce the information below.)

Further information:

You can see the large world map on the outer wall of the school library. (Located in Ritsumeikan Junior & Senior High School). This rectangular world map called an AuthaGraph (derived from the Greek words “authalic” and “graph”.) It is made by equally dividing a spherical surface into 96 triangles, while maintaining areas proportions. The world map can be tied in any directions without visible seams. Hajime Narukawa, a Japanese architect, invented this map in 1999.

By tiling this map, a new world map with triangular, rectangular or parallelogram outlines can be framed out with various regions at its center without visible seams. The AuthaGraph World Map aims to provide a new point of view that are applicable to various purposes.

Reference:

Jun Maekawa. (2016). Folding Geometry – More than 60 unconventional Origami modules. Nippon Hyoron Sha, Co., Ltd., Tokyo 127pp.