Supplement: Instruction Sheet

Geoband Workshop Instruction Sheet

Objective: Construct a closed bending-active skeletal structure resembling a soccer ball using Geoband strips, comprising 12 pentagonal and 20 triangular regions.

Materials (per group of 4–6 participants):
- 120 Geoband strips (60 black/10.9 cm, 30 white/12 cm, 30 red/12.3 cm, optional 10 green/10.7 cm, all 1 cm wide)
- 200 connector buttons
- Workspace (minimum 1 m^2)

Steps:
1. Basic Operations (15 min): Join bands by overlapping end holes of one band with middle holes of another, inserting a connector button. Maintain "end hole over middle hole" orientation. Practice connecting 3–4 bands at a node.

2. Basic Module Construction (15 min): Use 3–5 bands to form a closed ring (e.g., triangular, square, or pentagonal module). Ensure bands are staggered and connected at end holes (Figure 2).

3. Expand the Pattern (20 min): Add bands to vertices or implied faces of the base module to form secondary modules (e.g., triangles). Build a dome-like structure (Figure 3, 4).

4. Finalize and Close (10 min): Connect bands to form a closed structure with 12 pentagonal and 20 triangular regions. Check for loose connections and add buttons as needed (Figure 5, 6).

5. Module Applicability (20 min): Experiment with different module shapes, band lengths, deformations, or freeform designs (Figures 7, 8).

6. Cleanup (10 min): Disassemble structures, sort materials, and share experiences.

Visual Guides:
- Figure 2: Pentagon (make 12) and triangle (make 20) modules.
- Figure 3: Construction sequence (A–F, top and bottom rows).
- Figure 4: Completed structures.
- Figure 5: Variations with 120 strips.
- Figure 6: Freeform creations.

Notes:
- Geobands are available from On Education Company (mjeong10@naver.com).
- High-resolution images (Figures 2–8) are provided in the submission.